



Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

FREEDOM OF INFORMATION ACT/PRIVACY PROGRAM

February 3, 2023

In reply refer to: FOIA #BPA-2020-01153-F

SENT VIA EMAIL ONLY TO: nathan@gorgefriends.org

Nathan Baker
Senior Staff Attorney
Friends of the Columbia Gorge
333 SW 5th Avenue, Suite 300
Portland, OR 97204-1707

Dear Mr. Baker,

This communication is the Bonneville Power Administration's (BPA) second partial response to your request for agency records made under the Freedom of Information Act, 5 U.S.C. § 552 ("FOIA"). Your request was received on September 25, 2020, and formally acknowledged on October 2, 2020. A first partial response of records was provided to you on January 27, 2023.

Request

"...records involving the Summit Ridge Wind Farm ("Summit Ridge"), proposed in Wasco County, Oregon: All records created or transmitted on or since January 1, 2018 and related to the Summit Ridge Wind Farm, including any letter, document, note, electronic file, map, email, text message, voice message, recording, invoice, budget estimate or projection, project plans, project designs or schematics, or any other record or information that was prepared, sent, or received by any BPA employee or representative; All communications created or transmitted on or since January 1, 2018 between any BPA employee or representative and any of the following persons: Any employee or representative of Summit Ridge Wind, LLC; Any employee or representative of Summit Ridge Wind Holdings, LLC; Steven Ostrowski (aka Steve Ostrowski); Kevin Wetzel, Pattern Energy; Dyann Blaine, Pattern Energy; Moe Hajabed, Aypa Power (formerly NRStor); [and] Christie Kneteman, Aypa Power (formerly NRStor)."

Second Partial Response

BPA searched for and gathered records responsive to your request. In an effort to both accommodate the review of the large volume of responsive records, and to provide the records expediently within the limitations of available agency resources, BPA is releasing responsive records to you in installments, as permitted by the FOIA. A second partial release of responsive records accompanies this communication.

BPA collected 2,407 pages of responsive records from the Agency's Outlook email system and from knowledgeable personnel in the Customer Service Engineering Western Engineering office

and the Transmission Sales office. Of those 2,407 pages, BPA released 1,094 pages as a first partial response to your FOIA request. Of those 2,407 pages, BPA is now releasing 779 pages as a second partial response to your FOIA request. Note that some small number of pages released in the first partial response may be duplicated in the second partial response; this minor duplication of pages occurred in electronic processing.

The second partial response to your request includes redactions applied to 17 pages, made under 5 U.S.C. § 552(b)(2) (Exemption 2); and redactions applied to 96 pages, made under 5 U.S.C. § 552(b)(4) (Exemption 4); and redactions applied to 78 pages, made under 5 U.S.C. § 552(b)(6) (Exemption 6). The redactions enumerated above may appear at more than one instance on a particular page. A more detailed explanation of the applied exemptions follows.

Explanation of Exemptions

The FOIA generally requires the release of all agency records upon request. However, the FOIA permits or requires withholding certain limited information that falls under one or more of nine statutory exemptions (5 U.S.C. §§ 552(b)(1-9)). Further, section (b) of the FOIA, which contains the FOIA's nine statutory exemptions, also directs agencies to publicly release any reasonably segregable, non-exempt information that is contained in those records.

Exemption 2

Exemption 2 permits withholding of material "related solely to the internal personnel rules and practices of an agency". BPA relies on Exemption 2 here to protect certain telephonic passcodes and intranet access portals from public release. Records protected by Exemption 2 may be discretionarily released. As encouraged by the FOIA, BPA has considered a discretionary release and determined that the subject information should not be discretionarily released because a public release would hinder BPA internal procedures and policies.

Exemption 4

Exemption 4 protects "trade secrets and commercial or financial information obtained from a person [that is] privileged or confidential." (5 U.S.C. § 552(b)(4)). Information is considered commercial or financial in nature if it relates to business or trade. This exemption is intended to protect the interests of both the agency and third party submitters of information. Prior to publicly releasing agency records, BPA was required by Exemption 4 to solicit objections to the public release of any third party's confidential commercial information contained in the responsive records set. The gathered records contain third party information belonging to Aypa Power, Pattern Energy, and Summit Ridge Wind, LLC. In compliance with the FOIA and U.S. Department of Justice (DOJ) guidance on the application of Exemption 4, BPA reached out to those information submitters and provided them with a records review and objection opportunity. Those submitters each submitted their objections to BPA. BPA accepted those objections, based on guidance available from DOJ, and is withholding Aypa Power, Pattern Energy, and Summit Ridge Wind, LLC commercial confidential information from public release. The FOIA does not permit a discretionary release of information otherwise protected by Exemption 4.

Exemption 6

Exemption 6 serves to protect Personally Identifiable Information (PII) contained in agency records when no overriding public interest in the information exists. BPA does not find an overriding public interest in a release of the information redacted under Exemption 6—specifically, signatures, landowner identifying information, personal emails, and phone numbers found on the accompanying records. This information sheds no light on the executive functions of the agency and BPA finds no overriding public interest in its release. BPA cannot waive these redactions, as the protections afforded by Exemption 6 belong to individuals and not to the agency.

Lastly, as required by 5 U.S.C. § 552(a)(8)(A), information has been withheld only in instances where, (1) disclosure is prohibited by statute, or (2) BPA foresees that disclosure would harm an interest protected by the exemption cited for the record. When full disclosure of a record is not possible, the FOIA statute further requires that BPA take reasonable steps to segregate and release nonexempt information. The agency has determined that in certain instances partial disclosure is possible, and has accordingly segregated the records into exempt and non-exempt portions.

Fees

There are no fees associated with processing your FOIA request.

Certification

Pursuant to 10 C.F.R. § 1004.7(b)(2), I am the individual responsible for the records search and information release described above. Your FOIA request BPA-2020-01153-F remains open, with available agency records still under process.

Remaining Records to Process

As mentioned, the FOIA permits releasing records to you in partial installments. A discussion of future records reviews and releases follows, with an invitation to you to provide your feedback and preferences.

Critical Energy/Electric Infrastructure Information

BPA has determined that approximately 508 pages of agency records responsive to your FOIA request may contain Critical Energy/Electric Infrastructure Information (“CEII”). CEII is defined by the Federal Energy Regulatory Commission (FERC) as information related to critical electric infrastructure, or proposed critical electrical infrastructure, generated by or provided to FERC, or to other Federal agencies, that is designated as CEII by FERC, or by the Secretary of the U.S. Department of Energy (“DOE”), pursuant to section 215A(d) of the Federal Power Act. Specifically, CEII is engineering, vulnerability, or detailed design information about proposed or existing critical infrastructure (physical or virtual) that: relates details about the production, generation, transmission, or distribution of energy; could be useful to a person planning an attack on critical infrastructure; is exempt from mandatory disclosure under the FOIA; and gives strategic information beyond the location of the critical infrastructure. Critical electric

infrastructure means a system or asset of the bulk-power system, (physical or virtual) the incapacity or destruction of which would negatively affect national security, economic security, public health or safety, or any combination of such matters.

The records that may contain CEII include Scope of Work documents that include detailed technical design requirements, Transmission System Standards that describe physical security requirements in the design of the substation and the control/relay house equipment layout, substation diagrams, metering diagrams, Physical Security requirements for facilities, and email exchanges between BPA staff in Transmission and Physical Security about the required physical security for the proposed facility.

Your Feedback Requested

BPA will undertake the required evaluation of the pages described above, including consults with DOE. Historically, those review efforts have been time consuming. BPA here solicits your interest in those pages potentially subject to CEII designation described above. With your permission, BPA will omit processing those pages and proceed to close out your request. If you do want to obtain these remaining pages, the agency will commence that review and approval effort with DOE. Please let the agency know your preference regarding these remaining pages, either way, by March 1, 2023.

Appeal

Note that the records release certified above is partial. Additional records releases will be forthcoming as agency resources and records volumes permit. Pursuant to 10 C.F.R. § 1004.8, you may appeal the adequacy of the records search, and the completeness of this partial records release, within 90 calendar days from the date of this communication. Appeals should be addressed to:

Director, Office of Hearings and Appeals
HG-1, L'Enfant Plaza
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585-1615

The written appeal, including the envelope, must clearly indicate that a FOIA appeal is being made. You may also submit your appeal by e-mail to OHA.filings@hq.doe.gov, including the phrase "Freedom of Information Appeal" in the subject line. (The Office of Hearings and Appeals prefers to receive appeals by email.) The appeal must contain all the elements required by 10 C.F.R. § 1004.8, including a copy of the determination letter. Thereafter, judicial review will be available to you in the Federal District Court either (1) in the district where you reside, (2) where you have your principal place of business, (3) where DOE's records are situated, or (4) in the District of Columbia.

Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows:

Office of Government Information Services
National Archives and Records Administration
8601 Adelphi Road-OGIS
College Park, Maryland 20740-6001
E-mail: ogis@nara.gov
Phone: 202-741-5770
Toll-free: 1-877-684-6448
Fax: 202-741-5769

Next Partial Release Target Date

Absent your response to the inquiry above, BPA will continue to review and process the remaining responsive records collected in response to your request. Required exemption reviews are ongoing. In light of the above conditions and determinations BPA currently estimates a next partial response to your FOIA request by April 28, 2023. BPA again invites you to contact us to narrow the scope of your request, if desirable, or discuss this estimated completion date.

Questions about this communication or the status of your FOIA request may be directed to James King, FOIA Public Liaison, at jjking@bpa.gov or 503-230-7621.

Sincerely,

Candice D. Palen
Freedom of Information/Privacy Act Officer

[Responsive agency records accompany this communication.](#)

From: Simpson, Troy D (BPA) - TOI-DITT-2

Sent: Mon Aug 24 13:21:48 2020

To: Lockman, Christopher L (BPA) - TSE-TPP-2; Boehle, Jennifer M (TFE)(BPA) - TSES-TPP-2; Nichols-Kinas, Lauren (BPA) - TPLC-TPP-2; Steven Ostrowski, jmarchand@aypa.com; jbruno@aypa.com; Cherise Nielsen; Rademacher, Katherine L (TFE)(BPA) - TOOS-DITT-1; Quinn Havart

Subject: Cluster Study Discussion - Aypa Questions Added

Importance: Normal

Hi Jen, Troy,

We've compiled some questions for BPA regarding TSRs and upcoming cluster study – I've included them below, in the event we can't get through all of them on the call. Thanks very much!

1. What should we enter in the SOURCE field when we're submitting the TSRs in webOASIS given the project will connect to the new (not yet constructed) (b) (4) (b) (4)
 - o Understand we need to provide the IX Request Number (G0345) and geographical reference point. Being that the substation location is not yet finalized and that this info cannot be changed once the TSR is submitted - is it acceptable to provide the location as (b) (4) (b) (4) on the (b) (4) (b) (4). Or Summit Ridge in Wasco County Oregon"?

2. How long does it typically take for the TSR status to change to RECEIVED after we submit?

3. Our understanding is that the TSR Deposit must be deposited with BPA, or into an Escrow Account, by Close of Business 5 Business Days after the TSR status is changed to RECEIVED in webSmartOASIS.
 - o When does the BPA Processing Fee (\$2500/request) have to be submitted?
 - o How long does it typically take for status to change to RECEIVED?
 - o Will the fact that our Source is a "Newpoint" increase timelines? By how much?
 - o How long does it typically take to set up an Escrow Account? Do you think this option is feasible for us at this stage?

4. What is the purpose of the "Price" field in the TSR request form in webOASIS - is this just the LTF PTP rate in BPA's current tariff (i.e., \$1.533/kW-month) or does this have any bearing on the competitiveness of our TSR? -
 - o Do you recommend we use the "GET PRICE" button?

5. How many days do we have to CONFIRM or REJECT a TSR once it is offered to us by BPA?

6. Can you explain the Cluster Study process for TSRs that are not offered Long Term Firm service?

o Can you confirm that the only requirement to be considered for Conditional Firm Service will be to indicate that we'd like to be considered for CFS in the Customer Comments field of the TSR?

7. If our PODs are with neighboring utilities, do we have to participate in any additional transmission rights processes or follow a specific process for TSRs with BPA?

8. Can you assist us with the payment details?

9. Can you point us to banks and escrow agents accepted by BPA?

10. Rollover rights - understanding is that by leaving this field blank in OASIS we **will** be considered for rollover rights. Please confirm.

11. Can you explain the process to be considered for Partial Service for a long-term TSR and the Remainder TSR?

At the appointed time, dial one of the following numbers:

(b)(2) (toll free)

When prompted, enter the Call ID (b)(2) followed by the # key

To mute your line: Press the mute button or *6.

To unmute your line: Press the mute button again or #6.

DO NOT put your phone on hold or pick up another line while connected to the audio conference/bridge.

Doing so will play Hold Music for everyone else to hear during the conference.

Just hang up and re-join the conference at a later time.

From: Simpson,Troy D (BPA) - TOI-DITT-2

Sent: Mon Aug 24 11:22:00 2020

To: Quinn Havart; Juliana Bruno; Christie Kneteman

Cc: Boehle,Jennifer M (TFE)(BPA) - TSES-TPP-2; Nichols-Kinas,Lauren (BPA) - TPLC-TPP-2

Subject: RE: IMPORTANT: CONTRACT FOR SIGNATURE DUE BY SEPTEMBER 7, 2020 _ BPA/Aypa Power 20TX-16994 _ Service Agreement

Importance: Normal

Hi Quinn,

I'm just checking when you expect to return the executed agreement.

As you know, we need the executed agreement, TSR and Data Exhibit all accepted before the close of the cluster study (August 31st). We'd like to see it completed as soon as possible to allow some room to troubleshoot any issues that may come up. I didn't want you misinterpreting the original email below as an indication you have more time to get this stuff done. I've invited you to a meeting we have scheduled with other Aypa staff later today to discuss.

Thanks,

Troy

From: Simpson, Troy D (BPA) - TOI-DITT-2

Sent: Friday, August 21, 2020 1:52 PM

To: Quinn Havart <qhavart@aypa.com>; 'Juliana Bruno' <jbruno@aypa.com>; Christie Kneteman <ckneteman@aypa.com>

Cc: Boehle, Jennifer M (TFE)(BPA) - TSES-TPP-2 <jmboehle@bpa.gov>; Nichols-Kinas, Lauren (BPA) - TPLC-TPP-2 <lnichols@bpa.gov>

Subject: FW: IMPORTANT: CONTRACT FOR SIGNATURE DUE BY SEPTEMBER 7, 2020 _ BPA/Aypa Power 20TX-16994 _ Service Agreement

Importance: High

Hi Quinn,

Please note, per the advance notice for the 2021 cluster study link below, it's very important to have both the transmission service request in OASIS and the appropriate Data Exhibit (PTP or NT) before the deadline. In order for those things to happen we need the contract back to us as soon as possible so we can configure you to create the TSR in OASIS.

There are no extensions to these timelines so please let us know if we can help.

Thanks,

Troy

<https://www.bpa.gov/transmission/CustomerInvolvement/TSRStudyExpansionProcess/Documents/063020-advance-notice-2021-cluster-study-final.pdf>

From: txsalescontracts <txsalescontracts@bpa.gov>
Sent: Friday, August 21, 2020 1:34 PM
To: 'qhavart@nrstor.com' <qhavart@nrstor.com>
Cc: CCM_Support <CCM_Support@bpa.gov>; Simpson, Troy D (BPA) - TOI-DITT-2 <tdsimpson@bpa.gov>;
Boehle, Jennifer M (TFE)(BPA) - TSES-TPP-2 <jmboehle@bpa.gov>
Subject: IMPORTANT: CONTRACT FOR SIGNATURE DUE BY SEPTEMBER 7, 2020 _ BPA/Aypa Power 20TX-16994 _ Service Agreement
Importance: High

Good afternoon, Quinn

The attached contract document requires Aypa Power, LLC's electronic signature by Close of Business on **September 7, 2020**.

Please electronically sign, type your title in the space provided and return to BPA by replying to this email and attaching the signed contract document.

Instructions:

- ü Click the flagged signature fields throughout the contract document, insert your signature and type in your title.
- ü Save the PDF file for your records (saving is required prior to returning by email to capture your electronic signature).
- ü Reply to this email (txsalescontracts@bpa.gov) by the date stated above and attach your signed contract document.

The enclosed cover letter provides further instructions and alternatives. If you have any questions, please contact Troy Simpson at (360) 418-8659.

Thank you,

Mindy Gibson
(Contr) SalientCRGT

TSES | Document Analyst

Bonneville Power Administration

bpa.gov | P 360-619-6080

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From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Fri Oct 05 14:56:39 2018

To: Jacobsen,Nancy L (BPA) - TFDB-THE DALLES; Roberts,Ken (BPA) - TELP-CSB-2; O'Connell,Michael J (BPA) - ECT-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; O'Donnchadha,Brian M (BPA) - ECC-4; Clark,James L (BPA) - TERR-CHEMAWA; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3; 'Kevin Wetzel'

Cc: ADL_TFDD_ALL; ADL_TFDB_ALL; Williams,Scott M (BPA) - TFDF-THE DALLES; Corcoran,James C (BPA) - TFDF-THE DALLES; Varland,Aaron T (BPA) - TFDB-THE DALLES; Fuller,Mark J (BPA) - TFDB-THE DALLES; (b) (6) McNutt,Aaron P (CONTR) - TEP-TPP-1; 'Steven Ostrowski'; tspayne@bpa.gov; tteuscher@bpa.gov; nljacobsen@bpa.gov; kmyoung@bpa.gov; maduckwall@bpa.gov; rfmeyers@bpa.gov; ccmoe@bpa.gov; rqnarciso@bpa.gov; gasmart@bpa.gov; kegorsuch@bpa.gov

Subject: RE: G05345- Boyd Ridge - Customer coordination and status update

Importance: Normal

Attachments: Boyd Information 10 05 18.zip

Good Afternoon,

Below is the meeting notes as well as the documentation requested, please let me know if any additional information is needed

Meeting Notes

BPA Status Update

Environmental update:

- Preliminary environmental species surveys are complete,
- Due to the construction time we will need nesting birds survey.
- Archology :
 - o Consultation with the tribes and SHPO has been initiated, 30-day comment period elapses by the end of October.
 - o Ground survey will done upon confirmation of the site and transmission line structure locations.

Real Property

- The property owners have agreed to the latest substation location – see attached.
- BPA will be acquiring approximately 8.5 acres for the project, this accounts for the current development as

well as the anticipated future expansion.

Contracting schedule

Design contract is moving forward, see schedule below:

Task

Date

Status

Issue RFO

08/24/2018

Complete

Offers Due

11/05/2019

Evaluation of Offers

11/12/2018 – 11/16/2018

Award Contract

12/03/2018

In service date is December 2020- I apologize I had the wrong date during the meeting

Conceptual design

Attached are Conceptual design documentation for project, please review and send us any questions.

Customer status update

No power perches agreement yet, but still talking to customers.

Still working towards 2020 ISD

Coordination meeting frequency and time

Meeting will be once monthly until the beginning of the year, then the frequency will change to bi-weekly.

Thank you so much

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Sent: Thu Jan 25 10:35:58 2018

To: Cosola,Anna M (BPA) - TPCC-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; Kevin Wetzel (Kevin.Wetzel@patternenergy.com) (Kevin.Wetzel@patternenergy.com)

Subject: RE: G0345 Summit Ridge Wind_Project Status Update

Importance: Normal

Attachments: New Scope Prelim Maps 1-25-18.pptx; 11044_03 Amendment.docx

For this afternoon's meeting.

-----Original Appointment-----

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Friday, January 12, 2018 9:10 AM

To: Cosola,Anna M (BPA) - TPCC-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; Kevin Wetzel (Kevin.Wetzel@patternenergy.com) (Kevin.Wetzel@patternenergy.com)

Subject: G0345 Summit Ridge Wind_Project Status Update

When: Thursday, January 25, 2018 1:00 PM-2:00 PM (UTC-08:00) Pacific Time (US & Canada).

Where: 293/TPP

Telephone Bridge

(b)(2)

**U.S. DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
AGREEMENT**

1. AGREEMENT NUMBER 16TP-11044	2. AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL June 29, 2021	3. AMENDMENT NO. -3-	4. EFFECTIVE DATE Same as Block #17
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ISSUED TO	ISSUED BY
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5. ORGANIZATION AND ADDRESS Pattern Renewables 2 LP ATTN: General Counsel Pier 1, Bay 3 San Francisco, CA	6. ORGANIZATION AND ADDRESS U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola – TPCCT/TPP-4 P.O. Box 61409 Vancouver, WA 98666
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7. TECHNICAL CONTACT Stan Gray	PHONE NUMBER (b) (6)	8. TECHNICAL CONTACT Rasha Kroonen	PHONE NUMBER (360) 619-6918
9. ADMINISTRATIVE CONTACT Kevin Wetzel	PHONE NUMBER (b) (6)	10. ADMINISTRATIVE CONTACT Cherilyn Randall	PHONE NUMBER (360) 619-6051

11. TITLE/BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT
AMENDMENT NO. 3: DESIGN ACTIVITIES FOR LARGE GENERATOR INTERCONNECTION REQUEST NO. G0345 PATTERN RENEWABLES 2 LP

Background: This Reimbursable Agreement (Agreement) between the Bonneville Power Administration (BPA) and Pattern Renewables 2 LP (Pattern) provides for BPA, at Pattern's expense, to perform design activities needed to interconnect Pattern's proposed 200 MW Summit Ridge Wind Project to the proposed BPA-owned (b) (4). The activities will include up to 100% design and land acquisition for the (b) (4).

BPA and Pattern agree: BPA shall, at Pattern's expense, engage in design and land acquisition needed to interconnect Pattern's Summit Ridge Wind Project. Such activities are herein referred to as Project.

This Amendment No. 3 (Amendment) to the Agreement provides for additional funds needed to design (b) (4) and acquire the land needed for (b) (4). The new estimated completion date for the design and land acquisition for this Project is October 1, 2019.

This Amendment is hereby incorporated and made a part of the original Agreement and is subject to all the provisions therein. All provisions of the original Agreement unless expressly deleted, modified, or otherwise superseded in this Amendment shall continue to be binding on all parties hereto.

The following document is attached to and becomes a part of this Amendment:

- Financial Terms and Conditions Statement, Amendment No. #3.

12. AMOUNT TO BE PAID BY BPA	13. AMOUNT TO BE PAID TO BPA (b) (4) (estimated)
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14. SUBMIT SIGNED AMENDMENT TO U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola – TPCCT/TPP-4 P.O. Box 61409 Vancouver, WA 98666	15. ACCOUNTING INFORMATION (For BPA Use Only)
	16. SUBMIT INVOICE TO (Name and Address) Same as Block #5 above.

PARTICIPANT	BPA
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17. APPROVED BY (Signature) _____	DATE (mm/dd/yyyy) _____	18. APPROVED BY (Signature) _____	DATE (mm/dd/yyyy) _____
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NAME AND TITLE	NAME AND TITLE Transmission Account Executive Transmission Sales
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FINANCIAL TERMS AND CONDITIONS STATEMENT

BPA's cost of performing the project at Pattern's expense shall be the actual cost of doing the work specified in this Agreement, plus the following overhead rates, representing the indirect costs of the project office plus the contractual support costs of contract negotiation, billing and accounting functions, and contract management.

BPA Labor	45%
Materials/Supplies/Equipment	15%
Supplemental Labor and Service Contracts	45%
Construction, Survey and Turnkey Contracts	15%

Pattern hereby agrees to advance (b) (4), the estimated Project cost, to BPA based on the following payment schedule:

Payment	Amount	Date Due
1	(b) (4)	(b) (4)
2	(b) (4)	(b) (4)
3	(b) (4)	(b) (4)
4	(b) (4)	(b) (4)

If BPA and Pattern execute a Large Generator Interconnection Agreement (LGIA), the advance funds received and costs incurred under this Amendment will be accounted for under the LGIA, which will describe the final plan of service, cost estimates and deposits, as well as the classification of those Network Upgrades eligible for credits.

If BPA needs additional funds to complete the work at any time during performance of this Agreement, BPA may request, in writing, for Pattern to advance such additional funds to BPA for deposit in the account. Pattern shall advance such additional funds within 30 days of BPA's written request, and BPA may temporarily stop work until Pattern supplies the requested funds.

If Pattern does not advance such additional funds by the due date or, if at any time before completion of the project Pattern elects to terminate or suspend work under this Agreement, BPA has the right to cease all work and restore, as a cost to the project at Pattern's expense, government facilities and/or records to their condition prior to the beginning of work under this Agreement. BPA shall then make a full accounting to Pattern showing the actual costs charged against the account, and shall either remit any unexpended balance in the account to Pattern or bill for any costs in excess of the deposits in the account. Pattern shall pay any excess costs within 30 days of the invoice date (due date).

Payments not received by the due date will accrue interest on the amount due beginning the first calendar day after due date to the date paid, at the appropriate rate calculated in accordance with the methodology specified for interest on refunds in the Federal Energy Regulatory Commission's regulations at 18 C.F.R. § 35.19a(a)(2)(iii).

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Thu Dec 06 10:02:18 2018

To: Jacobsen,Nancy L (BPA) - TFDB-THE DALLES; Roberts,Ken (BPA) - TELP-CSB-2; O'Connell,Michael J (BPA) - ECT-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; O'Donnchadha,Brian M (BPA) - ECC-4; Clark,James L (BPA) - TERR-CHEMAWA; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3; 'Kevin Wetzel'; ADL_TFDD_ALL; ADL_TFDB_ALL; Williams,Scott M (BPA) - TFDf-THE DALLES; Corcoran,James C (BPA) - TFDf-THE DALLES; Varland,Aaron T (BPA) - TFDB-THE DALLES; Fuller,Mark J (BPA) - TFDB-THE DALLES; (b) (6) McNutt,Aaron P (CONTR) - TEP-TPP-1; 'Steven Ostrowski'

Cc: Young,Kevin M (BPA) - TFDD-THE DALLES

Subject: G05345- Boyd Ridge - Customer coordination meeting 12-6-18 1

Importance: Normal

Good Morning Team,

This should be a very short meeting as we do not have extensive updates to provide from BPA:

Here are BPA updates:

- Project design contract was awarded to Leidos Engineering and BPA is currently going through the onboarding process.

- Design kickoff will be scheduled for January 2019.
- Project Management was informed that the project will require an Environmental Assessment (EA) instead of the Categorical Exclusion (CX)

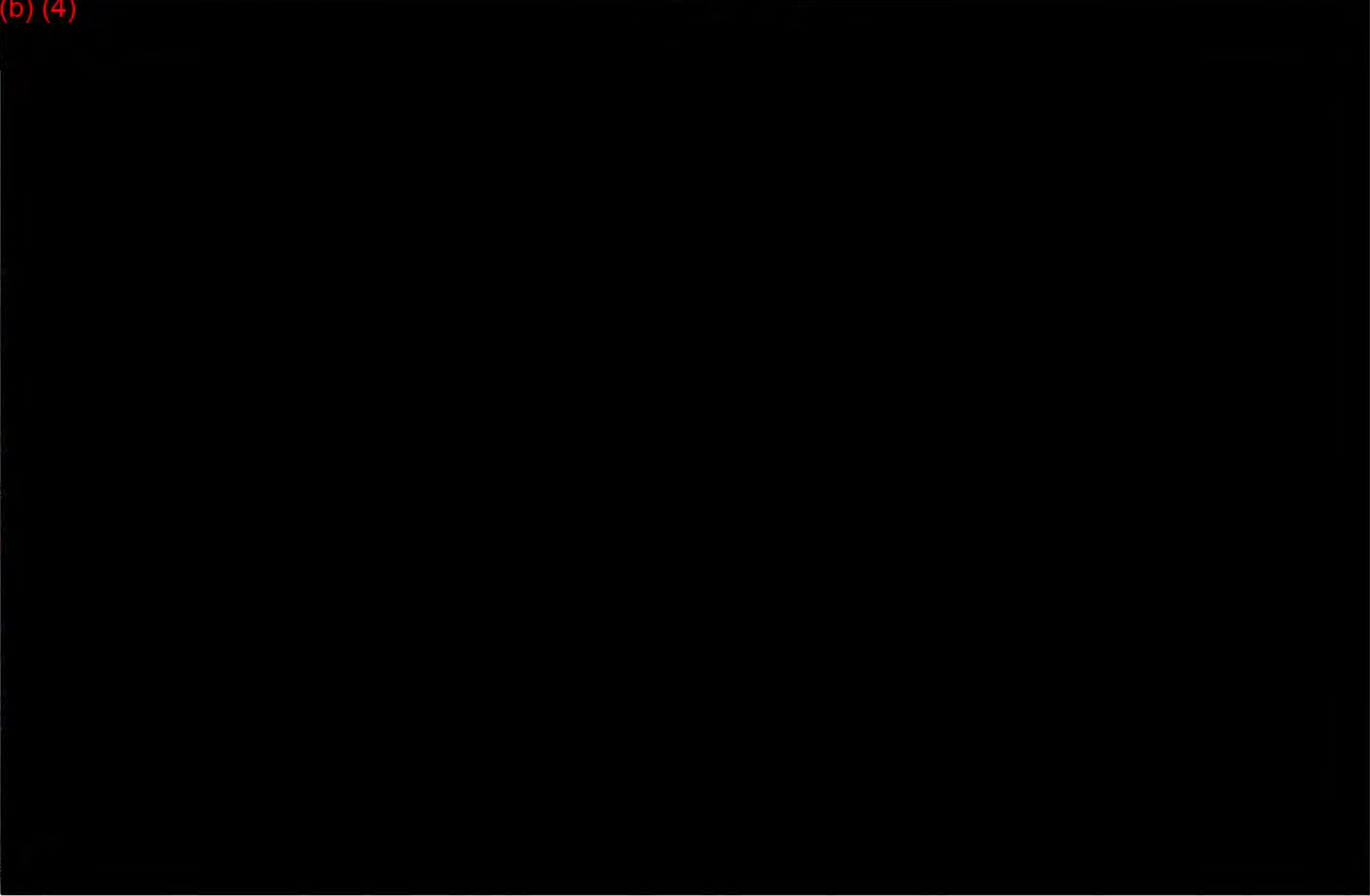
During the meeting I will be looking for updates from customer.

Thank you very much

Kind Regards,
Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration | Flux
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b) (6)
Email: rmkroonen@bpa.gov

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(b) (4)



**U.S. DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
AGREEMENT**

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1. AGREEMENT NUMBER	2. AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL	3. AMENDMENT NO.	4. EFFECTIVE DATE
16TP-11044	June 29, 2021	-3-	Same as Block #17

ISSUED TO		ISSUED BY	
5. ORGANIZATION AND ADDRESS Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP ATTN: General Counsel Pier 1, Bay 3 San Francisco, CA		6. ORGANIZATION AND ADDRESS U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola - TPCC/TPP-4 P.O. Box 61409 Vancouver, WA 98666	
7. TECHNICAL CONTACT Stan Gray	PHONE NUMBER (b) (6)	8. TECHNICAL CONTACT Rasha Kroonen	PHONE NUMBER (360) 619-6918
9. ADMINISTRATIVE CONTACT Kevin Wetzel	PHONE NUMBER (b) (6)	10. ADMINISTRATIVE CONTACT Cherilyn Randall	PHONE NUMBER (360) 619-6051

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11. TITLE/BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT
AMENDMENT NO. 3: DESIGN ACTIVITIES FOR LARGE GENERATOR INTERCONNECTION REQUEST NO. G0345 SUMMIT RIDGE WIND, LLC c/o PATTERN RENEWABLES 2 LP

Background: This Reimbursable Agreement (Agreement) between the Bonneville Power Administration (BPA) and **Pattern Renewables 2 LP (Pattern Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP (Summit Ridge))** provides for BPA, at **Pattern's Summit Ridge's** expense, to perform design activities needed to interconnect **Pattern's Summit Ridge's** proposed 200 MW Summit Ridge Wind Project to the proposed BPA-owned **(b) (4)**. The activities will include up to 100% design and land acquisition for the **(b) (4)**.

BPA and Pattern Summit Ridge agree: BPA shall, at **Pattern's Summit Ridge's** expense, engage in design and land acquisition needed to interconnect **Pattern's Summit Ridge's** Summit Ridge Wind Project. Such activities are herein referred to as Project.

This Amendment No. 3 (Amendment) to the Agreement provides for additional funds needed to design **(b) (4)** and acquire the land needed for **(b) (4)**. The new estimated completion date for the design and land acquisition for this Project is October 1, 2019.

This Amendment is hereby incorporated and made a part of the original Agreement and is subject to all the provisions therein. All provisions of the original Agreement unless expressly deleted, modified, or otherwise superseded in this Amendment shall continue to be binding on all parties hereto.

The following document is attached to and becomes a part of this Amendment:

- Financial Terms and Conditions Statement, Amendment No. #3.

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12. AMOUNT TO BE PAID BY BPA		13. AMOUNT TO BE PAID TO BPA (b) (4) (estimated)	
14. SUBMIT SIGNED AMENDMENT TO U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola - TPCC/TPP-4 P.O. Box 61409 Vancouver, WA 98666		15. ACCOUNTING INFORMATION (For BPA Use Only)	
		16. SUBMIT INVOICE TO (Name and Address) Same as Block #5 above.	
PARTICIPANT		BPA	
17. APPROVED BY (Signature)	DATE (mm/dd/yyyy)	18. APPROVED BY (Signature)	DATE (mm/dd/yyyy)
NAME AND TITLE		NAME AND TITLE Transmission Account Executive Transmission Sales	

FINANCIAL TERMS AND CONDITIONS STATEMENT

BPA's cost of performing the project at Pattern's Summit Ridge's expense shall be the actual cost of doing the work specified in this Agreement, plus the following overhead rates, representing the indirect costs of the project office plus the contractual support costs of contract negotiation, billing and accounting functions, and contract management.

BPA Labor	45%
Materials/Supplies/Equipment	15%
Supplemental Labor and Service Contracts	45%
Construction, Survey and Turnkey Contracts	15%

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Pattern Summit Ridge hereby agrees to advance (b) (4), the estimated Project cost, to BPA based on the following payment schedule:

Payment	Amount	Date Due
1	(b) (4)	(b) (4)
2	(b) (4)	(b) (4)
3	(b) (4)	(b) (4)
4	(b) (4)	(b) (4)

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If BPA and Pattern Summit Ridge execute a Large Generator Interconnection Agreement (LGIA), the advance funds received and costs incurred under this Amendment will be accounted for under the LGIA, which will describe the final plan of service, cost estimates and deposits, as well as the classification of those Network Upgrades eligible for credits.

If BPA needs additional funds to complete the work at any time during performance of this Agreement, BPA may request, in writing, for Pattern Summit Ridge to advance such additional funds to BPA for deposit in the account. Pattern Summit Ridge shall advance such additional funds within 30 days of BPA's written request, and BPA may temporarily stop work until Pattern Summit Ridge supplies the requested funds.

If Summit Ridge Pattern does not advance such additional funds by the due date or, if at any time before completion of the project Summit Ridge Pattern elects to terminate or suspend work under this Agreement, BPA has the right to cease all work and restore, as a cost to the project at Summit Ridge Pattern's expense, government facilities and/or records to their condition prior to the beginning of work under this Agreement. BPA shall then make a full accounting to Summit Ridge Pattern showing the actual costs charged against the account, and shall either remit any unexpended balance in the account to Summit Ridge Pattern or bill for any costs in excess of the deposits in the account. Summit Ridge Pattern shall pay any excess costs within 30 days of the invoice date (due date).

Payments not received by the due date will accrue interest on the amount due beginning the first calendar day after due date to the date paid, at the appropriate rate calculated in accordance with the methodology specified for interest on refunds in the Federal Energy Regulatory Commission's regulations at 18 C.F.R. § 35.19a(a)(2)(iii).

From: Hagensen, Matt L (BPA) - TPWP-TPP-4

Sent: Mon May 14 16:00:23 2018

To: Kroonen, Rasha (CONTR) - TEP-TPP-1; Roberts, Ken (BPA) - TELP-CSB-2; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Jusupovic, Jana D (BPA) - TPCV-TPP-4

Subject: BC Review - G0345 Boyd Ridge 5-14-18 1

Importance: Normal

Hi everyone,

I have a draft of the G0345 BC ready for you to review. Feel free to make any changes directly in the BC – just make sure to save and close when you are not editing it!

If you could have any changes in by noon on Thursday (5/17), it would be much appreciated!

Thanks,

Matt

(b)(2)

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Thu Jun 07 17:12:37 2018

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (BPA) - TSE-TPP-2

Cc: Roberts,Ken (BPA) - TELP-CSB-2; Belanger Jr,John E (BPA) - TFHQ-TPP-3; Legare,Jonathan L (CONTR) - TERR-3; Clark,James L (BPA) - TERR-CHEMAWA; Liebhaber,Dustin F (BPA) - TELP-TPP-3

Subject: Boyd Ridge - Meeting with the land owners 6-7-18 1

Importance: Normal

Attachments: June 2018 Owner Meeting Site Options.pdf; image001.jpg; image002.jpg; image003.jpg; image004.jpg; image005.jpg; image006.jpg; bpa alternate site.jpg

Good Afternoon Cherilyn,

As I mentioned yesterday, we had a meeting with the land owners at Boyd Ridge and received the following feedback regarding land acquisition for the project:

Current proposed site:

- Land owners were very unhappy with the location and suggested few modifications
 - o Partially shift the site footprint onto the (b) (6) (uncultivated area) about 400 feet west from where

shown on the preliminary map- provided.

- o Minimize the acreage take in the cultivated fields by revisiting the site layout and area needed for future expansion. We did not get a firm number but it sounded they would be willing to go with 8 or 10 acers.
- o Provide 130 feet of clearance on the perimeter of the site footprint to allow access to the fields. Additional clearance on the south side of the site could be obtained by filling in the non-cultivated gully with conserved topsoil.

- During the meeting Scott Wood (civil) indicated that the direct gully route is most likely not feasible.
- Depending on the ultimate size of the land needed staying with this option would be the optimum choice to keep the scoping documentation valid.

Option 2:

-
- site in the field at the top of the access road appears to be a better site for fitting our substation area needs as well as the landowners concerns.
- Attached is a map (provided by Kerry Cook) that shows rough boundaries for these two options for discussion purposes only. Final dimensions would depend on site layout and area required.

Option 3:

- The land owners also suggested moving the entire substation approximately a mile back from the current

scoped location (see alternate site- as drawn by land owner)

- I believe they indicated that 16 acers in this area might be ok (***Ken and team correct me if I am wrong***)
- Access to this site is viable
- Obviously this would require a re- scope and cause additional delay in the schedule

Next Steps:

- Ken set up a meeting with the team to study the feasibility of the options and to see if anything could be done to salvage existing scope.
- We would like to know if there is a possibility to only acquire the needed land (8 or 10 acers) for the project and not the full 16 acers.
- After coming up with a couple of alternatives we would like to check with Pattern to see what their take on this is and what can be done from their perspective.
- We promised the land owners to come back with alternatives in 2 weeks.

Please contact me with any questions

Kind Regards,

Rasha Kroonen, PMP | Senior Project Manager

Bonneville Power Administration | Flux

Transmission Project Management | TEP-TPP-1

Civil/Environmental Engineer- M.Sc. (Eng)

Office: (360) 619-6918 Cell: (b)(6)

Email: rmkroonen@bpa.gov

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From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Wed Jun 27 11:16:20 2018

To: Kroonen, Rasha (CONTR) - TEP-TPP-1; Cook, Kerry B (BPA) - TELF-TPP-3; Wood, Scott E (CONTR) - TELF-TPP-3; Randall, Cheryl C (BPA) - TPCV-TPP-4; Clark, James L (BPA) - TERR-CHEMAWA; Legare, Jonathan L (CONTR) - TERR-3; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Kelly, James C (BPA) - TESD-CSB-2

Cc: Belanger Jr, John E (BPA) - TFHQ-TPP-3

Subject: Boyd Ridge - New map and yard layout 6-27-18 1

Importance: Normal

Attachments: bydrppC1.pdf; Boyd 6-27-18 8.25 acres.jpg

Team,

I was able to get a new yard drawing with the control house moved and a parking lot included. We can save space by having the parking lot in the 100' buffer zone between the property line and the yard fence. The total acreage for a substation with a potential future build out to 4 bays breaker and a half is down to 8.25 acres. I have included the layout in this email.

I have drawn a new map using this data along with Kerry Cook's information regarding how far west we can shift the site and Scott Wood's road information. I took the extra footage saved by the latest yard layout and split the footage to the north and south. eGIS chose this particular moment to malfunction every time I try to create a printable map, telling me to contact my administrator. I took a screen grab of it to salvage my work.

Please note I did the best I could with the tools in eGIS. The site is as close as I could get to accurate with the map resolution. The road I sized as close to 30' as I could. **This is a rough map, not drawn our mapping group**, made for conversational purposes. That said, it should be pretty close in accuracy to what is required.

Final specs:

Property: Roughly 535' x 671' = ~8.24 acres total. Fenced: 335' x 471' = ~3.62 acres

Entrance Road: 20' with 5' cleared on *both* sides. Total: 30' Wide

Farm vehicle Clearance North: 260' from N property line to BPA land boundary. 360' from N property line to BPA yard fence.

Farm vehicle Clearance South: With fill zone completed, 317' to the SE BPA land boundary.

Road design was Scott's first suggestion. It will be crossable by farm equipment. Input from land owner is welcome.

Please send any comments by "reply all" so that everyone can see them and comment if needed, and/or bring them to this afternoon's meeting.

Thanks,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Wed Aug 29 11:52:22 2018

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Hagensen,Matt L (BPA) - TPWP-TPP-4; Jusupovic,Jana D (BPA) - TPCV-TPP-4

Cc: Liebhaber,Dustin F (BPA) - TELP-TPP-3; Roberts,Ken (BPA) - TELP-CSB-2; Ortega,Ricardo C (BPA) - TED-TPP-2

Subject: Boyd Ridge Line Impairment - WO Needed 8-29-18 1

Importance: High

Attachments: L3-1170-3-0.pdf

Good Morning,

I was doing some housekeeping and discovered that we never received a WO for the line impairments work.

We are out for bid on the design contract so I would like tis WO to be cut soon

Please with sugar on top J

Kind Regards,
Rasha Kroonen, PMP | Senior Project Manager

Bonneville Power Administration

Flux Resources, LLC | A David Evans Enterprises Company
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b)(6)
Email: rmkroonen@bpa.gov

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Wed Jan 10 11:43:17 2018

To: Ackerman, Robert (BPA) - TECC-CSB-2; Amrine, Liz (CONTR) - TERG-3; Brady, Brian P (CONTR) - TERS-3; Brockway, Jenny (BPA) - TPPC-OPP-3; Burn, Beverley D (CONTR) - NWM-1; Christianson, Corey C (BPA) - TFDE-THE DALLES; Gilroy, Michael J (CONTR) - TERM-TPP-4; Goldman, Rebekah S (BPA) - TECD-CSB-1; Hagensen, Matt L (BPA) - TPWP-TPP-4; Hoang, Anthony D (CONTR) - TERS-3; Hollenbeck, Justin M (CONTR) - TERM-TPP-4; Jacobsen, Nancy L (BPA) - TFDB-THE DALLES; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Kintz, Jourdan C (BPA) - TELC-TPP-3; Konency, Thomas J (BPA) - TERS-3; Kroonen, Rasha (CONTR) - TEP-TPP-1; Lee, Christina A (BPA) - TPPA-OPP-3; Legare, Jonathan L (CONTR) - TERR-3; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Loop, Laura A (BPA) - TERR-3; Lunde, Rod T (BPA) - TECR-CSB-1; Lynch, William C (BPA) - TERM-TPP-4; Mifsud, Frank D (BPA) - TERM-TPP-4; Moe, Chance C (BPA) - TFDD-THE DALLES; O'Connell, Michael J (BPA) - ECT-4; O'Donnchadha, Brian M (BPA) - ECC-4; Owen, Kenneth E (CONTR) - TPMC-OPP-3; Patterson, Shawn M (BPA) - TFD-THE DALLES; Platt, Travis J (BPA) - TERG-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Sager, Andrew (CONTR) - TERM-TPP-4; Schmidt, Patrick L (BPA) - TFDC-THE DALLES; Tabata, Mason I (BPA) - TECT-CSB-1; Thurston, Jamie S (CONTR) - TERM-TPP-4; Wahrgren, Robert O (CONTR) - TELD-TPP-3; Williams, Scott M (BPA) - TDFD-THE DALLES; Wong, Christopher M (CONTR) - TELC-TPP-3; Wood, Scott E (CONTR) - TELF-TPP-3

Subject: Boyd Ridge Meeting Notes from Yesterday 1-10-18 1

Importance: Normal

Attachments: Boyd Meeting Notes 1-9-18.docx

Team,

Attached are the meeting notes from our team meeting yesterday. Thank you everyone for your participation, we got a lot of important material covered and decisions made.

Best Regards,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Fri Jul 27 09:33:17 2018

To: Wood, Scott E (CONTR) - TELF-TPP-3; Cook, Kerry B (BPA) - TELF-TPP-3; Belanger Jr, John E (BPA) - TFHQ-TPP-3; Randall, Cheryl C (BPA) - TPCV-TPP-4; Kroonen, Rasha (CONTR) - TEP-TPP-1; Legare, Jonathan L (CONTR) - TERR-3; Clark, James L (BPA) - TERR-CHEMAWA; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Kelly, James C (BPA) - TESD-CSB-2

Subject: Boyd Ridge Rough Map for Scott to Add Road 7-27-18 1

Importance: Normal

Attachments: Boyd Ridge 8.25 Acre 7-27-18.pdf

Scott, here is the new map with the plot adjusted further to the south. I don't have the dgn files for the plot plan, I only have pdf's but it sounds like John has them.

Team,

I have adjusted the location to where I am imagining the land owner would prefer it based on comments. I had previously tried to lay the plot in the N/S direction to give equal access to the NW and SW lobes of farm land. In this case the fenced footprint of the yard is on a maximum amount of (b) (6), but this gives more limited access to the SW lobe. This shouldn't be an issue, regardless of what our restrictions are for driving on BPA owned property, the landowner should have a minimum of 190' to get farm equipment by after the fill area is completed. If there are no restrictions for them driving on unfenced BPA land, they will have around 300'. If the road ends up going up the gully closest to this new location, we will want to make sure that the road is crossable by farm equipment at this SE corner.

I will let Scott work his magic at this point and land some road on this map.

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Wed Mar 14 15:40:33 2018

To: Kroonen, Rasha (CONTR) - TEP-TPP-1; Jusupovic, Jana D (BPA) - TPCV-TPP-4

Cc: Randall, Cherilyn C (BPA) - TPCV-TPP-4

Subject: Boyd Ridge Schedule Update 3-14-18 1

Importance: Normal

Hi Rasha, Jana and Cherilyn,

I wanted to touch base with you about the Boyd Ridge schedule that I gave when we started the re-scoping process. As you know the addition of the ½ mile of line and the need to get confirmation from the PDT as to what level of scoping needed to be done for this portion of line, caused my team to have a schedule overrun of over four weeks from my original estimates. However, I was able to get ahead on a couple of other items and shorten up my review time and I believe that I will still be able to meet my original dates with one caveat.

I cannot guarantee that I will have time for all estimates to be reviewed and adjusted based on comment. This will depend on the turnaround time of the estimating group. The good news is that I already received the new line estimates and was able to get comments back for a review so really that leaves the fiber estimate as the only other one that I would expect will be changing a lot. The rest of the estimates should just need a double check by the estimating group and a 'refresh' to make them valid for another year. *If it is essential that we have reviews and adjusted estimates for all estimates, I might not be able to meet the original proposed dates, which are listed below, however I am doing my best.* I believe we can shorten up the SG3 Review meeting window and may be able to make up time there. Please let me know your opinions or thoughts on the matter.

Estimates (hopefully with, but possibly without review revisions) : by 4/6/18

SG3 Review Request and Meeting: 4/8/18 – 4/20/18

PfMT Review: 4/22/18 – 4/27/18

Last bookkeeping heading towards Execution: 4/29/18 – 5/4/18

Best Regards,

Ken Roberts

Electrical Engineer / Substation Project Engineering

TELP – 360.418.8111

Bonneville Power Administration

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Fri Oct 19 08:46:20 2018

To: Berg,Michael A (BPA) - TED-TPP-2; Roberts,Ken (BPA) - TELP-CSB-2; Liebhaber,Dustin F (BPA) - TELP-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3; Frye,Dean J (CONTR) - TELF-TPP-3; Ackerman,Robert (BPA) - TECC-CSB-2; Goldman,Rebekah S (BPA) - TECD-CSB-1; O'Connell,Michael J (BPA) - ECT-4; Bebee,Joseph Ray (BPA) - TESH-CSB-2; Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Lewis,Jason C (BPA) - NSSV-4400-2; Pagano,Laura E (CONTR) - NSSV-4400-2; Ortega,Ricardo C (BPA) - TED-TPP-2

Subject: Boyd Ridge second round of questions 10-19-18 1

Importance: High

Attachments: Boyd Ridge SOW - REV7 10 17 2018.doc; Copy of RFO 4368 Boyd Ridge Round 2 QA.xlsx; image001.jpg; image002.jpg; image003.jpg; image004.jpg; image005.jpg; image006.jpg

Good Morning Team,

First, I want thank you all for your effort and help with this task, your help is greatly appreciated

I have compiled the answers you provided for Boyd Ridge second round of questions and updated the SOW to reflect those answers:

- Questions yet to be answered:

- o Joe Bebee is working architectural and mechanical questions.
- o Michael O'Connell is working the environmental questions.
- o Dustin is working the transmission line questions
- o Ken is reaching to Rob and Rebekah on data and relay questions.

Please Note: a lot of the questions we answered so far were design questions that has no bearing on design bids, if you find that to be the case please do not be afraid to say so. We only need to provide information to help AE bid (nothing more).

- Actions still needed:

- o Dustin, Dean and Scott to determine how to update the SOW to account for the access road deliverables- Dustin SOW is attached for editing
- o Rasha and Cherilyn are working on getting a WO for the line impairment. CO to update the SOP to include a place holder for this WO
- o Dustin discovered that the Line Drawings” provided in the “Boyd Ridge Drawings.zip” within the Technical Exhibits folder of the Boyd Ridge RFO ProjectWise folder were provided in error. Laura please delete the zip file. This needs to be noted in the amendment cover sheet.

I am out of the office starting at 10AM today

Have a wonderful weekend

Kind Regards,
Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration | Flux
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b)(6)
Email: rmkroonen@bpa.gov

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From: O'Connell,Michael J (BPA) - ECT-4

Sent: Fri Nov 09 12:50:17 2018

To: Adams,Hub V (BPA) - LN-7; Mason,Stacy L (BPA) - ECP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1; Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: O'Donnchadha,Brian M (BPA) - ECC-4

Subject: Boyd Ridge Sub/G0345 Interconnection 11-9-18 1

Importance: High

Hi all,

Thanks again for your participation today. I'm also looping in Brian O'D. so he's aware of the current NEPA plan on Boyd. Here's a call summary that I ask you to add to or edit as needed:

1. EC plans to provide a CX to cover the land acquisition and the geotech testing; approximate timeframe is early next year.
 - a. We will require more detail from Kerry Cook as possible
 - b. Brian O'D. initiated 106 in early October on the full project
2. EC plans to develop a streamlined EA to cover the project construction that will also likely include a cumulative impact analysis of the wind gen project. Fall of 2019 is the projected construction start.

- a. Schedule: Mike will work with Stacy to develop timeline and provide it to Rasha and Cherilyn so they can discuss potential schedule ramifications with customer

Mike

Mike O'Connell, ECT-4

mjoconnell@bpa.gov

O: 503-230-7692

C: (b)(6)

From: O'Donnell,Allison L (CONTR) - TPCC-TPP-4

Sent: Fri Dec 20 12:03:33 2019

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Boehle,Jennifer M (TFE)(BPA) - TSES-TPP-2; Lockman,Christopher L (TFE)(BPA) - TSE-TPP-2

Subject: CONTRACT STATUS_Agreement 10TX-14621_Lotus Group USA (NEPA)

Importance: Normal

Attachments: 10TX-14621_CT_Image.pdf

Cherilyn,

This is another older Agreement that we are looking into whether or not we can begin closing it out. Has the NEPA been completed for this project/Agreement?

In CCM, this one looks like there was an email discussion re: moving the expiration date out to 12/31/2015, but it doesn't look like we had an expiration in the original Agreement itself and there was no amendment processed either.

Let me know what you know and we'll see what we can do from there. Thanks for your help on these!

FYI, there wasn't a CSE assigned to this customer in CDM. I just went off of the original Agreement, so if there is someone else I should contact, please let me know. Thanks again!

Thank you,

Allison

ALLISON O'DONNELL

Contract Specialist | TPCC-TPP-4

(CONTR) CorSource Technology Group, LLC.

Bonneville Power Administration | Department of Energy

Ph: (360) 418-8796 | *Please consider the environment before printing this email.*

From: Naef,Dennis C (BPA) - FAC-2

Sent: Thu Aug 09 13:12:26 2018

To: Cook,Jeffrey W (BPA) - TP-DITT-2; Hagensen,Matt L (BPA) - TPWP-TPP-4; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1; Stepanoff,D'Angelo J (BPA) - TELP-CSB-2; Lewis,Lance E (BPA) - TPWP-TPP-4; Slocum,Roy W (CONTR) - TPO-TPP-4; Sinha,Amit (BPA) - TEP-TPP-1; Karras,Jini J (CONTR) - TEPO-TPP-1

Subject: Finance Committee Approval - Summit Ridge and Fairview 8-9-18 1

Importance: Normal

Attachments: Summit Ridge Wind G0345 - FC Investment Approval 08092018 Final.pdf; Fairview Reactors and Transformer - FC Investment Approval 08092018 Final.pdf

The Finance Committee has approved the Summit Ridge Wind and Fairview Reactor and Transformer projects. The FC decision documents are attached and all relevant documents are posted on the FAC SharePoint site [here](#).

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Wed May 29 09:04:43 2019

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: FOR REVIEW: G0345 Agreement No. 19TP-11800, Pattern Energy_Summit Ridge_Engineering Activities 5-29-19 1

Importance: Normal

Attachments: 11800.docx

Hi Cherilyn,

Attached is a draft engineering agreement for your review and input. I have verified address and contact information with Kevin Wetzel so it will be ready for CCM review when that time comes.

Thanks!

Anna

From: TEPO Reimbursable Team

Sent: Wed Feb 13 09:51:56 2019

To: Kroonen,Rasha (CONTR) - TEP-TPP-1; Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Gutierrez,Lindsey A (CONTR) - TEPO-TPP-1; TEPO Reimbursable Team; Cosola,Anna M (BPA) - TPCC-TPP-4

Subject: FW: Banking Information G0345 Pattern Energy_ Summit Ridge

Importance: Normal

Attachments: image001.png; image002.jpg; image003.jpg; image004.jpg; image005.jpg; image006.jpg; image007.jpg; image008.jpg

Work order 482897 - BIGE-RDMD-1: EXPENSE REMEDIATION FOR IMPAIRMENTS - G0345 has been completed in AS and added to the queue for final accounting.

Thanks,
Joleen

Joleen Zayac
(ContR) Flux Resources, LLC

Financial Analyst | TEPO-TPP-1

Transmission Project Management Analysis & Scheduling

Bonneville Power Administration

jmzayac@bpa.gov | P 360.619.6916

Facebook-Icon_31x31_v3Flickr-Icon_31x31Instagram-Icon_31x31LinkedIn-Icon_31x31[Twitter_31x31](#)YouTube_31x31

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Tuesday, February 05, 2019 11:01 AM

To: TEPO Reimbursable Team

Subject: Banking Information G0345 Pattern Energy_ Summit Ridge

Attached is current banking information for Pattern Energy, for refunds under G0345 Summit Ridge. Cherilyn Randall has requested the closeout of the work order associated with the Engineering and Procurement agreement for this project.

Please let me know if you have any questions or if there is any other action required by me.

Thanks,

Anna

From: Kevin Wetzel [<mailto:Kevin.Wetzel@patternenergy.com>]

Sent: Tuesday, February 05, 2019 10:49 AM

To: Cosola,Anna M (BPA) - TPCC-TPP-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2; Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: [EXTERNAL] RE: Summit Ridge Queue Position Discussion

Hi Anna – please find our banking information attached. Please let me know if you need anything else.

Kevin Wetzel

Manager, Project Development

direct +1 (b) (6)

mobile + (b)(6)

1088 Sansome St
San Francisco, CA 94111

From: Cosola,Anna M (BPA) - TPCC-TPP-4 <amcosola@bpa.gov>

Sent: Tuesday, February 05, 2019 10:10 AM

To: Taylor,Eric K (TFE)(BPA) - TSE-TPP-2 <ektaylor@bpa.gov>; Kevin Wetzel <Kevin.Wetzel@patternenergy.com>; Randall,Cherilyn C (BPA) - TPCV-TPP-4 <ccrandall@bpa.gov>

Subject: RE: Summit Ridge Queue Position Discussion

This message came from outside of Pattern. Be careful with links and attachments. Learn more [here](#).

Hi Kevin,

I'm not sure what banking information we have on file for this project. If it has changed in the last 8 years, please provide me with updated information and I'll send it to the finance department.

Thanks,

Anna

From: Taylor, Eric K (TFE)(BPA) - TSE-TPP-2
Sent: Tuesday, February 05, 2019 10:03 AM
To: 'Kevin Wetzel'; Randall, Cherilyn C (BPA) - TPCV-TPP-4
Cc: Cosola, Anna M (BPA) - TPCC-TPP-4
Subject: RE: Summit Ridge Queue Position Discussion

Hi Kevin,

BPA is processing the refund of Summit Ridge's deposit under the E&P agreement. I can't think of anything that

BPA needs from you at this point. Cherilyn/Anna, please chime in if you have anything to add, thanks.

Eric

From: Kevin Wetzel [<mailto:Kevin.Wetzel@patternenergy.com>]

Sent: Monday, February 04, 2019 5:14 PM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2

Subject: [EXTERNAL] RE: Summit Ridge Queue Position Discussion

Hi Cherilyn & Eric,

Wanted to check in on the note below to find out when the Summit Ridge deposit will be returned and if you need anything from me to accommodate. Thank you.

Kevin Wetzel

Manager, Project Development

direct +1 (b) (6)

mobile (b)(6)

1088 Sansome St
San Francisco, CA 94111

From: Kevin Wetzel
Sent: Thursday, January 10, 2019 7:27 PM
To: Randall,Cherilyn C (BPA) - TPCV-TPP-4 <ccrandall@bpa.gov>; Steven Ostrowski <SOstrowski@energysi.org>; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2 <ektaylor@bpa.gov>
Subject: RE: Summit Ridge Queue Position Discussion

Hi Cherilyn – I wanted to check in and see when BPA will be processing the return of the deposit and if we need to fill anything out or provide any bank information. Thank you and let us know how we can help.

Kevin Wetzel
Manager, Project Development

main +1 415-283-4000
direct +1 (b) (6) 7
mobile + (b) (6)
Kevin.Wetzel@patternenergy.com

1088 Sansome St
San Francisco, CA 94111
patterndev.com

....

This email message may contain information that is confidential and proprietary. If you are not the intended recipient, please contact the sender and destroy the original and any copies of the original message. We take measures to protect the content of our communications. However, we cannot guarantee that email messages will not be intercepted by third parties or that email messages will be free of errors or viruses.

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4 <ccrandall@bpa.gov>
Sent: Monday, December 17, 2018 2:42 PM
To: Steven Ostrowski <SOstrowski@energysi.org>; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2 <ektaylor@bpa.gov>
Cc: Kevin Wetzel <Kevin.Wetzel@patternenergy.com>
Subject: RE: Summit Ridge Queue Position Discussion

This message came from outside of Pattern. Be careful with links and attachments. Learn more [here](#).

Got it. Thanks for replying today.

From: Steven Ostrowski [<mailto:SOstrowski@energysi.org>]
Sent: Monday, December 17, 2018 2:24 PM
To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2

Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: [EXTERNAL] RE: Summit Ridge Queue Position Discussion
Importance: High

Cherilyn,

Please proceed with cancelling the E&P agreement for Summit Ridge.

Please confirm receipt of this email.

Thank you,

Steve Ostrowski

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4 [<mailto:ccrandall@bpa.gov>]
Sent: Monday, December 17, 2018 10:43 AM
To: Steven Ostrowski; Taylor, Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: RE: Summit Ridge Queue Position Discussion

The PM has told me that if we can cancel today, we won't owe any cancellation fee to the contractor. You'll get almost all of the deposit back, minus the charges that the PM and the contracting office put in while getting the contract in place.

From: Steven Ostrowski [<mailto:SOstrowski@energysi.org>]
Sent: Monday, December 17, 2018 9:56 AM
To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: [EXTERNAL] RE: Summit Ridge Queue Position Discussion

Cherilyn,

Thanks for this. We will do our best to get back to you today. Unfortunately the individual we need to make that call is on vacation. We've reached out and hope to have a response later today.

Steve

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4 [<mailto:ccrandall@bpa.gov>]
Sent: Monday, December 17, 2018 9:36 AM
To: Steven Ostrowski; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: RE: Summit Ridge Queue Position Discussion

After discussions with the PM and the environmental group (b) (4)

We are having the design kick off meeting for this project tomorrow. If you are going to terminate the E&P, I don't suppose you could let us know today?

Thanks,

Cherilyn

From: Steven Ostrowski [<mailto:SOstrowski@energysi.org>]

Sent: Tuesday, December 11, 2018 10:28 AM

To: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Taylor, Eric K (TFE)(BPA) - TSE-TPP-2

Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)

Subject: [EXTERNAL] RE: Summit Ridge Queue Position Discussion

Thank you Cherilyn,

Do you have a sense for what the cost will be? (b) (4) is that still a reasonable estimate?

Thanks,

Steve

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4 [<mailto:ccrandall@bpa.gov>]
Sent: Tuesday, December 11, 2018 10:15 AM
To: Steven Ostrowski; Taylor, Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: RE: Summit Ridge Queue Position Discussion

You are correct, the E&P is optional. However, the NEPA review cannot proceed without some level of design input. So if you'd rather pay for the design needed for NEPA review under the NEPA agreement, we can accommodate that. What we cannot accommodate is a complete stall out of the NEPA review. Either way, there is going to be a required payment for at least enough design to finish NEPA. Failure to tender that payment under one agreement or another will start a "deemed withdrawn" cure period. Based on your email below, I will assume that you have a preference for using the NEPA agreement rather than a separate E&P agreement. I will tender a modification to the NEPA agreement in January.

Thanks,

Cherilyn Randall

BPA Customer Service Engineering

360-619-6051

From: Steven Ostrowski [<mailto:SOstrowski@energysi.org>]
Sent: Monday, December 10, 2018 2:59 PM
To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: [EXTERNAL] Summit Ridge Queue Position Discussion

Good afternoon Eric/Cherilyn,

The purpose of this email is to follow-up on our conversation of last week regarding Summit Ridge maintaining its current queue position while terminating the existing E&P agreement.

We are in discussions with a potential buyer of the Summit Ridge Wind project. It is our understanding of the BPA tariff that the interconnection process follows a set of sequential steps: Feasibility Study, System Impact Study, Facility Study, NEPA review, LGIA and finally customer funding of the interconnection according to an agreed upon energization and operations schedule. There is nothing in the BPA LGIP that obligates a customer to execute an E&P or that states that terminating an E&P results in being withdrawn from the queue.

Per Section 9 of the BPA LGIP, a customer may request to execute an E&P to advance implementation of its interconnection. This same section explicitly states that an E&P Agreement is an option procedure and it will not alter the IC's queue position or in-service date. Should the Summit Ridge interconnection customer terminate the E&P, it is our expectation that BPA will finalize the NEPA review and EA, tender the LGIA with a revised COD schedule and the standard suspension rights as they exist in the pro-forma LGIA in the BPA LGIP.

Furthermore, Section 3.3.1 says that a valid interconnection in-serviced date may succeed the date the Interconnection Request is received by Transmission Provider by a period up to ten years, or longer where Interconnection Customer and Transmission Provider agree, such agreement not to be unreasonably withheld.

We understand terminating the E&P now would mean that the project could no longer meet a December 2020 COD, but the project would retain its queue position.

In light of the currently scheduled December 18th start date of your engineering firm, we believe an expeditious resolution of this matter is in everyone's best interests.

Thank you in advance for you time and consideration.

Sincerely,

Steve

Steven A. Ostrowski, Jr.

President

9611 NE 117th Ave

Suite 2840

Vancouver, WA 98662

P (b) (6)

F 360.737.9835

C (b)(6)

sostrowski@energysi.org



Boyd Ridge Substation Scoping - G0345 Wind Farm

Team Meeting Notes

❖ Meeting Information

- Date: 1/9/18
- Time: 1300 - 1400
- Room: OPP 227A

- ❖ Call in number: 503-230-4000
PASSCODE: (b) (2)

❖ Invitees

Ackerman, Robert	X Loop, Laura	X Hoang, Anthony	X Randall, Cherilyn
Amrine, Liz	Lunde, Rod	Hollenbeck, Justin	X Sager, Andrew
X Barton-Smith, Julie	Lynch, William	X Jacobsen, Nancy	Schmidt, Patrick
Brady, Brian	Mifsud, Frank	X Jusupovic, Jana	X Tabata, Mason
Brockway, Jenny	Moe, Chance	X Kintz, Jourdan	Thurston, Jamie
Burn, Beverley	X O'Connell, Michael	X Konency, Thomas	X Wahrgren, Robert
Capiral, Rebekah	X O'Donnchadha, Brian	X Kroonen, Rasha	Williams, Scott
Christianson, Corey	X Owen, Kenneth	Lee, Christina	Wong, Christopher
Gilroy, Michael	X Patterson, Shawn	X Legare, Jonathan	X Wood, Scott
X Hagensen, Matt	Platt, Travis	X Liebhaber, Dustin	

❖ Introductions and purpose of the meeting – Ken Roberts

❖ Environmental Input

- o There were some concerns about Site 3 from a viewshed position, however after further discussion and taking into consideration the land owner likes Site 3 as a location for the substation, Site 3 is suitable for the scoping effort. More work will need to be done in execution.
- o EP resource will now be needed. Ken to submit request asap. Will schedule a meeting with all environmental folks and Dustin L. to get EP up to speed.

❖ PDT Drop In Meeting Results

- o PDT decided they do not need to make a determination on the project again, we can proceed once the CDD has been updated.
- o In an effort to keep the project schedule, Dustin does not need to produce a complete line design for the scoping purposes. This is a half mile of line as part of a 400 million dollar project. The financial risk of the line portion of the project going over estimated amounts is a very small part of the bigger financial picture.

❖ Q/A

- o Making a June 2020 energization date is extremely unlikely. However, making a December 2020 may still be possible. Rasha, Ken, Cherilyn and Jana to coordinate carefully with Environmental and Realty.



Boyd Ridge Substation Scoping - G0345 Wind Farm

Team Meeting Notes

- o Realty: Entrance road and substation site will be owned in fee.
- o Realty: No construction can take place on the land until the land has been purchased. This typically takes a year. Can elevate to Matthew Kirkland /Luke Arant to try to get more wiggle room.
- o Realty: Please don't promise dates we can't keep. Would like to not see a repeat of Quinett Creek.
- o Ken to talk to Dustin regarding schedule for Line to complete CDD.
- o Ken to re-evaluate original schedule and get in contact with Rasha to discuss/coordinate.

❖ **Team input for CDD Due: 1/19/18**

- o This date will not be achievable and a new date will be determined, likely early February (this will be confirmed at the next meeting). If you were holding up your portion of the CDD waiting for confirmation of the site location, please proceed on your portion of the CDD with site 3 as the site being scoped.

❖ **Project information**

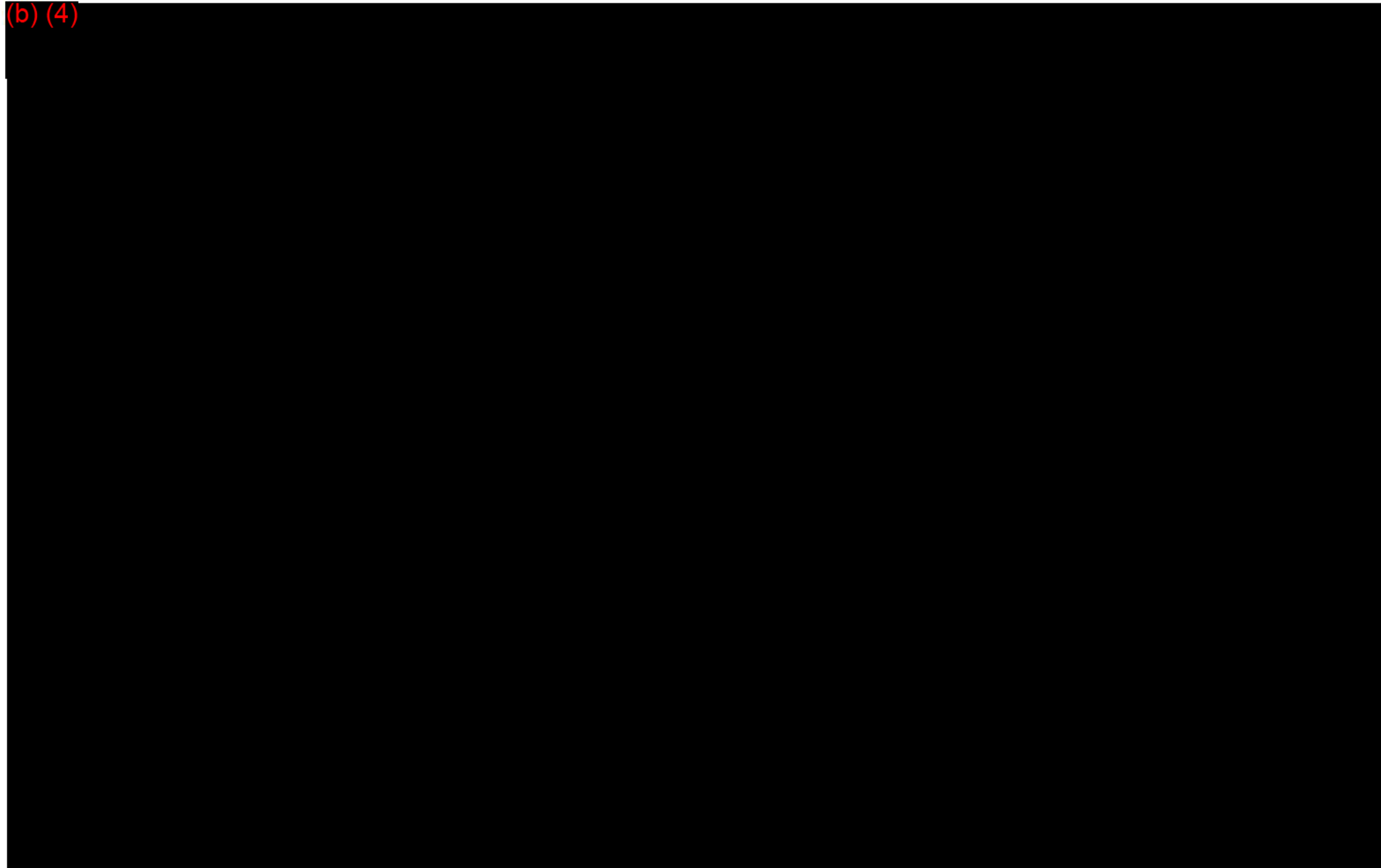
- PRD: [285137](#)
- WO: 00421854 - G0345: SUMMIT RIDGE WIND
- Project Workspace:

(b) (2)

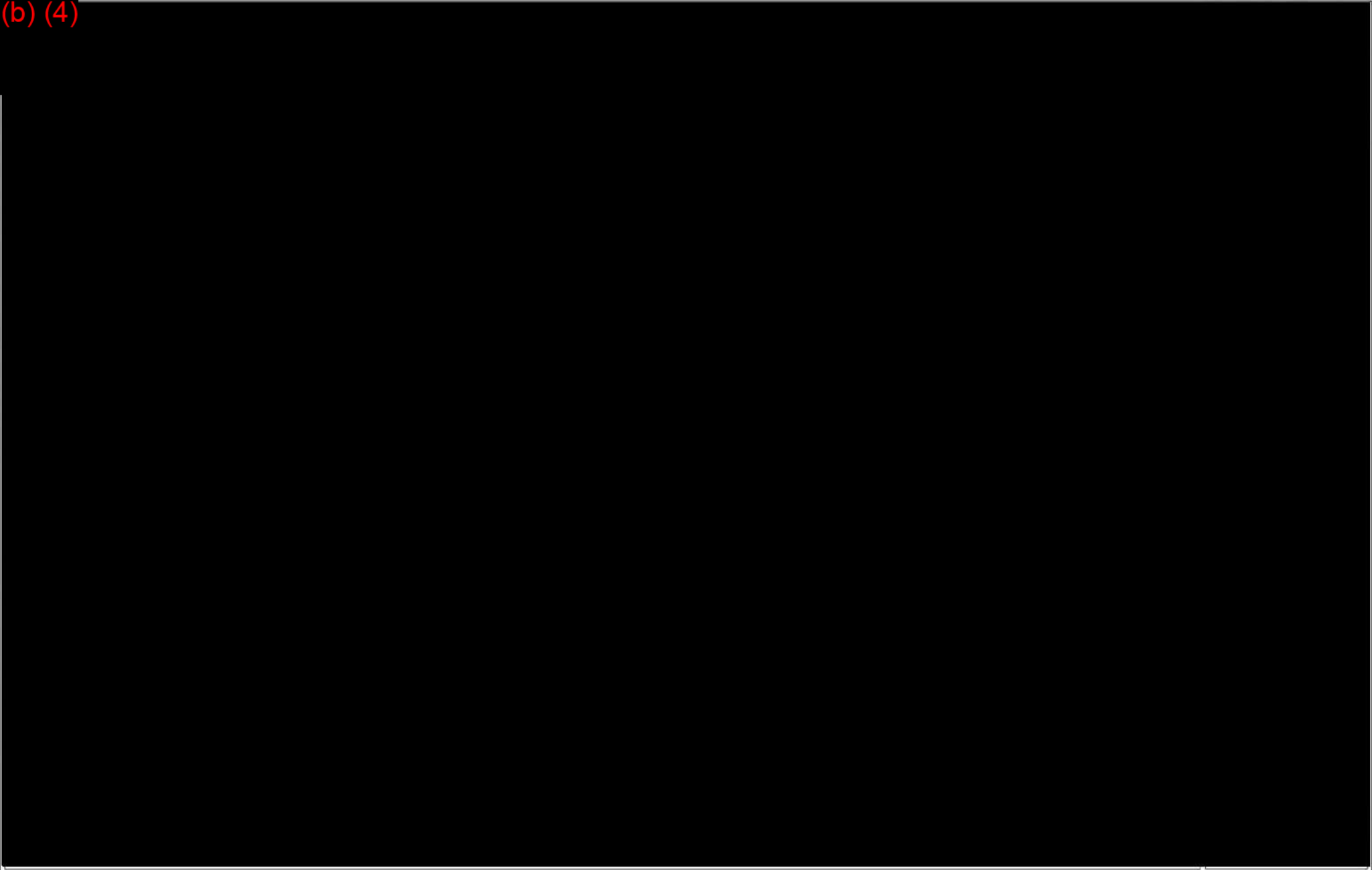
- CDD Direct Link:

(b) (2)

(b) (4)



(b) (4)



From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Tue Jun 19 13:17:53 2018

To: Ackerman, Robert (BPA) - TECC-CSB-2; Amrine, Liz (CONTR) - TERG-3; Bebee, Joseph Ray (BPA) - TESF-CSB-2; Brady, Brian P (CONTR) - TERS-3; Brockway, Jenny (BPA) - TPPC-OPP-3; Burn, Beverley D (CONTR) - NWM-1; Christianson, Corey C (BPA) - TFDE-THE DALLES; Clark, James L (BPA) - TERR-CHEMAWA; Gilroy, Michael J (CONTR) - TERM-TPP-4; Goldman, Rebekah S (BPA) - TECD-CSB-1; Hagensen, Matt L (BPA) - TPWP-TPP-4; Hoang, Anthony D (CONTR) - TERS-3; Hollenbeck, Justin M (CONTR) - TERM-TPP-4; Jacobsen, Nancy L (BPA) - TFDB-THE DALLES; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Kintz, Jourdan C (BPA) - TELC-TPP-3; Konency, Thomas J (BPA) - TERS-3; Kroonen, Rasha (CONTR) - TEP-TPP-1; Lee, Christina A (BPA) - TPPA-OPP-3; Legare, Jonathan L (CONTR) - TERR-3; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Lunde, Rod T (BPA) - TECR-CSB-1; Lynch, William C (BPA) - TERM-TPP-4; Mifsud, Frank D (BPA) - TERM-TPP-4; Moe, Chance C (BPA) - TFDD-THE DALLES; O'Connell, Michael J (BPA) - ECT-4; O'Donnchadha, Brian M (BPA) - ECC-4; Owen, Kenneth E (CONTR) - TPMC-OPP-3; Patterson, Shawn M (BPA) - TFDC-THE DALLES; Platt, Travis J (BPA) - TERG-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Sager, Andrew (CONTR) - TERM-TPP-4; Schmidt, Patrick L (BPA) - TTCT-AMPN-1; Tabata, Mason I (BPA) - TECT-CSB-1; Thurston, Jamie S (CONTR) - TERM-TPP-4; Wahrgren, Robert O (CONTR) - TELD-TPP-3; Williams, Scott M (BPA) - TFDF-THE DALLES; Wong, Christopher M (CONTR) - TELC-TPP-3; Wood, Scott E (CONTR) - TELF-TPP-3

Cc: Ortega, Ricardo C (BPA) - TED-TPP-2

Subject: FW: Boyd Ridge SOW.doc 6-19-18 1

Importance: Normal

Attachments: Boyd Ridge SOW.doc; P00627 - G0345 BOYD RIDGE SUBSTATION CDD.docx

Team,

A draft of the SOW for Boyd Ridge has been created. Can you please review the document and submit comments back to Ric and myself within the next couple of days if at all possible? The schedule on this is getting tight.

Thank you,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Ortega,Ricardo C (BPA) - TED-TPP-2

Sent: Tuesday, June 19, 2018 1:07 PM

To: Roberts,Ken (BPA) - TELP-CSB-2

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1

Subject: Boyd Ridge SOW.doc

Ken,

I've completed another draft of the Boyd Ridge SOW please pass it along to the appropriate SME's for comments.

From: Roberts,Ken (BPA) - TELP-CSB-2

Sent: Mon Dec 18 08:19:01 2017

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: FW: Boyd Ridge TEL Scoping Meeting Notes 12-18-17 1

Importance: Normal

I highlighted the critical portion of the meeting from your and my perspective. I'll keep you posted. I will do what I can to steer the PDT recommendation to something less time intensive.

Ken Roberts

Electrical Engineer | Substation Project Engineering

BONNEVILLE POWER ADMINISTRATION

bpa.gov | P 360.418.8111

From: Liebhaber,Dustin F (BPA) - TELP-TPP-3

Sent: Friday, December 15, 2017 1:47 PM

To: Kintz,Jourdan C (BPA) - TELC-TPP-3; Wahrgren,Robert O (CONTR) - TELD-TPP-3; Wong,Christopher M (CONTR) - TELC-TPP-3

Cc: Cook,Kerry B (BPA) - TELF-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3; Roberts,Ken (BPA) - TELP-CSB-2

Subject: Boyd Ridge TEL Scoping Meeting Notes

Hi guys,

Here are some of the notes and questions raised at our meeting yesterday.

- Boyd Substation will be located at site option 3 which is approximately ½ mile away from BIGE-RDMD-1.

- Ken and Dustin are going to consult with the PDT (8th of January) on how much certainty we need to deliver with the new line route from BIGE-RDMD-1 to Boyd Substation. How we proceed in our scoping will very much depend on the answer to that. We may be required to deliver enough certainty that would force us to request LiDAR or a ground survey for the new ROW addition. That would dramatically impact the timeframe of finishing the scoping.
- BIGE-RDMD-1 will be intercepted at tower 11/2. 11/2 will be replaced with a double circuit tower that directs the line towards Boyd Substation.
- We will use 32 series of towers.
- We need to know the GW requirement now that the substation will have an addition ~1/2 mile of line until it reaches BIGE-RDMD-1. The standard length of GW for 230 kV is 1 mile. Can we get an exception to avoid altering structures on BIGE-RDMD-1 for GW? The new tower at 11/2 may be overloaded by all the GW if we need to keep going as well. Chris?
- Two circuits of fiber are required on our new line in order to “complete the loop.” These will probably be OPGW. Is there 72 strand OPGW? **Jordan confirmed that there is.**
- Dustin will come up with an estimated line route before the PDT meeting. Give this to Realty and Environment for comments.

Let me know if I missed anything.

Thanks,
Dustin

Dustin Liebhaber

Bonneville Power Administration

Project Engineering | Mechanical Engineer

dfliebhaber@bpa.gov

Office: (360) 619-6756

Cell: (b)(6)

Fax: (360) 619-6982

-----Original Appointment-----

From: Liebhaber,Dustin F (BPA) - TELP-TPP-3

Sent: Tuesday, December 12, 2017 11:54 AM

To: Liebhaber,Dustin F (BPA) - TELP-TPP-3; Kintz,Jourdan C (BPA) - TELP-TPP-3 (jckintz@bpa.gov); Wahrgren,Robert O (CONTR) - TELD-TPP-3; Wong,Christopher M (CONTR) - TELC-TPP-3

Cc: Cook, Kerry B (BPA) - TELF-TPP-3 (kbcCook@bpa.gov); Wood, Scott E (CONTR) - TELF-TPP-3; Roberts, Ken (BPA) - TELP-CSB-2
Subject: Boyd Ridge TEL Scoping
When: Thursday, December 14, 2017 11:00 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: TPP 309(13)

Hi Guys,

You have all been assigned as TEL scoping SME's for the Boyd Ridge Substation. You might have previously completed a CDD on this with Dan Nunez. Well, the project has changed. The substation is now going to be located about half a mile away from the BIGE-RDMD-1 and we need to connect the two. You are all invited to the big scoping meetings (run by Ken Roberts, the primary PE) but I wanted to get TEL together to talk about our own personal issues, schedule, and brainstorm.

Thanks,
Dustin

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Mon Jun 25 08:11:16 2018

To: Ackerman, Robert (BPA) - TECC-CSB-2; Amrine, Liz (CONTR) - TERG-3; Bebee, Joseph Ray (BPA) - TESF-CSB-2; Brady, Brian P (CONTR) - TERS-3; Brockway, Jenny (BPA) - TPPC-OPP-3; Burn, Beverley D (CONTR) - NWM-1; Christianson, Corey C (BPA) - TFDE-THE DALLES; Clark, James L (BPA) - TERR-CHEMAWA; Gilroy, Michael J (CONTR) - TERM-TPP-4; Goldman, Rebekah S (BPA) - TECD-CSB-1; Hagensen, Matt L (BPA) - TPWP-TPP-4; Hoang, Anthony D (CONTR) - TEPO-TPP-1; Hollenbeck, Justin M (CONTR) - TERM-TPP-4; Jacobsen, Nancy L (BPA) - TFDB-THE DALLES; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Kintz, Jourdan C (BPA) - TELC-TPP-3; Konency, Thomas J (BPA) - TERS-3; Kroonen, Rasha (CONTR) - TEP-TPP-1; Lee, Christina A (BPA) - TPPA-OPP-3; Legare, Jonathan L (CONTR) - TERR-3; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Lunde, Rod T (BPA) - TECR-CSB-1; Lynch, William C (BPA) - TERM-TPP-4; Mifsud, Frank D (BPA) - TERM-TPP-4; Moe, Chance C (BPA) - TFDD-THE DALLES; O'Connell, Michael J (BPA) - ECT-4; O'Donnchadha, Brian M (BPA) - ECC-4; Owen, Kenneth E (CONTR) - TPMC-OPP-3; Patterson, Shawn M (BPA) - TFDC-THE DALLES; Platt, Travis J (BPA) - TERG-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Sager, Andrew (CONTR) - TERM-TPP-4; Tabata, Mason I (BPA) - TECT-CSB-1; Thurston, Jamie S (CONTR) - TERM-TPP-4; Wahrgren, Robert O (CONTR) - TELD-TPP-3; Williams, Scott M (BPA) - TFDF-THE DALLES; Wood, Scott E (CONTR) - TELF-TPP-3

Subject: FW: BOYD Work Order - Land WO 6-25-18 1

Importance: Normal

Team,

For any work on the land portion of this project, please note the specific land WO below.

Best Regards,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Hagensen, Matt L (BPA) - TPWP-TPP-4

Sent: Friday, June 22, 2018 8:58 AM

To: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Roberts, Ken (BPA) - TELP-CSB-2

Cc: Kroonen, Rasha (CONTR) - TEP-TPP-1

Subject: RE: BOYD Work Order?

And if they are specifically working on the land, they can charge the land WOs:

00469803

BOYD: LAND ACQUISITION FOR BOYD RIDGE SUBSTATION

00469816

BIGE-RDMD-1: LAND RIGHTS REVIEW/ACQ FOR LOOP

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4
Sent: Wednesday, June 20, 2018 4:39 PM
To: Roberts,Ken (BPA) - TELP-CSB-2
Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1; Hagensen,Matt L (BPA) - TPWP-TPP-4
Subject: RE: BOYD Work Order?

Yeah, charge a design work order. We collected over (b) (4) from the customer. This one won't red-flag any time soon.

00469896 – Boyd Ridge Substation

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Wed Apr 11 10:11:56 2018

To: Kroonen, Rasha (CONTR) - TEP-TPP-1

Cc: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Hagensen, Matt L (BPA) - TPWP-TPP-4

Subject: FW: Estimates Approved: Boyd Ridge Revision 4-11-18 1

Importance: Normal

All,

I just received this notice from Mike Davis. I have not had a chance to double check any of the estimates, other than the new Line estimates and Dustin and I already reviewed and gave comments on which should be incorporated. I personally met with TER estimators so I would expect those to be correct, they said it was very straightforward once I explained things to them. That leaves the fiber as the only one that really hasn't been vetted. The rest shouldn't have needed much revising, if any, and were simply reset so they are valid for another year.

Jana, I will be requesting a SG3 review today. If you can make sure it gets moved approved quickly then we will be on time with the schedule I gave you and Rasha for the re-scope. We will want to get on the PfMT Review as well if everyone feels comfortable with these estimates.

Best Regards,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Davis,Michael A (BPA) - TPWE-TPP-4

Sent: Wednesday, April 11, 2018 10:03 AM

To: Roberts,Ken (BPA) - TELP-CSB-2

Cc: McClemens,Laura M (BPA) - TPWE-TPP-4; Gutierrez,Arnold (CONTR) - TPWE-TPP-4

Subject: Estimates Approved: Boyd Ridge Revision

Hi Ken

The Boyd Ridge revisions are approved and available in [EaSI](#). Here are the revised estimate numbers and totals.

Estimate

Estimated Cost

Description

Facility

Estimator

A3-1170-1-1

(b) (4)

NEW 230KV SUBSTATION

BOYD RIDGE SUBSTATION

Arnold Gutierrez

A3-1170-2-0

(b) (4)

Land rights review for G0345 a new 230 kV substation(Boyd Ridge) line loop-in

Big Eddy-Redmond No 1

Laura McClemens

C3-1170-1-1

(b) (4)

Install Communication and Control Equipment at Wind Collector Site

G0345 WIND COLLECTOR GENERATION (LOTUS)

Mike Davis

C3-1170-2-1

(b) (4)

Install Communication and Control Equipment

Go345 POI (Boyd Ridge Substation)

Mike Davis

C3-1170-3-1

(b) (4)

Install equipment and controls per PRD

Big Eddy Substation

Mike Davis

C3-1170-4-1

(b) (4)

Install new (1) one SRU card.

Dittmer Control Center

Mike Davis

C3-1170-5-1

(b) (4)

Install equipment and controls per PRD

Redmond Substation

Mike Davis

C3-1170-6-1

(b) (4)

Install new (1) one SRU card.

Munro Control Center

Mike Davis

C3-1170-7-1

(b) (4)

Install equipment and controls per PRD

Maupin Substation

Mike Davis

L3-1170-1-1

(b) (4)

G0345 a new 230 kV substation(Boyd Ridge) line loop-in_Contractor Construction

Big Eddy-Redmond No 1

Laura McClemens

L3-1170-2-1

(b) (4)

TERMINATE THE LINE ON THE SUBSTATION DEADEND TOWER

Big Eddy-Redmond No 1 at Boyd Ridge

Laura McClemens

O3-1170-1-1

(b) (4)

INSTALL 72 -FIBER CABLE

BOYD RIDGE SUBSTATION

Arnold Gutierrez

S3-1170-1-1

(b) (4)

A NEW 230KV SUBSTATION, WITH 4 230KV PCBS AND 8 DISCONNECTS

BOYD RIDGE SUBSTATION G0345

Arnold Gutierrez

Total

(b) (4)

Thanks

Mike Davis

Supervisor | Estimating - TPWE

Bonneville Power Administration

madavis@bpa.gov | P 360-619-6072 | C (b)(6)

[TPWE SharePoint Site](#)

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Wed Jan 31 10:14:20 2018

To: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Kroonen, Rasha (CONTR) - TEP-TPP-1

Subject: FW: G0345 Boyd Ridge Substation CDT Decision Revisited 1-31-18 1

Importance: Normal

Attachments: image001.png

It was largely a formality but I thought you would both like to know the conclusion. Both the design and CDT folks said to keep it the same as last time. Contract/Contract.

-Ken

From: Thorburn, Andrew A (CONTR) - TFHE-CSB-1

Sent: Wednesday, January 31, 2018 9:23 AM

To: Roberts, Ken (BPA) - TELP-CSB-2

Cc: Lahti, John A (BPA) - TFH-CSB-1W; Bailey, Jennifer A (BPA) - TFHQ-TPP-3; Alvarez, Gabriela V (BPA) - TELP-TPP-3

Subject: RE: G0345 Boyd Ridge Substation CDT Decision Revisited

Ken – I didn't receive any feedback on reasons to revisit the decision, so you are good to go. Andy

Andrew A. Thorburn

Flux Resources, LLC

Construction Coordinator | Central Electrical Services

Bonneville Power Administration

aathorburn@bpa.gov | Office (360) 619-6845 | Cell (b) (6)

From: Thorburn,Andrew A (CONTR) - TFHE-CSB-1

Sent: Friday, January 26, 2018 11:37 AM

To: Bailey, Jennifer A (BPA) - TFHQ-TPP-3

Cc: Lahti, John A (BPA) - TFH-CSB-1W

Subject: FW: G0345 Boyd Ridge Substation CDT Decision Revisited

Jennifer – Do you see a need to re-visit this March 2017 decision? Andy

Andrew A. Thorburn

Flux Resources, LLC

Construction Coordinator | Central Electrical Services

Bonneville Power Administration

aathorburn@bpa.gov | Office (360) 619-6845 | Cell (b) (6)

From: Roberts, Ken (BPA) - TELP-CSB-2
Sent: Monday, January 22, 2018 10:27 AM
To: Lahti, John A (BPA) - TFH-CSB-1W
Cc: Thorburn, Andrew A (CONTR) - TFHE-CSB-1
Subject: G0345 Boyd Ridge Substation CDT Decision Revisited

John and Andy,

Approximately 10 months ago the CDT/CCDT made a decision on Boyd Ridge Substation, which is a proposed greenfield sub that would be built for a customer wind project in the Boyd, OR area (Main PRD and Plot Plan Attached). The project was put on hold for around six months and a re-scope was requested by the customer for a different location on the same land owners property. The end result is the same as far as the substation goes but it would add approximately a half a mile of line to loop into the Big Eddy – Redmond #1 230kV line. The construction schedule has remained the same with an **energization date of late 2020**.

The decision originally was for construction to be contract (email screenshot below)

Since 10 months has passed Gaby suggested I touch base and see if either of you believe that the CDT would currently make a different determination, or if we can proceed ahead. This is a VP priority project and the timeline is extremely tight on it since we lost time while it was on hold. If there is any other information you would like, please let me know.

Thank you both for your time,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Starke,Stephanie J (CONTR) - TPW-TPP-4

Sent: Tue Apr 17 12:39:25 2018

To: Hagensen,Matt L (BPA) - TPWP-TPP-4

Cc: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Hallar Jr,James J (BPA) - TPO-TPP-4; Rowe,Pilar R (BPA) - TPW-TPP-4; Willhite,Paula L (BPA) - TPWP-TPP-4

Subject: FW: PfMT Agenda 2018-04-18 BC 626 = SG3 P00627

Importance: Normal

Attachments: image001.jpg; image002.jpg; image003.jpg; image004.jpg; image005.jpg; image006.jpg

Matt,

Is the Business Case Approval for [Business Case 626-G0345 Summit Ridge Wind - Design](#)

Also covering the Stage Gate 3 Approval for [P00627](#)

G0345 BOYD RIDGE SUBSTATION ?

Stephanie Starke
(ContR) Flux Resources, LLC

A David Evans Enterprises Company

Project Manager | TPW (Asset Program Support)

Bonneville Power Administration

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Facebook-Icon_31x31_v3Flickr-Icon_31x31Instagram-Icon_31x31LinkedIn-Icon_31x31Twitter_31x31YouTube_31x31

From: Starke, Stephanie J (CONTR) - TPW-TPP-4

Sent: Tuesday, April 17, 2018 12:19 PM

To: Kohne, Kyle R (BPA) - TPM-OPP-3; Idowu, Ayodele O (BPA) - TPMC-OPP-3; Johnson, Kelly G (BPA) - TPC-TPP-4; Knoll, Karl W (BPA) - TPMC-OPP-3; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Reynolds, Tyler L (BPA) - TECT-CSB-1; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Hallar Jr, James J (BPA) - TPO-TPP-4; Hagensen, Matt L (BPA) - TPWP-TPP-4; Hsu, Alaric H (BPA) - TEP-TPP-1; Lewis, Lance E (BPA) - TPWP-TPP-4; McClatchie, Tom (BPA) - TF-BELL-1; Miller, Walker (BPA) - TPCV-TPP-4; Elwess, Dason D (CONTR) - TPMC-OPP-3; Tesema, Berhanu K (BPA) - TPPC-OPP-3; Bustamante, Richard (BPA) - TPP-OPP-3; Lacambra, Jared M (BPA) - TPCF-MEAD-GOB; Huitron-Azcuaga, Luis Raul (BPA) - TPPC-OPP-3; Slocum, Roy W (CONTR) - TPO-TPP-4; Willhite, Paula L (BPA) - TPWP-TPP-4; Murphy, Thomas R (CONTR) - TELP-TPP-3; Rounds, Cynthia M (BPA) - TEP-TPP-1; Simmons, Jessica K (BPA) - TPWP-TPP-4; Ochs, Robert A (BPA) - TPO-TPP-3; Gress, R Wayne (BPA) - TPO-TPP-2; Nichols, Chris D (BPA) - TPWP-TPP-4; Meyer, Heidi R (BPA) - TELF-TPP-3; Gilbreath, Julia S (BPA) - TEPO-TPP-1; Karras, Jini J (CONTR) - TEPO-TPP-1; Alvarez, Gabriela V (BPA) - TELP-TPP-3; Rowe, Pilar

R (BPA) - TPW-TPP-4; Sinha,Amit (BPA) - TEP-TPP-1; Fiedler,Paul A (BPA) - TPO-TPP-4; Staats,Michael L (BPA) - TEL-TPP-3; Becker II,Richard (BPA) - TES-CSB-1; Brown,Joelle S (BPA) - TEC-CSB-1; Hester,Shane H (BPA) - TFAW-DOB-1; Cavasher,Colin P (CONTR) - TPW-TPP-4; Jackson,Breezy (CONTR) - TPWP-TPP-4; Hensley,Stacie R (BPA) - TERR-3; Miller,Kelly L (BPA) - TERM-TPP-4; Okuda,Jeremy S (BPA) - TETC-CSB-1; Rodrigues,Melvin (BPA) - TPP-OPP-3; Supalla,Laura E (BPA) - TECT-CSB-1; Castro,Corinn (BPA) - TPO-TPP-3; Lynard,Gene P (BPA) - ECT-4; Smith,Philip W (BPA) - EPR-4; Schmidt,Sunshine R (BPA) - ECC-4; Gupta,Julie E (CONTR) - TEP-TPP-1; Flynn,Karla J (BPA) - TERP-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Majors,Vincent C (CONTR) - TEP-CSB-2; Deschuytter,Benjamin W (BPA) - TEP-CSB-2; Phillips,Catherine O (CONTR) - TPO-TPP-4

Subject: PfMT Agenda 2018-04-18

à [Join Skype Meeting](#)

VCMS audio conferencing call-in number:

(b)(2)

ID#:

4/18 PfMT Agenda Topics

Time slots are approximate and may shift due to varying lengths of discussion and attendee availability.

1. Tft Meeting

9:05 AM – 9:15 AM

XTEX Expense Budget - Sheree Tanner, Paula Willhite

2. Assign Priority & Date

9:15 AM – 9:30 AM

Non-Responsive [Redacted]

Hallar Jr, James, Hagensen, Matt, Hsu, Alaric

Reynolds, Tyler, Randall, Cherilyn,

3. Stage Gate 0 Approval

9:30 AM – 10:30 AM

Name

Primary Project Type

In Service Date

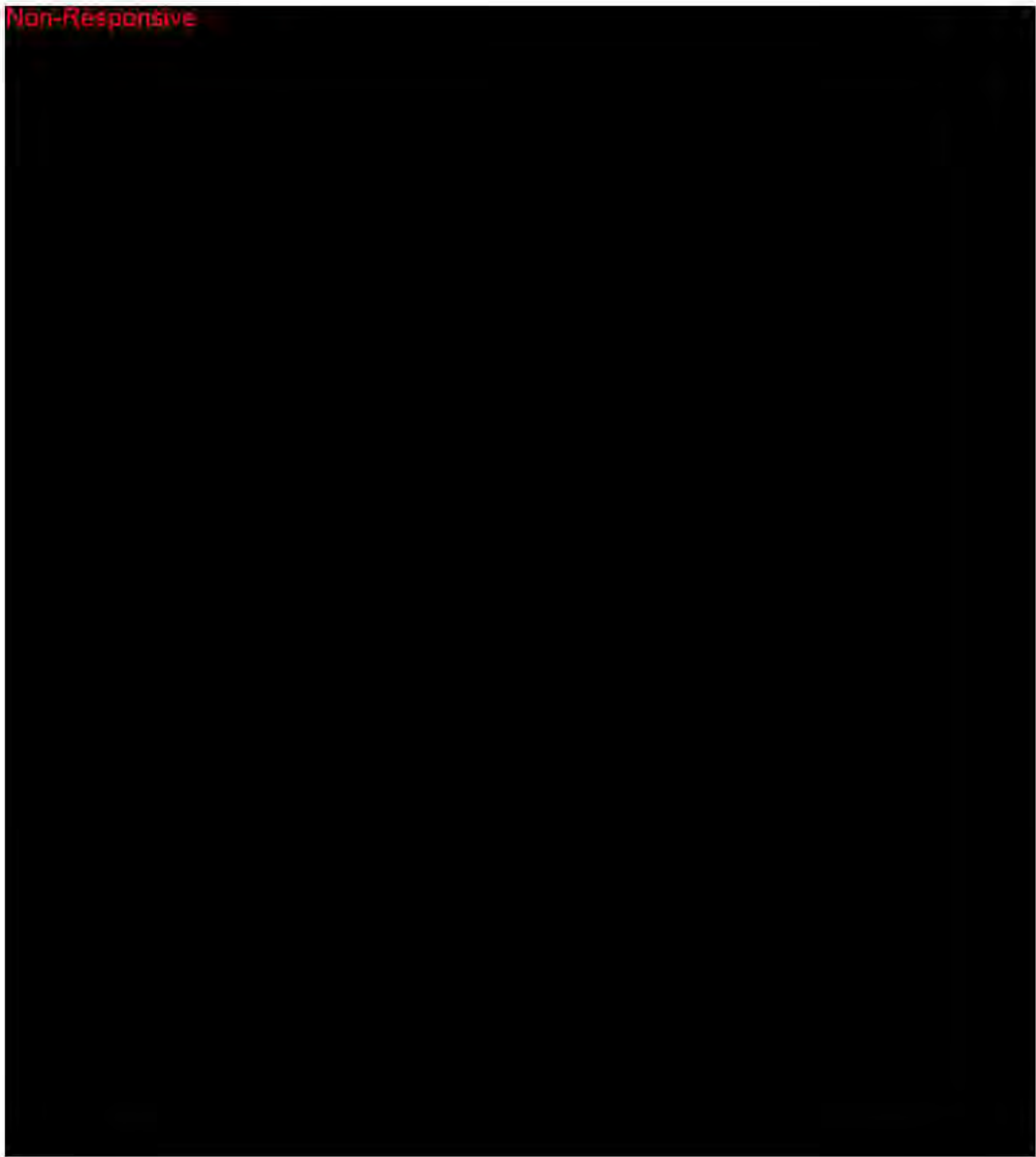
In Service Date Flexibility

Primary Asset Manager

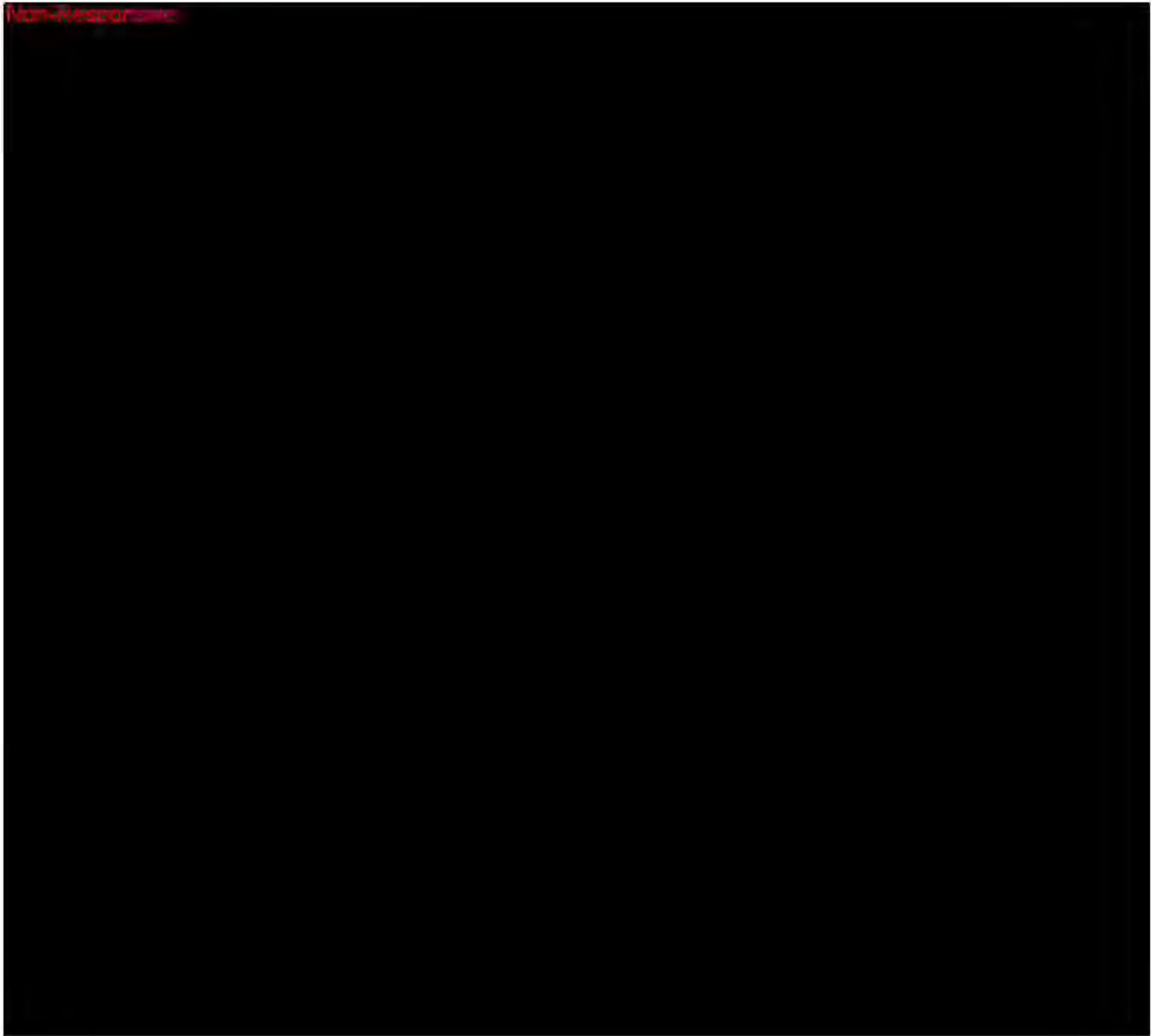
Primary Program Coordinator

Project Initiator

Non-Responsive



Non-Response



Nichols,Chris D (BPA) - TPWP

4. Break

10:30 AM – 10:40 AM

5. Business Case Approvals

10:40 AM - 11:00 AM

Non-Responsive

[Business Case 626-G0345 Summit Ridge Wind - Design](#)

Chris, Wayne

Matt, Cherilyn, Jim

6. Demoss Design Cost - PfMT Inform

11:00 AM – 11:10 AM

Non-Responsive

Roy Slocum, Charley Majors

7. Prioritization 18.2 -

11:10 AM – 11:30 AM

Matt Hagensen, Tommy Ngov

8. TEP PM Resource Constraint –

11:30 AM – 11:45 AM

Gaby Alvarez

#	Assigned	Discipline	Question
47		Security	It is our assumption that coordination with the security design contractor is not in the AE's scope and that design will be performed by others after the AE submits the IFC for the substation design. Please confirm if this is a correct assumption.
54		Civil	SOW REV1 states to assume use of a well for the water source. The Q&A notes to assume a water storage tank. Please clarify intent.
55		Civil	Per responses to question 7 on pg 24 of the CDD and in the civil section on pg 26 of the SOW Rev 5, will the topographic information be obtained through multiple sources including BPA's surveyors and outside sources?
56		Civil	Responses to questions 1 & 2 on pg 39 of CDD states retaining walls and access roads bridges will not be required. However, pgs 32 & 33 of SOW Rev requests recommendations for retaining walls and bridges. Will BPA provide detailed scope expectations for retaining walls and bridges, if required?
57		Civil	is parking wanted outside of the substation? if so, how many stalls?
58		Civil	What is the minimum size and what are the grade limitations for the farm crossing that will be used by large combines?
59		Civil	Should we include a retaining wall design? Is there a preference on style or type if required?
60		Civil	Water/grey water storage to be inside fence or outside and will it require unsecure road access.
61		Civil	For the substation access road is wetland delineation required? If so, who is responsible for the work to complete this?
62		Civil (Line)	Exhibit "Unit 4 - Supplemental Schedule for invoicing by work order milestone" should the BIGE-RDMD-1 "Line Remediation's" fixed fee cost be included in the work order for the new loop in design "W.O. 47022S BIGE-RDMD-1: NEW LINE LOOP IN (DESIGN) - G0345" - - - appears one is a wind farm expense and the other is an existing facility expense
63		Civil (Line)	For the BIGE-RDMD#1 line is the A/E required to provide post correction as-built surveys (~26) of the sections modified to resolve the impairments (wire-wire, wire-ground, wire-structure)?
64		Civil: Sub	The revised RFO instructs the AE to design assuming a well and septic disposal system, not using storage tanks for water and sewer disposal. The answer to Question 14 states the AE should assume a water storage tank and septic "tank". The revised RFO/answers conflict with each other. Please confirm one of the options listed. A: Well and septic disposal system including drain field for wastewater B: Storage tank for water and septic disposal system including drain field for wastewater C: Storage tank for water and storage tank for wastewater
65		Construction	Per response to question 10 on pg 74 of the CDD, which parts of this design will be Force Account?
66		Construction	Per response to question 12 on pg 74 of the CDD, will the A/E be required to be onsite during the courtesy walk with local Fire Marshal?
67		Data	Who will be providing GPS/IRIG signal at G0345? Will BPA require their own GPS dock installation?
68		Data	Control house shows 4 data systems racks while Data Systems CDD only has 2, please confirm no more than 2 needed.
69		Environment	Per response to question 5.c on pg 27 of the CDD, will BPA initiate the conversation with the tribes?
70		Environment	Per responses to question 6 on pg 27 and 9 on pg 29 of the CDD, Will bird flight diverters be required even though approximately 20 species of migratory birds have been identified?
71		Environment	Per response to question 5 on pg 74 of the CDD, has the special permitting been identified?
72		Fire Protection	Does BPA have any Fire Protection/Alarm/Life safety requirements that exceed the indicated building and fire codes?
73		Fire Protection	Does BPA have an insurance carrier that has Fire Protection/Alarm requirements that exceed the indicated building and fire codes?
74	Inv	General	For construction support period, should A&E assume 2 site visits and 12 monthly site meetings?
75		Geotechnical	Please confirm that transmission line borings are required to go 60 feet into rock or very dense soils, and 100 feet into soft soils. Can soft soils be defined (relative density/consistency threshold)?
76		Geotechnical	Confirm that the test pit protocol for each tower is one test pit at each leg if rock is encountered?
77		Geotechnical	Does BPA have existing geotechnical information to support line remediation designs or are supplemental geotechnical investigations required?
78		Geotechnical	The Transmission Line Section, Task 4 - Deliverables, Item B states that a separate report for the "river crossing explorations" is needed. Are these the towers that span Steuber Road?

79	Indoor	Big Eddy Relay - Electromechanical line relays to be left in place. For MBTT communication aux relays and SEL-2506/SEL-2894 relays are to be used. This is a unique design. Are there any past projects where this has been implemented to use as a go-by?
80	Indoor	Boyd Ridge Telecom/SCADA - Limit wind generation points; is there a standard/go-by for these or will they be provided by Summit Ridge generation?
81	Indoor	(3) 125V Chargers are shown. Are all needed?
82	Indoor	Boyd Ridge Relay: Where is NERC/CIP security panel located. Do not see on RFO markups
83	Indoor	Boyd Ridge Relay: Synchronizing rack in SFO markups but not in SOW. Is this needed?
84	Indoor	Boyd Ridge Telecom: SONET and OMET routers are called for at both Boyd ridge and Summit ridge. I believe these are two versions of fiber communication which use different types of routers. Would BPA be able to specify which stations/lines should use each interface?
85	Mechanical	Question 53 and Question 14 answers state that for the bid we should assume water storage tank as the water source and a septic tank for wastewater. The revised SOW states we should use a well as the water source and a septic disposal system with drain field for the competitive bid. Which should we design around?
86	Mechanical	SOW Substation Design - Architectural Section questions/comments: Paragraph 4 indicates we need to design to compliance with the 2015 ICC family of codes. Oregon has their own enforced building codes. Do we need to take those (and any amendments) into consideration or disregard for this project?
87	Outdoor	Please confirm whether entry into house will contain vault or riser system to termination frame.
88	Realty	Please confirm contractor responsibility for approach permit
89	Relay	Will CAD drawings be provided of relay CDD? Specifically the One Line files?
90	Relay	Please clarify what is the intention with split trip bus. Traditionally, split DC systems imply T1 circuit, T2 (from secondary source) circuit and close circuit for each breaker. Is this the intention with BPA? Or simply splitting relay sets to feed from two different sources?
91	Relay	Please clarify what is the "SEL Programmable Automation Controller Interface Rack"
92	Relay	Please clarify if D400's are to be used or standard GPS + SEL-3400 for Irig distribution.
93	Relay	CDD does not mention ArcFlash detection on DC distribution, while statement of work does mention it's need, please clarify.
94	Structural	Will a custom station service structure be required?
95	Telecomm	Will BPA or A&E Contractor be responsible for coordination with Collector Site Customer for BPA Security requirements and rack locations at non-BPA substation sites. Q&A mentions A&E not to do collector site design.
96	Telecomm	Please confirm that BPA IT will be providing the IT rack designs, and A&E firm will provide space and coordinate connections to telecom transport equipment.
97	Telecomm	Will outages for the Ross-Malin fiber system between Big Eddy and Buckley be coordinated by A&E Firm, BPA, or Construction Contractor?
98	Telecomm	Please confirm SONET nodes to be Cisco 15454, or will they be JMW?
99	Telecomm	Are the cellular network extenders mentioned as part of the telecom scope part of the metering standards? If not, please provide standard or go-by for this requirement.
100	Telecomm	Will 48 VDC batteries at Summit Ridge need to be in a separate room?
101	Telecomm	At Buckley and Big Eddy, will the optic cord evaluation due to shorter range be A&E scope to evaluate or just design if BPA determines new optic cards are required.
102	Transmission	Should A&E complete FAA determination request and filing with FAA?
103	Transmission	Should A&E's bid include marker ball design?
104	Transmission	Should A&E's bid include a design for new lattice steel towers at 11/2 and 11/3 per drawing "Phasing & Interconnected Sketch" provided by BPA?
105	Transmission	Should A&E bid a total of 9 dead-end and 3 suspension lattice steel towers for the "looped-in line section"?

106		Transmission	
			For impairment remediation, what deliverables are expected for a "remove ground" fix?
107		Transmission	What factors should A&E consider for the evaluation if the OHGW is required beyond structure 11/2 at the "looped-in line section"? Outside of the 1/2 mile OHGW requirement from the substation is BPA looking for an electrical study and/or structural considerations?

Answer
The assumption is correct
Assume a water storage tank BPA will provide the survey for the project
Retaining walls and bridge requirements needs to be determined by the consultant during design.
Design details will be tackled during the design phase; this is irrelevant during the bidding process
Design details will be tackled during the design phase; this is irrelevant during the bidding process
Retaining walls and bridge requirements needs to be determined by the consultant during design.
Outside the fence BPA will provide any necessary wetland delineation
WCD for the Steubenville project - the same is required for the contractor
BPA Survey is required to perform the as-built data collection to update BPA plan and profile drawings.
B: Storage tank for water and septic disposal system including drain field for wastewater
None, the construction is contracted
Yes
The Bettas Road control house drawing provided is a reference document given to demonstrate the approximate size that the Boyd Ridge Control House should be. It is not to be a copy and paste for Boyd Ridge construction as our standards have changed since Bettas Road was built.
Yes
Yes
Transmission line borings are only required for structures that will be supported by drilled shaft foundations. Most structures with standard grillage or plate foundations can be explored with test pits. Soft soils are not anticipated at this project.
That is not correct; please reread the SOW. If rock is encountered, all legs require test pits to determine depth to rock.
There is no existing geotechnical information.
This is a generic SOW that includes river crossing towers if they are included in the design. We have no river crossing towers in this project; however, if drilled shaft foundations are anticipated for the Steubenville Road span structures, the geotech report should include drilled shaft design recommendations (not necessarily in a separate report).

Yes. This is not a typical design but we have used it several times before successfully.
BPA to coordinate. AE is responsible for attending coordination meetings and provide information as needed.
Rob, please clarify where you found 3 chargers; Per the standard only 2 are required
Design details will be tackled during the design phase; this is irrelevant during the bidding process
Yes this is needed, SOW adjusted
OMET should be used to transport FIN, NMS, DPMU, and IT. The rest of the circuits should use SONET transport.
Storage tank for water and septic disposal system including drain field for wastewater, SWO corrected
Design details will be tackled during the design phase, this is irrelevant during the bidding process
BPA reality team will obtain the approach permit. AE is responsible for providing any necessary design information and exhibits.
No, CAD drawing will not be provided
This is SEL-2411/2440 to combine the alarms to the ORION SER/ SCDA Unit
Those are two different things, both are needed per the SOW
CDD Page 44- Mentions the DC Arc Flash
Note that the CDD is reference document; the statement of work is the contract
To be determined during design examples will be provided if custom SS structure and footing is needed
BPA to coordinate. AE is responsible for attending coordination meetings and provide information as needed.
Per JS - IT and Security rack design will be handled by current security vendor. A&E to ensure space and coordinate connections to telecom transport equipment
AE is responsible for developing a comprehensive construction sequencing plan that includes all necessary outages to complete the project construction, this includes the fiber outages.
BPA PM will lead the coordination effort to finalize the step plan and request the outages.
The SONET nodes for this project should be Cisco 15454.
No, cellular network extenders is not part of the standard. Examples will be provided during design if necessary
125 and 48VDC batteries are to be stored in a separate room per BPA standards. There is a minimum distance required between them.
Yes, fiber optic link analysis is part of AE scope.
No, BPA will perform that task, A&E need to provide information on design structures' location and height at 50% submittal
No, BPA will perform that task, A&E need to provide information on design structures' location and height
No new tower designs are needed. Analysis of standard tower designs for the specific wire configurations will need to be checked to ensure it is within the limits of the standard tower design criteria.
The Line Drawings provided in the "Boyd Ridge Drawings.zip" within the Technical Exhibits folder of the Boyd Ridge BFO ProjectWise folder were provided in error and will be removed from the folder.
3 dead-ends and 3 suspensions is what we describe in the SOW

A&E is responsible for providing the following:

- Plan and profile (pdf) and cross sections (pdf) of one of the conductors – this will be used for Survey staking purposes.
- An aerial map of the cut and fill boundaries (for Enviro.).
- Provide a .csv file for Survey staking that will utilize a provided template (from the plan/profile pdf).
- attached are examples that details the required deliverables.

Please note that BPA Survey is required to perform the as-built data collection to update BPA plan and profile drawings.

Due to the low frequency of lightning outages in this area, extending the OHGW beyond 11/2 is not required.

From: Naef,Dennis C (BPA) - FAC-2

Sent: Fri Jul 27 06:41:22 2018

To: Hagensen,Matt L (BPA) - TPWP-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: FW: Please Review - Draft ACPRT Decision Document - Summit Ridge Wind 7-27-18 1

Importance: Normal

Attachments: Summit Ridge Wind G0345 - ACPRT Review 07312018 Draft.docx

For your review and comment as well...

From: Naef,Dennis C (BPA) - FAC-2

Sent: Friday, July 27, 2018 6:40 AM

To: Dickinson,Sheila L (BPA) - FAC-MODD; Bell,Eric A (BPA) - FAC-2 (eabell@bpa.gov); Ballou,Douglas W (BPA) - FAC-OPP-2; Limpf,Lorinda L (BPA) - FRP-OPP-2; Westman,Erik D (BPA) - CBE-7; Williams,Nigel L (BPA) - CBE-7; Leady Jr,William J (BPA) - K-7 (wjleady@bpa.gov)

Subject: Please Review - Draft ACPRT Decision Document - Summit Ridge Wind

Please review the attached draft and provide any comments by noon Monday. The final business case is included in the decision document.

Finance Committee Investment Approval

August 9, 2018

Capital project name: Summit Ridge Wind Project G0345

Transmission Services seeks Finance Committee approval to construct a new substation and install the equipment necessary to interconnect the Summit Ridge wind project.

Background

This project is proposed in response to a generation interconnection request for a 201 MW wind project. The request was originally submitted by Lotus Energy Group with ownership of the wind project later transferring to Pattern Energy. The project is located at Summit Ridge in Wasco County, Oregon.

The business case details the plan of service which includes a new BPA 230 kV substation (Boyd Ridge) and a loop-in line from Big Eddy – Redmond No. 1. The scope also includes fiber as well as transfer trip and line loss logic at Redmond and Big Eddy substations. In addition, Pattern Energy will construct and own a collector substation (Summit Ridge) and generation tie line.

Cost and Schedule

The direct capital cost is estimated to be (b) (4). The customer will provide advance funding for the entire cost. Of the \$(b) (4) in direct costs the customer will advance fund, \$(b) (4) will be returned in the form of transmission service credits and the remaining \$(b) (4) will be direct assigned to the customer. Based on the current project schedule, construction is expected to be completed by June 30, 2021.

Finance Committee Decision

The Finance Committee approves this proposed capital project to construct a new substation and install the equipment necessary to interconnect the Summit Ridge wind project. The Finance Committee also approves the targets contained in the attached table.

The capital project is greater than (b) (4) in direct capital costs and Transmission overheads and therefore is to be reviewed and approved by the Finance Committee per BPA Capital Project Authorization Policy 240-3.

Finance Committee Investment Approval

August 9, 2018

Project Implementation Targets

Summit Ridge Wind Project G0345			
Measure Description	Progress Indicators	End of Project Target	Accountability
<p>Project Cost</p> <p>Transmission services direct capital cost excludes AFUDC and overheads</p>	<p>Green: Total direct capital costs are forecast to be less than or equal to \$(b) (4)</p> <p>Yellow: Total direct capital costs are greater than (b) (4) but less than or equal to \$(b) (4)</p> <p>Red: Total direct capital costs are forecast to be greater than \$(b) (4)</p>	<p>Green: Actual total direct capital costs are less than or equal to \$(b) (4)</p> <p>Red: Actual total direct capital costs exceed \$(b) (4)</p>	<p>Measure Owner: TEP Manager POC: Rasha Kroonen SME: Cherilyn Randall Performance Reporting: Jini Karras</p>
<p>Project Schedule</p>	<p>Green: Facilities are forecast to be energized by June 30, 2021.</p> <p>Yellow: Facilities are forecast to be energized after June 30, 2021 but on or before October 30, 2021.</p> <p>Red: Facilities are forecast to be energized after October 30, 2021.</p>	<p>Green: Facilities are energized by October 30, 2021.</p> <p>Red: Facilities are energized after October 30, 2021.</p>	<p>Measure Owner: TEP Manager POC: Rasha Kroonen SME: Cherilyn Randall Performance Reporting: Jini Karras</p>
<p>Project Scope/Capability</p>	<p>Green: Forecast scope is to construct the facilities as described in the business case.</p> <p>Yellow: N/A</p> <p>Red: Less than green.</p>	<p>Green: The facilities are constructed as described in the business case.</p> <p>Red: Less than green.</p>	<p>Measure Owner: TEP Manager POC: Rasha Kroonen SME: Cherilyn Randall Performance Reporting: Jini Karras</p>

**U.S. DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION**

AGREEMENT

1. AGREEMENT NUMBER 19TP-11800	2. AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL See Block #11	3. AMENDMENT NO. -0-	4. EFFECTIVE DATE Same as Block #17
--	---	--------------------------------	---

ISSUED TO		ISSUED BY	
5. ORGANIZATION AND ADDRESS Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP ATTN: General Counsel 1088 Sansome San Francisco, CA 94111		6. ORGANIZATION AND ADDRESS U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola - TPCC/TPP-4 P.O. Box 61409 Vancouver, WA 98666	

7. TECHNICAL CONTACT Karan Joshi	PHONE NUMBER (b) (6)	8. TECHNICAL CONTACT Cherilyn Randall	PHONE NUMBER (360) 619-6051
9. ADMINISTRATIVE CONTACT Kevin Wetzal	PHONE NUMBER (b) (6)	10. ADMINISTRATIVE CONTACT Anna Cosola	PHONE NUMBER (360) 619-6047

11. TITLE/BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT
**ENGINEERING ACTIVITIES FOR SUMMIT RIDGE WIND, LLC c/o PATTERN RENEWABLES 2 LP'S
LARGE GENERATOR INTERCONNECTION REQUEST NO. G0345 - SUMMIT RIDGE WIND PROJECT**

Interconnection Request: On September 16, 2008, Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP (Summit Ridge Wind) submitted a Large Generator Interconnection Request (Request), seeking to interconnect Summit Ridge Wind's proposed 201 MW wind project to the Bonneville Power Administration's (BPA) (b) (4) kV transmission line. The Request was entered into BPA's Generator Interconnection Queue as Request No. G0345.

Nature of Agreement: This Reimbursable Agreement (Agreement) provides for BPA, at Summit Ridge Wind's expense, to perform engineering activities required to facilitate the Request. Engineering activities will includemodifications to BPA facilities.

Transmission Credits: BPA and Summit Ridge Wind intend to enter into a separate long-term agreement that describes the classification of network upgrades eligible for transmission credits, and the terms of repayment of such credits.

Term and Termination: This Agreement shall become effective upon execution by both parties and shall terminate upon full performance by both parties of their respective obligations set forth herein, but in no event shall the term of this Agreement exceed five years from its effective date.

Project Schedule: The estimated completion date for activities being performed under this Agreement is **DATE**.

The following document is attached to and becomes part of this Agreement:

- Financial Terms and Conditions Statement

Comment [djs1]: Remove if 1) PTP customer or 2) if NT customer and project does not qualify for transmission credits for preliminary engineering.

12. AMOUNT TO BE PAID BY BPA \$-0-	13. AMOUNT TO BE PAID TO BPA XXXX,XXX (estimate)
--	--

14. SUBMIT SIGNED AGREEMENT TO U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola - TPCC/TPP-4 P.O. Box 61409 Vancouver, WA 98666	15. ACCOUNTING INFORMATION (For BPA Use Only)
	16. SUBMIT INVOICE TO (Name and Address) Same as Block #5 above.

PARTICIPANT		BPA	
17. APPROVED BY (Signature)	DATE (MM/DD/YY)	18. APPROVED BY (Signature)	DATE (MM/DD/YY)
NAME AND TITLE		NAME AND TITLE Transmission Account Executive Transmission Sales	

FINANCIAL TERMS AND CONDITIONS STATEMENT

BPA's cost of performing the project at Summit Ridge Wind's expense shall be the actual cost of doing the work specified in this Agreement, plus the following overhead rates, representing the indirect costs of the project office plus the contractual support costs of contract negotiation, billing and accounting functions, and contract management.

BPA Labor	57%
Materials/Supplies/Equipment	26%
Supplemental Labor and Service Contracts	57%
Construction, Survey and Turnkey Contracts	26%

Summit Ridge Wind hereby agrees to advance \$xx,xxx, the estimated project cost, to BPA upon execution of this Agreement. If BPA and Summit Ridge Wind execute a Large Generator Interconnection Agreement (LGIA), the advance funds received and costs incurred under this Agreement will be accounted for under the LGIA, which will describe the final plan of service, cost estimates and deposits, as well as the classification of those Network Upgrades eligible for credits.

Comment [BPA_amc2]: Does this sentence apply?

If BPA needs additional funds to complete the work at any time during performance of this Agreement, BPA may request, in writing, for Summit Ridge Wind to advance such additional funds to BPA for deposit in the account. Summit Ridge Wind shall advance such additional funds within 30 days of BPA's written request, and BPA may temporarily stop work until Summit Ridge Wind supplies the requested funds.

If Summit Ridge Wind does not advance such additional funds by the due date or, if at any time before completion of the project Summit Ridge Wind elects to terminate or suspend work under this Agreement, BPA has the right to cease all work and restore, as a cost to the project at Summit Ridge Wind's expense, government facilities and/or records to their condition prior to the beginning of work under this Agreement. BPA shall then make a full accounting to Summit Ridge Wind showing the actual costs charged against the account, and shall either remit any unexpended balance in the account to Summit Ridge Wind or bill for any costs in excess of the deposits in the account. Summit Ridge Wind shall pay any excess costs within 30 days of the invoice date (due date). BPA shall return to stock any reusable equipment and materials, as determined by BPA, and Summit Ridge Wind shall receive no transmission credits or associated interest for amounts paid to BPA for network upgrades under this provision.

Comment [BPA_amc3]: Keep or delete?

Payments not received by the due date will accrue interest on the amount due beginning the first calendar day after due date to the date paid, at the appropriate rate calculated in accordance with the methodology specified for interest on refunds in the Federal Energy Regulatory Commission's regulations at 18 C.F.R. § 35.19a(a)(2)(iii).

Finance Committee Investment Approval

August 9, 2018

Capital project name: Fairview Reactors and Transformer

Transmission Services seeks Finance Committee approval to install two 115 kV shunt reactors and replace one 230-115 kV transformer at Fairview Substation.

Background

This proposed project will address high voltage issues at the Fairview 230 kV bus. BPA planning guidelines require that subgrid voltages stay at or below 1.05 pu for all credible contingency scenarios where that overvoltage would cause loss of life to equipment. During 2017, recorded voltages were above the recommended level (1.05 pu) one third of the time. Continuing to operate the equipment at the higher voltage levels will reduce the life of the equipment, increase noise levels, reduce reliability and risk a more catastrophic failure that would have environmental consequences.

To resolve the overvoltage issue, two reactors will be installed and one transformer and associated disconnect switches will be replaced. The transformer and switches are at the end of their useful lives and are needed to fully realize the reactor benefits. Further, the transformer has been targeted by the AC Substations sustain program as one of the top two replacement priorities due to a number of issues, including high PCB content and leakage.

Cost and Schedule

The direct capital cost is estimated to be \$14.2 million. With AFUDC and overheads, the total cost is estimated to be \$18.6 million. Based on the current project schedule, construction is expected to be completed by December 31, 2022.

Finance Committee Decision

The Finance Committee approves this proposed capital project to install two 115 kV shunt reactors and replace one 230-115 kV transformer at Fairview Substation. The Finance Committee also approves the targets contained in the attached table.

The capital project is greater than \$7 million in direct capital costs and Transmission overheads and therefore is to be reviewed and approved by the Finance Committee per BPA Capital Project Authorization Policy 240-3.

Finance Committee Investment Approval

August 9, 2018

Project Implementation Targets

Fairview Reactors and Transformer			
Measure Description	Progress Indicators	End of Project Target	Accountability
<p>Project Cost</p> <p>Transmission services direct capital cost excludes AFUDC and overheads</p>	<p>Green: Total direct capital costs are forecast to be less than or equal to \$11.0 million.</p> <p>Yellow: Total direct capital costs are \$11.0 million but less than or equal to \$14.3 million.</p> <p>Red: Total direct capital costs are forecast to be greater than \$14.3 million.</p>	<p>Green: Actual total direct capital costs are less than or equal to \$14.3 million.</p> <p>Red: Actual total direct capital costs exceed \$14.3 million.</p>	<p>Measure Owner: TEP Manager POC: Rasha Kroonen SME: Jim Hallar Performance Reporting: Jini Karras</p>
<p>Project Schedule</p>	<p>Green: Equipment is forecast to be energized by December 31, 2021.</p> <p>Yellow: Equipment is forecast to be energized after December 31, 2021 but on or before December 31, 2022.</p> <p>Red: Equipment is forecast to be energized after December 31, 2022.</p>	<p>Green: Equipment is energized by December 31, 2022.</p> <p>Red: Equipment is energized after December 31, 2022.</p>	<p>Measure Owner: TEP Manager POC: Rasha Kroonen SME: Jim Hallar Performance Reporting: Jini Karras</p>
<p>Project Scope/Capability</p>	<p>Green: Forecast scope is to complete the additions and replacements as described in the business case.</p> <p>Yellow: N/A</p> <p>Red: Less than green.</p>	<p>Green: The additions and replacements are completed as described in the business case.</p> <p>Red: Less than green.</p>	<p>Measure Owner: TEP Manager POC: Rasha Kroonen SME: Jim Hallar Performance Reporting: Jini Karras</p>

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Wed Sep 12 14:53:46 2018

To: Jacobsen,Nancy L (BPA) - TFDB-THE DALLES; Roberts,Ken (BPA) - TELP-CSB-2; O'Connell,Michael J (BPA) - ECT-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; O'Donnchadha,Brian M (BPA) - ECC-4; Clark,James L (BPA) - TERR-CHEMAWA; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3

Subject: G0345: Boyd Ridge Update 9-12-18 1

Importance: High

Attachments: BoydRidge-entrance-road.pdf

Good Afternoon Team,

Nancy requested an update on the project so I thought I would take the opportunity to provide everyone with the latest update on the Boyd Ridge Project

Customer Coordinating:

A regular customer coordination meeting will be set up starting October 2018.

Environmental update:

- Preliminary environmental surveys are complete, possible construction time restrictions for nesting birds.
- Archology : Brian is initiating consultation with the tribes and once that has been done and the 30-day comment period has expired I will have the ground surveyed.

Real Property

- The property owners have agreed to the latest substation location – see attached

Contracting schedule

Design contract is moving forward, see schedule below:

Task

Date

Status

Issue RFO

08/24/2018

Complete

Last Day for RFO Clarification Questions – Rd. 1

09/21/2018

BPA's Clarification Questions Response Due – Rd. 1

10/05/2018

Last Day for RFO Clarification Questions – Rd. 2

10/12/2018

BPA's Clarification Questions Response Due – Rd. 2

10/19/2018

Offers Due

11/05/2019

Evaluation of Offers

11/12/2018 – 11/16/2018

Award Contract

12/03/2018

Please let me know if any additional information is needed

Kind Regards,

Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration

Flux Resources, LLC | A David Evans Enterprises Company
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)

Office: (360) 619-6918 Cell: (b) (6)
Email: rmkroonen@bpa.gov

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Thu Apr 12 11:39:47 2018

To: TPWP PC mailbox

Cc: PWASstudy; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1

Subject: G0345 - TPC Capital WO Request: 16TP-11044 4-12-18 1

Importance: Normal

Attachments: 11044_03_SummitRidgeWind.pdf; RE: PAYMENT RECEIVED G0345 EXECUTED Agreement No. 16TP-11044 A3_Summit Ridge_Prelim Engrg

*****REMINDER: PLEASE ATTACH A COPY OF THE AGREEMENT OR THE APPLICATION FORM TO ALL WO REQUESTS*****

If more than one WO is needed please provide the required information for each work order.

CAPITAL

Sent to: TPWP PC Mailbox
cc: CSE, PM, Jana, PWASstudy
Subject: Queue Number - TPC Capital WO Request: Agreement Number/BC Number

1. Customer Service Engineer: [Cherilyn Randall](#)
2. Contract Specialist: [Anna Cosola](#)
3. Full Contract Amount: (direct dollars only) (b) (4)
4. Customer Deposit: (direct dollars only) (b) (4)

5. SPECIAL INSTRUCTIONS/COMMENTS: (if there is anything that you want us to include on the WO for your purposes) [I have also attached the email from Cherilyn, with the deposit breakdown, for reference.](#)

Instructions:

Queue number - Specific queue Number for request (generated from CBSA)

Agreement Number - Specific Agreement number for request

Business Case (BC) Number - Specific BC number relating to the request. Remember this pertains only to those projects with a capital component.

Customer Service Engineer – Person you are working with on this request and the technical SME

Contract Specialist – Person processing this Agreement/Request

Full Contract Amount – Full Contract Amount, excluding overhead rates (e.g. for contracts that have Progress Payments associated with them)

Customer Deposit – amount, excluding overheads that BPA has received from the customer

From: Kelly,Shanna M (CONTR) - TPC-TPP-4

Sent: Wed Dec 13 08:24:01 2017

To: Lynard, Gene P (BPA) - ECT-4; Naef, Amber L (BPA) - FRG-2; Shier, Robert P (BPA) - FRG-2; Dull, Jon M (BPA) - FT-2; Bleiler, Damen C (BPA) - FTL-2; Acosta, Esteban (BPA) - FTOA-2; Kannan, Sue (BPA) - TFB-DOB1; Hakala, Tuuli M (BPA) - LT-7; Kroonen, Rasha (CONTR) - TEP-TPP-1; Cosola, Anna M (BPA) - TPCC-TPP-4; Sauer, Dena J (BPA) - TPCC-TPP-4; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Taylor, Eric K (BPA) - TSE-TPP-2; Boehle, Jennifer M (BPA) - TSES-TPP-2; TEPO Reimbursable Team; PWASstudy; CCM_Support

Subject: G0345 16TP-11044 A2_Summit Ridge, offered 12-13-18 1

Importance: Normal

Attachments: G0345 16TP-11044 A2_Summit Ridge agreement final.pdf; G0345 16TP-11044 A2_Summit Ridge final.pdf

The attached G0345 16TP-11044 A2_Summit Ridge, has been sent to the customer.

Customer File – TPC/TPP-4 (Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP)

PWA File – TPC/TPP-4 (G0345/22-Contract Agreements-Work Orders)

CCM_Support

Official File – CCM (Summit Ridge Wind, LLC, Contract No. 16TP-11044)

Shanna Kelly (CONTR)

Flux Resources, LLC

A David Evans Enterprises Company

Administrative Service Assistant

Customer Service Engineering, TPC-TPP-4

Bonneville Power Administration

Phone: 360-619-6075

E-mail: smskelly@bpa.gov

Developer ~ Empathy ~ Responsibility ~ Restorative ~ Relator

From: Kelly,Shanna M (CONTR) - TPC-TPP-4

Sent: Fri Mar 23 09:22:43 2018

To: Lynard, Gene P (BPA) - ECT-4; Naef, Amber L (BPA) - FRG-2; Shier, Robert P (BPA) - FRG-2; Dull, Jon M (BPA) - FT-2; Bleiler, Damen C (BPA) - FTL-2; Acosta, Esteban (BPA) - FTOA-2; Perkins, Matthew W (BPA) - LT-7; Kroonen, Rasha (CONTR) - TEP-TPP-1; Allen, Neva J (BPA) - TFAW-REDMOND; Cosola, Anna M (BPA) - TPCC-TPP-4; Sauer, Dena J (BPA) - TPCC-TPP-4; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Taylor, Eric K (BPA) - TSE-TPP-2; Boehle, Jennifer M (BPA) - TSES-TPP-2; TEPO Reimbursable Team; TF_Region Resource Specialists; PWASstudy; CCM_Support

Subject: G0345 16TP-11044 A3_Summit Ridge_Prelim Engrg, offered 3-23-18 1

Importance: Normal

Attachments: _BPA Payment Instructions 4_1_17.pdf; G0345 16TP-11044 A3_Summit Ridge_Prelim Engrg final.pdf; G0345 16TP-11044 A3_Summit Ridge_Prelim Engrg agreement final.pdf

The attached G0345 16TP-11044 A3_Summit Ridge_Prelim Engrg, has been sent to the customer.

Customer File – TPC/TPP-4 (Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP)

PWA File – TPC/TPP-4 (G0345/22-Contract Agreements-Work Orders)

CCM_Support

Official File – CCM (Summit Ridge Wind, LLC, Contract No. 16TP-11044)

Shanna Kelly (CONTR)

Flux Resources, LLC

A David Evans Enterprises Company

Administrative Service Assistant

Customer Service Engineering, TPC-TPP-4

Bonneville Power Administration

Phone: 360-619-6075

E-mail: smskelly@bpa.gov

Developer ~ Empathy ~ Responsibility ~ Restorative ~ Relator

From: Kelly,Shanna M (CONTR) - TPC-TPP-4

Sent: Thu Apr 05 08:58:18 2018

To: Lynard, Gene P (BPA) - ECT-4; Naef, Amber L (BPA) - FRG-2; Shier, Robert P (BPA) - FRG-2; Dull, Jon M (BPA) - FT-2; Bleiler, Damen C (BPA) - FTL-2; Acosta, Esteban (BPA) - FTOA-2; Perkins, Matthew W (BPA) - LT-7; Kroonen, Rasha (CONTR) - TEP-TPP-1; Allen, Neva J (BPA) - TFAW-REDMOND; Cosola, Anna M (BPA) - TPCC-TPP-4; Sauer, Dena J (BPA) - TPCC-TPP-4; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Taylor, Eric K (BPA) - TSE-TPP-2; Boehle, Jennifer M (BPA) - TSES-TPP-2; TEPO Reimbursable Team; TF_Region Resource Specialists; PWASstudy; CCM_Support

Subject: G0345 16TP-11044_Design_Retender, offered 4-5-18 1

Importance: Normal

Attachments: _BPA Payment Instructions 4_1_17.pdf; G0345 16TP-11044_Design_Retender final.pdf; G0345 16TP-11044_Design_Retender agreement final.pdf

The attached G0345 16TP-11044_Design_Retender, was sent to the customer.

Customer File – TPC/TPP-4 (Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP)

PWA File – TPC/TPP-4 (G0345/22-Contract Agreements-Work Orders)

CCM_Support

Official File – CCM (Summit Ridge Wind, LLC, Contract No. 16TP-11044)

Shanna Kelly (CONTR)

Flux Resources, LLC

A David Evans Enterprises Company

Administrative Service Assistant

Customer Service Engineering, TPC-TPP-4

Bonneville Power Administration

Phone: 360-619-6075

E-mail: smskelly@bpa.gov

Developer ~ Empathy ~ Responsibility ~ Restorative ~ Relator

ACPRT Investment Review Summary

July 31, 2018

Capital project name: Summit Ridge Wind Project G0345

Transmission Services seeks ACPRT and Finance Committee approval to construct a new substation and install the equipment necessary to interconnect the Summit Ridge wind project.

The direct capital cost is estimated to be (b) (4). The customer will provide advance funding for the entire cost. Of the (b) (4) in direct costs the customer will advance fund, (b) (4) will be returned in the form of transmission service credits and the remaining (b) (4) will be direct assigned to the customer. Based on the current project schedule, construction is expected to be completed by June 30, 2021.

Background

This project is proposed in response to a generation interconnection request for a 201 MW wind project. The request was originally submitted by Lotus Energy Group with ownership of the wind project later transferring to Pattern Energy. The project is located at Summit Ridge in Wasco County, Oregon.

The business case details the plan of service which includes a new BPA 230 kV substation (Boyd Ridge) and a loop-in line from Big Eddy – Redmond No.1. The scope also includes fiber as well as transfer trip and line loss logic at Redmond and Big Eddy substations. In addition, Pattern Energy will construct and own a collector substation (Summit Ridge) and generation tie line.

ACPRT Evaluation

Transmission Services prepared a business case which includes the business need for the project, alternatives considered, key risks, and basic financial implications. The ACPRT has evaluated the business case and finds the following:

- This project is proposed in response to a generation interconnection request. As such, the more limited business case requirements are established in the *Business Case Requirements for Generation and Line/Load Interconnection Projects* guidelines. The primary driver for the project is the tariff requirement that BPA provide non-discriminatory open access to BPA's transmission system for interconnection requests.
- Alternative plans of service were considered, including the next best alternative which is interconnection to the John Day – Marion 500 kV line. That alternative was eliminated as it would be far more costly.
- As an expansion project (policy commitment), this project is subject to the prioritization process. It was "green lit" by the Finance Committee in December 2017. The direct capital costs in this business case have increased about \$(b) (4) from the base

ACPRT Investment Review Summary

July 31, 2018

- estimate that was presented in the prioritization process, but are well within the expected range from that analysis. The cost increase is the result of the detailed scoping that has occurred since the project was last analyzed in the prioritization process.
- For projects subject to the prioritization process, we look to the detailed net economic benefit analysis to evaluate the economics of the project. That analysis indicates:
 - The investment has a Net Economic Benefit Ratio of 1.5, which means that for every dollar invested, a net benefit of a dollar and a half is returned.
 - Over its life, the investment is expected to result in slight downward rate pressure.
 - The business case includes the following acceptable performance ranges for the cost, schedule and scope targets:
 - The project sponsors proposed a cost target range of uncertainty of \$2.6 million. This range reflects a 70% confidence level for the documented and analyzed uncertainties which include RAS resource constraints, outage constraints and construction market bid uncertainty.
 - A schedule range of uncertainty of four months is proposed. This narrow range reflects BPA's commitment to meeting the customer requested energization date.
 - No range is proposed for the scope target. The facilities must be completed as described to maintain green status.
 - The ACPRT believes the proposed ranges are reasonable for a project of this nature.

ACPRT Decision

The ACPRT approves this proposed capital project to construct a new substation and install the equipment necessary to interconnect the Summit Ridge wind project and recommends the Finance Committee do the same. The ACPRT also approves the targets contained in the attached table.

The capital project is greater than \$7 million in direct capital costs and Transmission overheads and therefore is also to be reviewed and approved by the Finance Committee per BPA Capital Project Authorization Policy 240-3.

Project approvals and key dates

The project was approved by the Transmission Asset Management Executive Committee on June 29, 2018. The project business case was forwarded to the ACPRT for review and approval on July 11, 2018. The ACPRT met with the project sponsors (Matt Hagensen, Jana Jusupovic, Cherilyn Randall, Rasha Kroonen) on July 17, 2018. The project sponsors returned an updated business case on July 26, 2018. The ACPRT approved the project on July __, 2018.

ACPRT Investment Review Summary

July 31, 2018

Business Case and Prioritization Investment Summary



 Summit Ridge
 Business Case



 Summit Ridge
 Investment Summary

Project Implementation Targets

Summit Ridge Wind Project G0345

Measure Description	Progress Indicators	End of Project Target	Accountability
Project Cost Transmission services direct capital cost excludes AFUDC and overheads	Green: Total direct capital costs are forecast to be less than or equal to (b) (4) Yellow: Total direct capital costs are greater than (b) (4) but less than or equal to \$(b) (4) Red: Total direct capital costs are forecast to be greater than \$(b) (4)	Green: Actual total direct capital costs are less than or equal to \$(b) (4) Red: Actual total direct capital costs exceed \$(b) (4)	Measure Owner: TEP Manager POC: Rasha Kroonen SME: Cherilyn Randall Performance Reporting: Jini Karras

ACPRT Investment Review Summary

July 31, 2018

<p>Project Schedule</p>	<p>Green: Facilities are forecast to be energized by June 30, 2021.</p> <p>Yellow: Facilities are forecast to be energized after June 30, 2021 but on or before October 30, 2021.</p> <p>Red: Facilities are forecast to be energized after October 30, 2021.</p>	<p>Green: Facilities are energized by October 30, 2021.</p> <p>Red: Facilities are energized after October 30, 2021.</p>	<p>Measure Owner: TEP Manager POC: Rasha Kroonen SME: Cherilyn Randall Performance Reporting: Jini Karras</p>
<p>Project Scope/Capability</p>	<p>Green: Forecast scope is to construct the facilities as described in the business case.</p> <p>Yellow: N/A</p> <p>Red: Less than green.</p>	<p>Green: The facilities are constructed as described in the business case.</p> <p>Red: Less than green.</p>	<p>Measure Owner: TEP Manager POC: Rasha Kroonen SME: Cherilyn Randall Performance Reporting: Jini Karras</p>

From: O'Connell,Michael J (BPA) - ECT-4

Sent: Tue Nov 06 11:31:50 2018

To: Kroonen,Rasha (CONTR) - TEP-TPP-1

Cc: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: G0345 Boyd Ridge - may need EA 11-6-18 1

Importance: Normal

Hi Rasha,

Our NCO chatted with Hub Adams, senior attorney on transmission issues. Looks like they think an EA will be required for Boyd. This could push the March '19 NEPA completion back, but there could be ways to deal with the realty issue and their need for NEPA completion before initiating acquisition – and still have full project NEPA clearance comfortably before construction.

I'll be looking for a time next week to get all on a call to look at the issue and why this was raised to an EA.

Thanks,

[Mike O'Connell](#), ECT-4

P: 503-230-7692

C: (b)(6)

BONNEVILLE POWER ADMINISTRATION

P00627 - G0345 BOYD RIDGE SUBSTATION CDD

P00627 - G0345: Summit Ridge Wind Project 230kV Ring Bus
Substation (Boyd Ridge)

Prepared by: Ken Roberts

12/30/2016



This Concept Design Document
preliminary project schedule for

ation, Project Requirements Documentation, cost estimate, and
This document is intended to be a living document, subject to change and

	BONNEVILLE POWER ADMINISTRATION Concept Design Document	Page 1 of 114
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[AutoDate]		

refinement as information is pursued and discovered during the early project lifecycle stages through the Concept Design stage, and beyond as applicable, of a proposed project.

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SUMMARY

DOCUMENT PURPOSE

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This document describes the scope of work for G0345 - Summit Ridge Wind Project 230kV Ring Bus Interconnection Substation, which would be named Boyd Ridge Substation located in the Boyd, Oregon area. Boyd, Oregon is approximately 11 miles southeast of The Dalles, Oregon.

Project Initiator: Cherylyn Randall

Project Sponsor: Jana Jusupovic

Project Engineer(s): Ken Roberts

Dustin Liebhaber

SUMMARY OF PROPOSED WORK

This project will create a new BPA 230kV substation named Boyd Ridge Substation, located in Boyd, Oregon. The purpose of Boyd Ridge Substation is to interconnect a 201 MW wind project proposed by Lotus Energy Group, located at Summit Ridge in Wasco County, OR. Boyd Ridge substation will connect to a collector substation through a generation tie line to be built and owned by Lotus Energy Group, tentatively named Summit Ridge Substation which will be located approximately 7 miles east of Boyd Ridge. Boyd Ridge Substation will loop in the 230kV Big Eddy – Redmond 1 line at structure 11/2, between Big Eddy and Maupin substations.

The proposed location for Boyd Ridge Substation is a greenfield site, currently part of a wheat farm. A purchase of 20 acres is proposed, with approximately 8.5 acres being developed. Environmental and cultural resources work will need to be done to make sure this location is suitable for a substation build. Assuming it is acceptable, realty and surveying will need to work to identify boundaries and purchase the appropriate 20 acre plot of land.

Boyd Ridge Substation will be built in a two bay, ring bus configuration near structure 11/3 of the Big Eddy – Redmond 1 line. Three new 230kV breakers, rated at 2000A, 40KAIC will be installed along with disconnect switches rated at 2000A.

A new substation building will need to be constructed. Fencing and other security measure standards will need to be installed. Appropriate station service, 130VDC battery bank and 48VDC battery bank with chargers will be installed.

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Appropriate 230kV relay protection will be installed along with PCB failure and DLC relays required for the PCB. Associated relays and control will be installed on line terminals back to wind collector station, including hot bus/dead line check reclosing.

Redundant transfer trip equipment will be installed at Boyd Ridge Substation and also at the Big Eddy 230kV and Redmond 230kV ends of the line. Transfer trip should operate for bus tie breaker at Big Eddy and Redmond. One set of transfer trip will be installed at Big Eddy 230kV PCB (A814) and Redmond 230kV PCB (A254).

Redundant Line Loss Logic will be installed at Big Eddy, Boyd Ridge and Redmond 230kV substations for local RAS schemes.

Appropriate communications systems to be installed. This will include SER/SCADA, dual generation RMS with telemetry, PMU, Generation Limiting System, FIN, NMS, DATS, Howler, Rose alarm and if reasonable and possible, a PSTN line.

BPA will install bi-directional RMS remote generation integration metering for plant output at the wind collector substation. BPA will provide and maintain fiber mux equipment at the wind collector substation for BPA communication circuits. BPA will install a data PMU on each collector transformer at the wind collector substation.

BPA will install and maintain fiber from Boyd Ridge substation feeding into the OC-48 #KC00 backbone fiber ring. Customer will install and maintain two fiber cables between the wind collector substation and Boyd Ridge substation.

The Boyd Ridge loop-in should split Big Eddy – Redmond No. 1 transmission line at Tower 11/2 (AP 40). Towers 11/1 (AP 39) and 11/3 (AP 41), which have a horizontal phase configuration, should transition to a new vertical phase double dead end tower replacing the existing tower at 11/2. Half a mile of double circuit steel towers should travel east to connect BIGE-RDMD-1 to Boyd Ridge Substation on the hill to the east. The interconnect should consist of approximately two deadend towers allowing the loop-in to BIGE-RDMD-1, three suspension towers bringing the loop-in to Boyd Ridge Substation, and finally a deadend tower allowing the lines to reduce tension and terminate into the Boyd Ridge Substation deadend bays. Most towers should be from the 115 series and range in height from 100 to 150 feet. The tower details shall be finalized during the design phase of the project..

Aluminum Core Steel Reinforced (ACSR) Pheasant conductor has been selected for the interconnect transmission line to match the existing conductor on BIGE-RDMD-1. Wire tensions should vary depending on tower strength and clearance requirements and shall be finalized during the design phase of the project.

The Ross – Malin Fiber System travels on BIGE-RDMD-1 and shall be connected to Boyd Substation. The existing fiber on BIGE-RDMD-1 will be split at a pre-existing splice point on Tower 11/2 (AP 40). The fiber should transition in the same manner as the

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conductor from the suspension towers on BIGE-RDMD-1 to the new vertical phase double dead end interconnect tower. Two 72 count Fiber optic ground wire (OPGW) should be utilized in order to maintain the fiber count already established by the Ross—Malin Fiber System into Boyd Ridge Substation. Fiber optic vaults should be installed at the interconnect transition structure in order to splice the existing 72 CG9 on BIGE-RDMD-1 into OPGW. The fiber travelling from Big Eddy Substation should be on the northern side of the towers while the fiber travelling to Redmond Substation should be on the southern side. Fiber optic vaults should be installed at the first structure outside of Boyd Ridge Substation to transition the OPGW back to ADSS. The final span into Boyd Substation should be in an underground conduit into the substation control house.

Optical ground wire should fulfill the requirement of overhead ground wire for this section of line. For the terminal span into Boyd Ridge Substation the fiber will be underground. Half-inch extra high strength overhead ground wire shall be used in this section. Each new tower shall require a counterpoise design to be determined during the design phase of the project. Obstruction lighting and marking is not anticipated for this project.

Inserting Boyd Ridge Substation into BIGE-RDMD-1 will create two new transmission lines. The north side of the interconnect towers shall carry the new transmission line Big Eddy – Boyd Ridge 230 kV line. The south side of the interconnect towers shall carry the new transmission line Boyd Ridge –Redmond 230 kV line. This renaming shall require re-signing the line both name and mile markers, updating the asset records including structure lists, plan & profiles, TODD files , all fiber segment / circuit records including installation sheets, one-lines diagrams, and Project Wise directories.

BPA has completed a line ratings analysis on the BIGE-RDMD-1 and has identified 26 impairments that shall require remediation before Big Eddy – Boyd Ridge and Boyd Ridge – Redmond can be rated for operation. Remediation for each impairment location shall be determined during the design phase of the project.

This interconnect is entirely new line which should require the acquisition of a standard width ROW. A proposed alignment is included as an exhibit within this scoping document. The alignment shall be finalized during the design phase of the project.

Each tower along the interconnect from BIGE-RDMD-1 to Boyd Ridge Substation will require new access roads with applicable rights of use.

SUMMARY OF PROPOSED SCHEDULE

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Projected Start Date: March 2017

Projected Energization Date: March 2020

Provide tabular/list summary of key milestones with proposed durations:

Estimated project schedule
 Design Start Date: April 2017
 Design Completion: April 2018
 Environmental permitting: August 2018
 Land Acquisition: June 2019
 In service: March 2020

1. Preliminary project schedule Yes No
 - a. See Appendix X.
2. Other schedule requirements Yes No

The project schedule is highly dependent on BPA's ability to obtain the environmental permits and acquire the land for the project site. The customer has their state permit for the wind project, but may have a specific schedule in the Power Purchase Agreement that might not line up with BPA's proposed schedule. Also, the Projection Tax Credit (PTC) starts phasing out after the end of 2018 so we can expect to see a lot of pressure from the customer to try to complete the project as close to that date as possible.

3. Anticipated shelf-life of Concept Design Document (CDD) and/or specific components of CDD:

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2 years

SUMMARY OF EXPECTED COST

Estimate #(s)	Est. Type	Estimate Description	Date of Est. (MM/YEAR)	Total Estimated Cost
SB-35033-2	B	G0345 SUMMIT RIDGE WIND PROJECT 230KV RING BUS SUBSTATION	2013	(b) (4)
AB-35033-2	B	G0345 INTERCONNECTION SUB - LAND-G0345 A NEW 230KV SUBSTATION	2013	
LB-35088-1	B	G0345 INTERCONNECTION SUB - 1 MILE LINE TO COLLECTOR STATION-G0345 A NEW 230KV SUBSTATION	2013	
LB-35087-1	B	G0345 INTERCONNECTION SUB - LINE LOOP-IN-G0345	2013	
CB-36458-0	B	G0345 POI-G0345 WIND GENERATION INTERCON	2013	
CB-36459-0	B	BIG EDDY SUBSTATION-G0345 WIND GENERATION INTERCON	2013	
CB-36460-0	B	DITTMER CC-G0345 WIND GENERATION INTERCON	2013	
CB-3462-0	B	MAUPIN SUBSTATION-G0345 WIND GENERATION INTERCON	2013	
CB-36461-0	B	MUNRO CC-G0345 WIND GENERATION INTERCON	2013	

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CB-36464-0	B	REDMOND SUB: G0345 WIND GENERATION INTERCON	2013	\$(b) (4)
------------	---	---	------	-----------

SUM OF TOTAL ESTIMATED COST: (b) (4)

Estimate Type Key: T = Typical, P = Preliminary, B = Budget, WO = Work Order

PM Notes:

- All estimates are legacy estimates for 2013 (original planning effort)
- The access road was not estimated originally due to the customer withdrawing the request during the original planning stage

PROJECT FUNDING

1. Funding source by scope Master Lease Capital Expense
2. Are there Work Orders open for this project? Yes No

WO #	WO Type	WO Description	PM	In-Service Date (MM/DD/YEAR)
00421854	CL	G0345: SUMMIT RIDGE WIND HOLDI	Rasha Kroonen	Jan 2016

Work Order Type Key: RE = reimbursable expense (customer pays, no BPA-owned asset involved)
 CF = customer funded in advance (BPA owns asset, customer pays)
 CL = capital (BPA owns asset, BPA pays)
 LA = land activities
 LC = customer financed land activities eligible for transmission credits
 TC = customer financed activities eligible for transmission credits

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C3 = third party finance
ML = master lease

If there are no WOs available, fill out the following table:

API #	BC #	Business Case Description	Prioritization Status	BC Approved
	339	G0345 Lotus Group USA's Summit Ridge Wind Project		Yes
18155		REDMOND SUB: G0345 WIND GENERATION INTERCON		
18154		MUNRO CC-G0345 WIND GENERATION INTERCON		
18153		MAUPIN SUBSTATION-G0345 WIND GENERATION INTERCON		
18152		DITTMER CC-G0345 WIND GENERATION INTERCON		
18151		BIG EDDY SUBSTATION-G0345 WIND GENERATION INTERCON		
18149		G0345 POI-G0345 WIND GENERATION INTERCON		
18148		G0345 INTERCONNECTION SUB - LINE LOOP-IN-G0345		
18147		G0345 INTERCONNECTION SUB - 1 MILE LINE TO COLLECTOR STATION-G0345 A NEW 230KV SUBSTATION		

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18146	(LA) G0345 INTERCONNECTION SUB - LAND-G0345 A NEW 230KV SUBSTATION		
8936	G0345 SUMMIT RIDGE WIND PROJECT 230KV RING BUS SUBSTATION		

3. Where are these WOs funded from?

Customer funded

4. Add a narrative description about when additional work orders need to be created.

All WOs will need to be created after approval of the PDT and the business case

5. Lease financing eligibility (enter "entire project" or describe portions eligible for Lease Finance, and total Lease Finance dollars)

Entire project – generally not used for customer funded projects.

6. Capital/expense determination

Capital

7. PPID (or Bundle ID) for the project

P00627

8. Future Work Orders Needed? Yes No

9. Other funding requirements Yes No

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ASSUMPTIONS

Include anything that is assumed but not verified

1. BPA has no future needs to rebuild or re-conductor the Big Eddy - Redmond line.
3. All property deeds and land use agreements in the corridor reflect present needs; BPA does not need any special design clearances i.e. Orchard Clearances.
4. No impairments existing on the line not currently identified in legacy data will be discovered during re-fly and re-rating of the new operating line(s).
5. BPA has no plans for replacing the fiber on the line.
6. BPA will be able to acquire the land necessary for the entrance road to the proposed substation and to the substation plot.
7. A standard 230 kV ROW of 125' will be acceptable for the ½" interconnect between BIGE-RDMD-1 and Boyd Substation.
8. The 115 series towers will be able to support OPGW 72 strand 0.811 at the required tensions to maintain standard clearances. The 115 series was not designed for OPGW higher than 36 strand 0.591.
9. BIGE-RDMD-1 Towers 11/1 and 11/3 are adequate for the phase roll into the new double circuit deadend tower which begins the interconnection between BIGE-RDMD-1 and Boyd Ridge Substation.

PROJECT REQUIREMENTS DIAGRAM (TPP/TPC/TPMC)

Project Requirements Diagram (PRD) created

Yes

No

- a. PRD # #285137
- b. Link to [PRD search page](#)

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-  285137-01r3.pdf
 285137-02r1.pdf
 285137-03r2.pdf
 285137-04r2.pdf
 285137/mem.pdf

PE Note: The PRD files were provided here as a convenience for the PDT. These files were either signed, or headed to signature at the time this document was delivered to the PDT. If this document is being referenced after the PDT decision has been made it is advised to follow the link to the PRD search page to ensure the reader is looking at the latest PRD's.

Project Dependencies:

Being a customer driven project, the project is dependent on Lotus Energy Group continuing to want to go through with this project.

CRITICAL PATH ITEMS

1. Critical Path Items? (Provide complete description of the item(s) that may relate to any component of project) Yes No

1. The proposed location for this substation was picked because of the land owner's willingness to have a substation built there. They will profit greatly if this wind project goes through. However, the only viable route for an entrance road to get to the proposed substation location is on a neighboring property. BPA must be able to acquire the land for the entrance road for this location to work.

RISK SUMMARY

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1. Risk Summary (include risk of not performing work, and execution risk if project is approved) Yes None

BPA would not deliver its statutory mandatory obligation of providing transmission services to OATT participants; consequences of failure to provide are not yet known but have historically resulted in litigation settlements and administrator public defamation.

2. Is there any special legal risk for this project? Yes No

TBD: Compliance obligation for Transmission interconnection obligations including but not limited to OATT or FERC.

ALTERNATIVES

1. List known project alternatives (include decisions/reasons for not pursuing indicated alternatives/highlight applicable lessons learned from past projects)

This is a customer driven project with no major alternatives to be considered other than, potentially the physical location of the substation. If Lotus Group wants to move forward and build their proposed wind farm and Summit Ridge collector substation, this project must move forward if the energy is to be brought into our transmission system.

SCOPE DETAIL

General

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1. Is this a NERC-CIP site? (if "yes", include BPA Critical Asset Security Plan {CASP} Tier Level{s}, known requirements, etc.). Yes No

The Project Engineer contacted the GOISSM team for guidance regarding this question and was told the answer is protected information. The following link is to the protected database that has the answer to this question. If permission is needed to see the database, please contact the GOISSM team.

<https://txportal.bud.bpa.gov/sites/GOISSM/Lists/151120%20BPA%20CIP00551%20Asset%20List/BPA%20Assets.aspx>

2. What is the NERC CIP Impact Rating Criteria (IRC) for this location? [i.e., High/Medium/Medium with External Routable Connectivity (ERC)/Low/Low with ERC] [Ref. CIP-002-5.1, Attachment 1]

The Project Engineer contacted the GOISSM team for guidance regarding this question and was told the answer is protected information. The following link is to the protected database that has the answer to this question. If permission is needed to see the database, please contact the GOISSM team.

<https://txportal.bud.bpa.gov/sites/GOISSM/Lists/151120%20BPA%20CIP00551%20Asset%20List/BPA%20Assets.aspx>

3. What is the IRC as identified by the Grid Operations Information System Security Program (GOISSM)? Identified for BPA and/or foreign-owned locations?

The Project Engineer contacted the GOISSM team for guidance regarding this question and was told the answer is protected information. The following link is to the protected database that has the answer to this question. If permission is needed to see the database, please contact the GOISSM team.

<https://txportal.bud.bpa.gov/sites/GOISSM/Lists/151120%20BPA%20CIP00551%20Asset%20List/BPA%20Assets.aspx>

4. Will line outages, clearances, or work permits be required (per OB2)? (21 day, 45 day, LOR relay , busses, BFRs?) Yes No

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Line outage duration for Big Eddy – Maupin will need to be coordinated. Permits will be required for the fiber work on Big Eddy – Buckley segment. Permits for the Work near the Celilo – Sylmar No. 1 will need to be coordinated.

5. Any design/standard exceptions required? Yes No

6. Other? Yes No

7. Will existing tower/structure/footing plan/detail drawings require updating to new standards? Yes No

Planning (TPP)

1. Transmission line bundle opportunities Yes No Do Not Bundle

There could be an opportunity to bundle with work associated with Big Eddy – Maupin 230 kv line

2. For Line Projects – Predicted peak line loadings per season as well as load factor.

3. Substation/facilities bundle opportunities Yes No Do Not Bundle

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There could be an opportunity to bundle with work associated with PCB-814 at Big Eddy

4. For substation projects – Predicted equipment capacity requirements.

2000A 40 KAIC minimum equipment ratings

5. Longterm (10 year plan) available? Yes No

6. Are nonwires options available and viable? Yes No

7. Other TPP considerations Yes No

Planning – 60 Hz (TPP/TPC)

Project Includes:

1. Metering: Yes No

- a. Metering project type? Revenue Interchange Generation

2. RAS: Yes No

If yes, please answer the following questions a.) through k.).

- a. Are new circuits required? Yes No

If yes, how many?

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6

b. Select the type of RAS signal(s).

- Line Loss Logic
- Gen Drop
- Line Trip
- Reactive Control
- Cap controller
- Other

PE note: The RAS SME would like design to be aware that a Line Trip backup will be needed in the event that a Gen Drop signal is not responded to in a timely fashion.

c. Will this project be for main grid RAS? Yes No

d. Select the type of RAS Scheme.

- LAPS
- WAPS
- Safety Net
- TBD
- Other

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e. Will WECC approval be required before going into service? Yes No

f. Will a Local Integration Test (LIT) be required for the equipment at the control center? Yes No

g. Will RAS equipment be placed or interface within a foreign facility? Yes No

If yes, have you received the appropriate signed customer service agreement? Yes No

CSE Note: The LGIA will cover the RAS interface with the wind project, not yet signed but it must be signed before construction.

h. Will the RAS equipment interface with equipment from other disciplines (i.e. Data Systems, Relaying, Communications etc.)? Yes No

i. Does the PRD meet RAS requirements? Yes No

j. Does the PRD require any revisions? (e.g. outdated, scope change etc.) Yes No

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6. Additional TPMC comments/special considerations? Yes No

This plan supports the telecommunication interconnection of the G0345 Summit Ridge wind generation collector site, a proposed Boyd Ridge 230KV substation, and Control Center systems. These include relay protection transfer trip, SCADA, dual generation RMS with telemetry, PMU, Generation Limiting System, FIN, NMS, DATS, and 48 VDC batteries with charger. It is assumed project is in BPA's Balancing Authority.

The Summit Ridge and Boyd Ridge are geographically separated and will require approximately 6 miles of fiber optic cable. Two alternately routed fiber optic cables are necessary and will be run aerially, separated from each other by 10' or greater. BPA telecommunications between Summit Ridge and Boyd Ridge substations will require the use of 24 fibers on the fiber optic cable; telecommunications from the Boyd Ridge POI will be on the #KC00, an OC-48 backbone fiber ring. Physical connection will be near structure 11/2 of the Big Eddy-Redmond 230KV line where splice can ANN9BE is attached to fiber pole ANN 9 on Ross-Malin system, Big Eddy-Buckley segment.

For cyber security reasons in non-BPA owned substations, BPA telecommunications equipment, including, but not limited to SONET, channel banks, Ethernet devices, FIN, and NMS will be housed in the control house in a separate, alarmed, and locked area. The new SCADA RTU will use dual SCADA configuration. Limit Wind Generation points will be added to the SCADA RTU to limit the wind generation output when required. Circuits are BPA redundant class C.

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7. Foreign-owned communications site: Yes No

Customer Service Engineering (TPC)

1. Are there interconnection requirements?

There are no interconnection requirements outside of what is provided on the PRD.

2. Bundle opportunities (line, sub, comm, See TPP and TPMC Planning Sections) Yes No

3. How much of the total project cost will be directly assigned to the customer (%)?

Approximately 7% of the total project cost will be direct assigned to the customer (no credits). 100% of the project will be financed by the customer.

4. Is there a connected facilities schedule available? Yes No
a. See attached, Appendix X.

5. Are there any underbuild requirements? Yes No

6. Special Customer Service considerations Yes No

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The customer is negotiating a Power Purchase Agreement. We may need to consider when we go out for bid, asking the contractors to submit bids for a normal and an accelerated schedule. Then the developer can choose to pay the acceleration costs if it helps meet their schedule.

7. Asset Ownership Considerations? Yes No

At the developer's collector substation, we will own SCADA meters, RAS equipment, etc. in their control house. We need to consider if we want a separate entry into their control house for our equipment.

8. Customer Agreement(s) Required? Yes No

Design agreement, NEPA agreement (in place), Large Generator Interconnection Agreement (LGIA)

9. Compliance requirements to include in Customer Agreement(s)? Yes No

The LGIA template already has references to applicable NERC/WECC standards.

Site Assessment

A. PROGRAM REQUIREMENTS

1. Program Type:

MHQ Substation Radio Station Other _____

2. Program Requirements:

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(ex: rack count, conduit port count from yard, tenant space requirement, equipment sizes, etc.)

The current estimated rack count is 17 racks plus 8 spares and 2 wall mount racks:
 Protection: 8 racks plus 3 spares and 2 wall mount racks
 Communications: 5 racks plus 1 spare
 Data Systems: 2 racks plus 1 spare
 RAS: 2 Racks plus 1 spare
 PE Note: Design may find it useful to look at the control house layout reference drawing in the System Control Engineering (TEC) section of this document for a general idea of building dimensions and refer to Proposed CH plan for Richland developed by TESH. Provide separate battery room per BPA CH standard. -

3. Program Requirements have been reviewed and the site is able to accommodate it? Yes No

Program has been reviewed and the site can accommodate the intended scope. However the access road to the site will need to be determined. Provision of a restroom will need to be determined along with the need for water source and septic disposal system.

4. Project type:
 Remodel New Construction Expansion Demolition Replacement

Site built with upgrade and extension of an access road.

5. Conventional Construction or Pre Manufactured Modular (PCA)

Note: If Modular (PCA), Refer to *Modular Building Standard*, before selecting

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6. Construction Type:

Type III-B or V-B – Concrete slab on grade with footing, CMU Block veneer with wood studs and roof structure. Separation wall if required. Roofing system – Metal, Standing seam. HVAC - Air to Air Heat Pumps (Bard units ducted as required).

7. Life Cycle Cost Analysis:

Existing building value: \$ __N/A__ Cost / square foot: _____
 Project Estimate for program at existing building: \$ _____ Cost / square foot: _____
 Vs.

Project Estimate for replacement building w/ all program: \$ _____ Cost / square foot: __2200 to 2400 S.F._ (Construction cost to be estimated after scoping is completed)

SITE ASSESSMENT

1. Utilities Impacted: ** If restroom is provided

- Power – Station Service
 Power – PUD
 Power – EG
 Water – Local
 Water – Supply Tank
 Water-Well**
 Sewer – Local
 Sewer – Drain field**
 Sewer – Holding Tank
 IT – phone (Local)
 IT – phone (DATS)
 IT – data(copper/fiber)

Provision of a restroom will need to be determined along with the need for water source (potable?) and septic disposal system.

2. Fire Alarm Monitoring:

- Tie-in to BPA Alarm Monitoring System (AMS)
 Privately Monitored
 Local Notification Only – Audible/Visual

Fire Suppression:

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N/A

3.

4. Hazardous materials: Known Likely – due to age N/A

5. CIP-014 (Physical Security) assessment/implications for site location. N/A

Yes at gates and exterior doors.

B. DESIGN RESOURCES IDENTIFICATION

1. Pre-engineering services required:

Geotech or Performance Based Structural Design Path Survey Real Property –
 Property limit identification, easements, etc. (See Real Property Services Section)

2. Will design team be internal or external? Internal External Mix

3. Design disciplines needed?

Civil Landscape Architectural Structural Mechanical Plumbing Electrical
 Security IT (data/phone/conference room equipment) Safety Office Sustainability Consultant
 Commissioning Agent/TET Cost Estimator
 GOISSM (NERC CIP assessment) Other _____

4. Owner-provided QA/QC (A 3rd party hire may be required).

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a. Construction Manager: TETQ Other _____

b. Commissioning Agent (design review) required: Yes N/A

c. Constructability Design Review (pre-construction): TETQ Other SME

d. Code Check Document Review (pre-construction): NF Other TESF

e. Inspections Services are defined: Yes N/A

f. Special Inspections are defined: Yes N/A

Special Inspection for construction items noted by Structural engineer of record.

g. Permits are defined (ex: stormwater, well): Yes N/A

Well, if one is required.

Real Property Services (TER)

1. Type of Real Property Involvement (TERP) Concept Scoping Acquisition

2. Laws, Policies and Regulations applicable (TER) Federal State County/City

All applicable state, county, and city regulations need to be followed. The local Planning Department's regulations and laws must be followed for the Partition Plat which would create a legal parcel for BPA to acquire.

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3. Agency Consultations/Coordination (TER): List the Governmental Agencies expected to be involved with the project, listing specific Federal, State, County, City, etc. agencies, and Tribes.

The Project is completely within the boundary of Wasco County, Oregon. There are areas of environmental and cultural sensitivity at some potential site locations. Depending on the selected site, federal and tribal agencies may need to be involved with this Project.

A Partition Plat would be needed to create a legal parcel for the proposed substation. The Partition Plat need to be reviewed and approved by Wasco County. It is anticipated that BPA would need to obtain an approach permit to support access needs off of (b) (4), (b) (6) (b) (4), (b) (6), depending on the chosen option. The TERR Permit Group would coordinate the necessary approach permits with the proper entities.

It is anticipated that coordination with other governmental agencies would be needed.

4. Geospatial Services Considerations (TERG) Yes No


During the requisite Project stages, GIS would need to generate the landowner list and any necessary exhibits that landowners are to receive. GIS would also update the Project Transportation Plans throughout the lifecycle of the Project and provide maps for constructability reviews. Initial scoping identified one landowner parcel, Parcel ID 9825 that would be potentially affected by the Project, no matter which site option is chosen.

-

5. Real Property Field Services Considerations (TERR) Yes No

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(b) (4), (b) (6)



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PE Note: The decided upon area for the new sub was determined to be Site 3, near the eastern most location shown above. The reader can disregard notes for Site 1 and Site 2 below. I am leaving the information here however, in case it would have future value in the event of a site reconsideration.

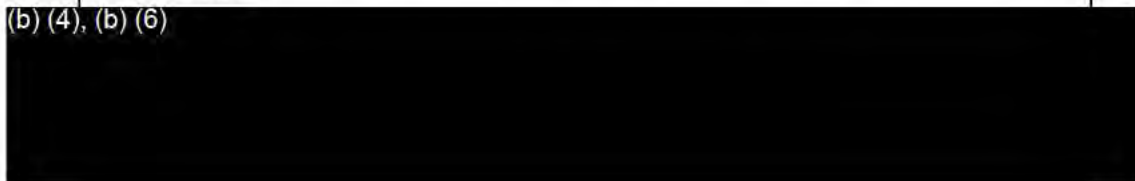
Site 1:

LOCATION: Located west of and adjacent to BIGE-RDMD-1 10/4.

- Proposed substation would be located outside of BPA's right-of-way (ROW) in an agricultural field.
- Line tap, switch, and structures necessary to connect the substation to BIGE-RDMD-1 are expected to fit within the current ROW.
- BPA's existing Celilo-Sylmar No. 1, DC line, is located immediately to the west of Big Eddy-Redmond No. 1.
- One known foreign utility is located crossing north of the proposed substation.
- BPA Tap would need to cross under the BPA Celilo-Sylmar No. 1 DC line.
- Easy site access.

ACQUISITION: Land would need to be acquired for the substation footprint and an access road to the substation.

(b) (4), (b) (6)



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ACCESS: An access road and approach from a public road is required.

- Will need farm crossings for large combines.

EXPANSION: Site 1 would have room for future expansion, if necessary.

Site 2:

LOCATION: Located east of and adjacent to BIGE-RDMD-1 10/4.

- Site location would be outside of BPA's ROW in an area of uneven rocky surface topography that is not used for agricultural production.
 - BPA may encounter construction concerns due to site topography.
- One foreign utility crossing may need to be moved.
- Involves a lot of earthwork.
- Easy site access.

ACQUISITION: BPA would need to acquire land for the substation footprint and an access road to the substation. The line tap, switch, and necessary structures necessary to connect the substation to BIGE-RDMD-1 would require an additional easement.

(b) (4), (b) (6)

ACCESS: An access road and approach from a public road would be required.

- Would need farm crossings for large combines.

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EXPANSION: Site 2 has room for future expansion, if necessary.

SITE 3: PE Note: Chosen site

(b) (4), (b) (6)

LOCATION: Located east of BIGE_RDMD-1 11/1. Site location would be outside of BPA's ROW in an undeveloped area adjacent to an agricultural field, on a hill east of the ROW, and east of Shotgun Hollow Road.

- (b) (4), (b) (6)
- One foreign utility crossing required.
- Landowner requests any access road avoid encroaching onto the farm land.
- Landowner requests any access road follow the existing terrain around the perimeter of the cultivated fields.

ACQUISITION: BPA would need to acquire land for the substation footprint and an access road. An easement, approximately 4,000 linear feet may be needed for a tap line from the substation to the BIGE-RDMD-1 tower 11/2. The tap line would cross Shotgun Hollow Road and an agricultural field; requiring support structures for the tap in the agricultural field and accompanying access rights.

(b) (4), (b) (6)

ACCESS: The proposed access road to the substation would require a crossing an agricultural

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field pinch point; that has been deemed acceptable to the landowner. An approach from a public road would be required.

- The landowner and tenant farmer would need adequate farm crossings for large combines across BPA's access road.
- Access to the tap line would be needed.

EXPANSION: Site 3 has area for future expansion, if necessary.

6. Real Property Field Services Permit Considerations (TERR) Yes No

An approach permit would be required, for all site options, to construct an approach off a public road.

If Site 3 is chosen, a crossing permit would be needed to allow a transmission line to cross over Shotgun Hollow Road.

7. Survey and Mapping Considerations (TERM) Yes No

Survey and mapping support would be required to acquire an access road and the substation parcel. A Partition Plat would be created by contract survey company through Surveying & Mapping. The substation access road is normally in fee and would be included in the Partition Plat, but this access road maybe joint use with land owner.

If any pole, structure, or associated replacement or installation becomes a component of the Project, pre-construction site-control and post construction as-built documentation would be needed.

8. Real Property Projects Considerations (TERP) Yes No

Additional resource assignments may be needed; contingent on the requirements of the final

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Project design. Estimates from TERP would be requested at designated project schedule stage gate points.

9. Appraisal Considerations (TERS) Yes No

The specific appraisal needs for this project would be dependent on the site selected and the final design.

BPA would need to acquire an access road and substation land.

NOTE: The property owners in this area are extremely knowledgeable of the increased price that land commands for wind farms, transmission lines, and substation. Budget \$10,000 an acre for land purchasing purposes, per Bob Saunders, BPA Appraisal Group.

10. Forestry Considerations (TERS) Yes No

N/A Range land.

11. Will a staging area(s), stringing sites, material yards, or helicopter pads be required? (TER) Yes No

Staging areas, pulling/stringing sites, snub sites, and material yards are typical for new substation builds and expected to be required for the Project. Final determinations of types and locations would depend upon the final Project design.

12. Tribal Considerations? (TERR) Yes No

13. GIS Transmission Maintenance Map books available? (TERG) Yes No

14. GIS LIS Tract Map Books available? (TERG) Yes No

15. GIS Vegetation Analysis Field Maps needed/available? (TERG) Yes No

All potential Project sites are located in an open dry-land agricultural area. Vegetation should

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not be an issue. GIS maps should not be necessary.

16. Is LiDAR available? Include date flown. (TERG) Yes No

BIGE-RDMD-1 lines, towers 10/3 – 11/2 were last flown on 11/2/2016.

17. Has a Land Rights Review been performed on existing data? (TERP) Yes No

18. Has a Land Rights Analysis been performed on existing data? (TERR) Yes No

19. Are Permission to Enter Properties (PEPs) required? (TERR) Yes No

A PEP was obtained, on 23 Oct 2017, from (b) [REDACTED]
Neither an LRR nor LRRRA have been documented for this Project.

20. Are new land rights required? (TERR) Yes No

Yes.
BPA would need to purchase, in fee, an access road and substation parcel. A tap line easement may be needed if Sites 2 or 3 are selected.
A property line adjustment and survey of record will be needed to create a separate parcel(s) for the substation and access road.

21. Are new Plan and/or Profile maps required? Quantity? (TERM) Yes No

The project design will dictate map requirements.

- One (1) new plan map possible.
- Two (2) plan map revisions.
- One (1) profile map revision.
- Ninety-six (96) plan/profile map revisions for operating name changes.

New or updated plan and profile maps are expected to document additional taps, switched, and

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structures that may be needed for this Project.

22. Are there field survey requirements? (TERM) Yes No

New substation construction areas will need to be surveyed, staked, and mapped.
 New accesses, either acquired or improved, will need to be surveyed and mapped.
 New structure construction areas will need to be surveyed, staked and mapped.
 New construction will need as-built surveys (post construction topo).
 New crossing permit, property line adjustment, and record of survey applications may require specific survey and plan information to be submitted to the permitting agency.

23. Buried utilities locates required – eGIS Reviewed? (TERM) Yes No

Any planned subsurface construction would require utility locates before the start of construction. Subsurface construction activity for the Project has not been fully determined.

24. Real Property Services lead summary Yes No

a. See attached Appendix X

Environment (ECC, ECT, & EP)

- 1. NEPA review required CX EA EIS
- 2. GIS Environmental restrictions map book available? Yes No
- 3. Endangered Species Act (ESA) and designated critical habitat consultation (ESA, Section 7) Yes No

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While there are no initial hits for the project area in a preliminary consultation of ESA resources, we must expect to do some surveys to ensure clearance of some potential plant and animal species that would utilize the area. Also, need to consider State-listed species of concern. Also: as noted in fish below, there are threatened steelhead to consider. Monitoring may be needed. Update 2018: Will need to survey for WA ground squirrel and maybe Western burrowing owl.

4. Wetlands and waterway impacts and permitting (Clean Water Act) Yes No

NWI wetlands present in the vicinity that could potentially be avoided. Crossings of waterways/drainages could require armoring and other mitigation.

Update 2018: BPA transmission line would cross a stream; sub access road to be built would traverse a drainage. These drain to an EPA 303 impaired stream, Dry Creek. Wetland delineation required.

PE Note: For question 5, the Cultural SME wanted to use a newer version of CDD questions which is more complete. Due to a problem with this CDD revision, this subset of questions could not be boxed.

5. Cultural resources consultation (National Historic Preservation Act)

- a. Documented cultural or historical resources? Yes No

There are several documented archaeological sites in close proximity to the proposed project location.

- b. Cultural resource surveys required? Yes No

Much of the area currently being considered has been surveyed; however the proposed transmission line corridor connecting the new substation to the existing t-line has not been surveyed, and there is a possibility that even within the previously surveyed area aspects of our work may require survey methods that might not have been included in the existing surveys e.g. was the previous survey just a surface inspection or were there shovel test probes excavated in areas where we now propose extensive ground disturbance, etc.

- c. TCP's or other areas of significance? Yes No

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This is not known at this time and will not be answered until section 106 consultation has been initiated with the tribes.

d. Cultural/historic resource district review required? Yes No

There are no known archaeological or historic districts at this location at this time.

e. Section 106 consultation required? Yes No

The project is proposing extensive ground disturbance. Consultation with the state and tribes is necessary.

6. Avian considerations (Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act) Yes No

Around 20 species of migratory birds to account for. Monitoring may be needed.

Update 2018: Could be challenging to account for all potential breeding birds and may need to monitor soon to maybe avoid timing restrictions.

7. Fish presence (Fish and Wildlife Coordination Act, Essential Fish Habitat, Fish Passage) Yes No

Steelhead and Chinook Evolutionarily Significant Unit (ESU). Steelhead threatened; two nearby creeks. Several Pisces action locations in the vicinity. The soil type is highly erodible; special considerations and mitigations will be needed to reduce wind and water-borne soil erosion.


Update 2018: Steelhead occurrence in Dry Creek a trib of Fifteenmile Creek; the new plan would have overall greater soil disturbance with the need for a longer access road and transmission line; Note that Fifteenmile Creek is also critical habitat.

8. Applicable Executive Orders Yes No

Climate Change and Environmental Sustainability, Environmental Justice, others potentially.

Update 2018: Executive Order 13690, Floodplain/Risk Management, and Executive Order 11990, Protection of Wetlands;

9. Public Land-managing agency/Tribal lands resource coordination Yes No

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Warm Springs nearby.

10. State, area-wide, and local plan and program consistency Yes No

Agricultural interests and the conversion to utilities; state endangered species programs;

11. Recreational, visual resources, and/or land uses affected Yes No

Public involvement will be needed to develop options. Expect opposition and questions on connectedness of the wind farm. Will need to do visual simulation analysis for the surrounding area's key viewpoints.

Update 2018: Will still want visual analysis, but if any public outreach, it could just be very targeted to neighbors in effect zone.

12. Any Superfund sites or other potential hazardous waste areas/sites? Yes No

None that I am aware of; on productive cropland.

13. Other EC or EP considerations Yes No

There could be Conservation Reserve Program lands set aside here. Conversion or alteration may or may not require mitigation. DOE Pollinator Protection Plan; If we lose some habitat, we should mitigate.

Update 2018: Weed control would be needed; Several OR plant species of concern should be surveyed for presence.

14. Environmental lead summary Yes No

a. See attached Appendix X.

Project Engineering (TELP)

1. Is the LiDAR model adequate for design? Yes No

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The ½ mile of newly proposed interconnect between BIGE-RDMD-1 and Boyd Substation does not have any LiDAR or survey information 200 feet beyond the centerline of BIGE-RDMD-1.

2. Are there special crossing considerations (e.g., Railroad, River, Line, Highway)?
 Yes No

Steuber Road. Local power distribution and communication.

3. Are there electrical and blowout clearance issues? Yes No

4. Line route (alignment) change required? Yes No

A new line route will be required for the double circuit interconnect transmission line between BIGE-RDMD-1 and Boyd Substation.

5. Will a shoe-fly or other temporary connectivity/back-feed measures be required? Yes No

6. Are there any new ROW/easement/land acquisition requirements? Yes No

A new ROW approximately ½ a mile long and the standard 230 kV width of 125 ft. wide should be required for the double circuit interconnect transmission line between BIGE-RDMD-1 and Boyd Substation.

RISK: Additional ROW should be required if fiber from Boyd Substation to Redmond Substation cannot be placed on towers while maintaining clearances defined by Std. 55: Clearances for Overhead Cables Within Spans. Additional ROW should be required for a separate fiber optic wood pole line running parallel to the new interconnect transmission line.

7. Are there special Area of Potential Effect (APE) considerations (Stringing,

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Guards, Trenching/Boring, Material Yards, Helicopter Pads/Staging Areas,
 and Pole {new and temporary} locations, see Environmental Section): Yes No

String sites, material yards, and staging locations should be required.

8. Tower leg studies required? Yes No

9. Will bird flight diverters be required? Yes No

10. Will fiber-optic splice diagrams be required? Yes No

Big Eddy – Redmond No. 1 is part of the Ross-Malin Fiber System. The Big Eddy – Buckley Fiber Segment is on this line. This segment will have fiber entering Boyd Ridge Substation via the new line Big Eddy – Boyd Ridge 230 kV and fiber exiting Boyd Substation via the new line Boyd Ridge – Redmond 230 kV.

11. Is a Method of Procedure required? Yes No

12. Other TELP requirements? Yes No

See plan map exhibit of loop-in. The interconnect will consist of approximately 3 deadend towers and 3 suspension towers. Towers will be double circuit. The fiber on BIGE-RDMD will transition to OPGW for the interconnect.
RISK: Additional towers, beyond the scoped estimate, will be needed to meet design requirements.
RISK: Scoped stationing of towers will be insufficient to meet design requirements and towers will have to be further adjusted from scoped positions.

- Phasing between the two circuits on the double circuit portion of the interconnect must be opposite.

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- A Line Ratings analysis has been completed on the BIGE-RDMD-1 and shown that there are 26 impairments to its current line rating (preliminary fixes included):
 - 1/1, impairment to BGED-SUTI-1 of 0.697 feet @ 0"-6-60°F Fn, adjust attachment points
 - 2/1, impairment to structure/tower of 5.37 feet @ 0"-0-158°F Fn, prop structure
 - 2/1, impairment to shield wire or 1.98 feet @ 0"-0-158°F Fn, adjust attachment points
 - 15/1, impairment to ground of 2.19 feet @ 0"-0-158°F Fn, add prop structure
 - 18/3, impairment to ground of 0.04 feet @ 0"-0-158°F Fn, remove ground
 - 18/4, impairment to ground of 0.05 feet @ 0"-0-158°F Fn, remove ground
 - 20/4, impairment to ground of 0.63 feet @ 0"-0-158°F Fn, remove ground
 - 21/1, impairment to ground of 0.90 feet @ 0"-0-158°F Fn, remove ground
 - 21/3, impairment to ground of 4.47 feet @ 0"-0-158°F Fn, add prop structure
 - 21/5, impairment to ground of 1.24 feet @ 0"-0-158°F Fn, add prop structure
 - 24/2, impairment to ground of 3.08 feet @ 0"-0-158°F Fn, add prop structure
 - 25/3, impairment to ground of 3.51 feet @ 0"-0-158°F Fn, add prop structure
 - 25/5, impairment to ground of 0.56 feet @ 0"-0-158°F Fn, remove ground
 - 27/4, impairment to ground of 0.95 feet @ 0"-0-158°F Fn, remove ground
 - 30/3, impairment to ground of 0.75 feet @ 0"-0-158°F Fn, remove ground
 - 33/2, impairment to ground of 0.61 feet @ 0"-4-60°F Fn, add prop structure
 - 35/5, impairment to ground of 2.95 feet @ 0"-0-176°F Fn, add prop structure
 - 41/6, impairment to ground of 0.91 feet @ 0"-0-176°F Fn, remove ground
 - 50/6, impairment to ground of 0.10 feet @ 0"-0-176°F Fn, remove ground
 - 50/6, impairment to road of 0.06 feet @ 0"-6-60° Fn, add prop structure
 - 59/4, impairment to ground of 0.60 feet @ 0"-6-60° Fn, remove ground
 - 59/4, impairment to ground of 0.34 feet @ 0"-6-60° Fn, remove ground
 - 60/1, impairment to ground of 3.81 feet @ 0"-6-60° Fn, add prop structure
 - 62/1, impairment to CELO-SYLM-1 of 2.59 feet @ 0"-6-60° Fn, add prop structure

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- 72/5, impairment to structure/tower of 1.69 feet @ 0"-6-60° Fn, adjust attachment points
- 82/2, impairment to ground of 0.02 feet @ 0"-0-158°F Fn, remove ground

Fixing these impairments is required as part of this project. See TELC Line Design for more information.

RISK: The preferred fiber configuration for the new interconnect is dual 0.811 OPGW for fibers going into and out of Boyd Ridge Substation. However, the 115 series tower is not designed to support OPGW larger than 0.591. If BPA design standards cannot be met with a dual 0.811 configuration of fiber a secondary configuration of dual 0.591 OPGW mounted on the ground wire peaks and a single 72 ADSS CH7 mounted in the standard 115 series armpit position is preferred. However, BPA design standards detailing ADSS clearances may be difficult to achieve when fiber is positioned this way. If BPA design standards cannot be met with the ADSS mounted in the tower armpits a third configuration of utilizing fiber optic wood poles running parallel to the 230 kV interconnect is preferred.

RISK: The preferred fiber configuration for the existing portion of the Big Eddy – Buckley Fiber Segment as it transitions to the new interconnect would be for the fiber to roll with the conductor from a horizontal position on BIGE-RDMD-1 Towers to the interconnect transition tower. However, BPA design standards detailing ADSS clearances may be difficult to achieve when fiber is positioned this way. If BPA design standards cannot be met a second configuration of utilizing fiber optic wood poles as deadends to maintain fiber clearances and transition to the double circuit tower.

Structural Design (TELD)

Comment [DFL1]: Need this info from Line Ratings.

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Transmission Line

1. Existing structures impacted? (Single pole, H-frame, lattice steel, other) Yes No

In order to accommodate the new line route between BIGE-RDMD-1 and Boyd Substation, existing structure 11/2 on BIGE-RDMD-1 is anticipated to be replaced with a new double circuit dead end lattice tower. Structures 11/1 and 11/3 on BIGE-RDMD-1 are not anticipated to need any modifications; however the conductor will be transitioning from a horizontal to a vertical position, which could affect the vertical loads on the existing towers. It shall be confirmed in design that the loads on these existing towers will not increase due to any modifications associated with this project. If any loads have increased, the adequacy of these structures shall be investigated during design.

Impairments have been identified along BIGE-RDMD-1 which will require site specific structural analysis and design support to help assist with remediation of the impairments. The installation of prop structures, as well as possible modifications to existing structures will likely be necessary for this effort.

2. Single circuit or double circuit? Single Double
 3. Are structure type changes required? Yes No

Refer to item 1 of this section. It is anticipated new 115 series lattice steel towers will be used for the new line route to Boyd Substation.

4. Are new structures required? (Single pole, H-frame, lattice steel, other) Yes No
 5. Are new fiber attachments required? Yes No
 6. Structure footing type? Steel Concrete Other

Standard footing designs are anticipated, but will need to be confirmed during design

7. PLS-Pole models required? Yes No

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8. ATADS models required? Yes No
9. Are there any crossing spans? (Highway, river....etc.) Yes No
10. Will clearances need to be checked? Yes No
11. Will marker balls be added to any spans? Yes No
12. Fall protection required? (Refer to STD-DT-000098) Yes No

13. Design Criteria:

Wind Speed (mph): 100mph Ice Zone: 1/2"

14. Will existing structure/footing/detail drawings require updating to the new standards?

Yes No

15. Special TELD considerations? Yes No

Refer to TELP section item 12 and TELC section for additional information for ground wire and fiber configurations which will need to be considered during design. Standard towers will need to be analyzed for site specific configurations for this project.

Substation Yard

1. Supports and footings required or impacted? Yes No

New Substation equipment footings, equipment supports, dead end towers/footings, per PRD 285137 and preliminary plot plan

2. Are tower/rack/structure modifications required? Yes No

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It is anticipated our standard structures will be sufficient

3. Are new custom tower/rack/support structures required? Yes No

May need custom station service structure

4. Are new custom footings required? Yes No

5. Is liquefaction a concern at this site? Yes No

Liquefaction is not anticipated at this site. However, a new geotech report is necessary to confirm this before proceeding.

6. Are new or existing transformers in the yard good candidates for added seismic base isolation? (Contact Seismic for assistance) Yes No

7. Are their areas of existing footings experiencing deterioration? Yes No

8. Are their areas of existing tower/rack/supports experiencing corrosion? Yes No

9. Fall protection required? (Refer to STD-DS-000027) Yes No

Anticipated only for new dead end tower structures

10. Design Criteria per STD-DS-000030:
 Wind Speed (mph): 90mph Snow Load: Per State and Local Seismic Zone: 2B

11. Existing abandoned footings requiring removal? Yes No

12. Will existing structure/footing plan/detail drawings require updating to the new standards?

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Yes No

13. Special TELD considerations? Yes No

Working platform shall be provided for safe access to monitor and work on all new PCB panels. Design consultant shall work with BPA to make sure the platform meets the needs of the end user.

Facilities

1. Buildings required or impacted? (Control House, Relay House, Storage Building, etc.)

New substation control house will be required

2. Are building modifications/changes required? Yes No

New buildings will be provided

3. New building design required? Yes No

4. New footing for Engine Generator upgrade required? Yes No

5. New footing for Oil Tank upgrade required? Yes No

6. Non-structural anchorage required? Yes No

7. Is a new/updated Geotech report required? Yes No

8. Is liquefaction a concern at this site? Yes No

9. Design Criteria: (per STD-DS-000001, and STD-DS-000026)

10. Will existing drawings require updating to the new standards? Yes No

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11. Special TELD considerations? Yes No

Transmission Line Design (TELC)

1. Is line rating of an existing transmission line(s) required? Yes No

The proposed line section is a double circuit line terminating at a new substation. This breaks the Big Eddy-Redmond No 1 line into two new operating lines.
 A line rating analysis has been completed on the entire Big Eddy-Redmond No 1 line to identify existing impairments.
Risk – the urgency of the identified impairments will determine if they need to be included within the scope of this project, risk being all identified impairments have to be resolved, increasing the budget significantly.

2. Ice determination ½" ¾" 1"

3. Extreme wind speed determination

N/A

4. Voltage requirements

69 kV 115 kV 230 kV 500 kV Other

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The Big Eddy-Redmond line is 230kV, and the loop-in double circuit to the new substation will be the same

5. Conductor type recommendation

ACSR Pheasant: both circuits to match the Big Eddy-Redmond line conductor.
Assumption/Risk – assuming ACSR Pheasant is sufficient. Risk – if determined not sufficient during design, and larger conductor is necessary, possibility exists that structural loadings would be too high for selected structures determined in scoping.

6. Overhead ground wire type recommendation based on mechanical requirements

Preferred option: 2 x 0.811" 72F OPGW
 Alternate option: 2 x 0.591" 36F OPGW

7. Fiber type recommendation based on mechanical requirements

Preferred: 0.811" 72 F OPGW recommendation
 Alternate #1: 2 x 0.591" 36F OPGW cables acting as groundwire with 1 x 72F ADSS cable in the armpits of the structure
 Alternate#2 : 0.591" 36F OPGW and return 1 x 72 Fiber ADSS on Fiber optical wood pole configuration parallel to double circuit line section

8. Typical design tensions

AOL/BOL of structure 11/2 on Big Eddy Redmond: Will remain the same as currently exists.
 11/2 – New Substation (double circuit): determined by PE to appropriately meet clearances, tension/slack requirements during design. Will stay within structural loading ratings for Conductor and OPGW/ADSS

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As designed, 115 series structures scoped for this project will need to be analyzed during design to see if necessary tension requirements to meet clearances will fall within allowable limits for the 0.811" OPGW.

Risk: one large crossing across a local county road is assumed to not required marker balls. The risk if it is determined that marker balls will be required during design, the tensions for the OPGW will increase and further design analysis will need to be completed in order to insure the higher tensions are within allowable limits of the structure design.

9. Areas with special conductor, overhead ground wire or fiber requirements

From Structure 11/2 (loop tie-in point to Big Eddy – Redmond) to the new substation, the preferred option is for two 0.811" 72F OPGW lines to run the length of the new line section appropriately ground the line while providing fiber optic support to the new substation to tie into the fiber system.

Assumption/Risk – Assuming that the 2 x OPGW cables are within the structural tension design limits. The risk is if the tensions of the larger cable fall outside the structural limits determined during design, an alternate method will need to be designed. The recommended alternate option is to run 2 x 0.591" 36F OPGW cables the length of the new line section, while installing a return 72F ADSS cable in the armpit of the structure. If this is not feasible due to clearance issues, an alternate is to run the 72F ADSS on a parallel fiber optic wood pole line.

10. Typical hardware assembly

- Big Eddy – Redmond structure 11/2: will be replace, with the phase conductors rotating from a horizontal BOL/AHOL to vertical configuration at 11/2. This will require cable length calculations to determine the change in catenary(conductor) length that will need to be either cut out or "added" via elongated by-line assemblies.

If necessary, ADSS assemblies will be standard unless need for by-line is determined during

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design.

- Double circuit section (11/2 to new substation):

- dead end and suspension assemblies will be standard assemblies for new construction for both OPGW and conductor
- if required, 72F ADSS assemblies: standard dead end assemblies, suspension assemblies as follows for 115A structures the A-SDSG assembly, for 115D/DE structures the A-SDSW assembly

Assumption/Risk – Assuming the cable length change on Big Eddy-Redmond No 1 will be minimal. Risk – if it is much larger than expected, additional work/alternatives will need to be analyzed to ensure existing wire conditions are maintained as closely as possible (i.e. splice in additional conductor, etc.)

If OHGW is required beyond 11/2, and additional structures need to be replaced:

-11/1, 11/3, 12/1, 12/2 – S/S2 type Suspension Assemblies w/ 15 kip insulators and Y-balls, will be upgraded to current standard assembly. Must meet line rating and clearances, or special assembly required

11. Other TELC (Line Design) Requirements

Yes

No

- If work is required beyond structure 11/2, inspect line hardware (vibration dampers, corona coils, etc.) on both Conductor and Fiber to ensure serviceability on existing structures where work will occur, replace if necessary.

- perform analysis during design to determine damping scheme for double circuit line section.

- on DE structures with line angles – will need to determine if jumper string installation is necessary to reduce swing angles for clearances-to-structure.

- for all prop structure impairments: significant design analysis will need to be done to

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appropriately determine the best course of action to take to ensure existing tensions and clearances are maintained, whether it be by-line assemblies, cutting cable, etc.

Electrical Effects Design (TELC)

1. Is lightning protection and/or OHGW required for the transmission line? Yes No

2. Recommended OHGW size for electrical purposes (*recommendation is pending mechanical approval*):

1/2" EHS or .811 OPGW depending on what line design group decides to use for shielding. An exception to run ground wire 1/2 mile from the Substation will suffice with two paralleling ground wires.

3. Are grounding measurements for grounding design required? Yes No

For new OHGW the counterpoise design will rely on these studies. These will have to be done after scoping has been completed. This can be done after the towers have been erected. If that is the case, counterpoise will have to be installed after construction of the towers has been completed and that could add to financial issues.

4. Is counterpoise required? Yes No

Yes, but it will not be determined until resistivity measurements are done and compiled. Counterpoise may be installed after construction of the towers have been completed depending on when soil resistivity can be done and specific tower locations are finalized.

5. Is there anything in the project area that may affect insulator selection or insulator string length?

Yes No

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6. Insulator selection

Porcelain

7. Is a disconnect switches study required? Yes No

8. Are new disconnect switches required? Yes No

9. Do any disconnect switches need replacement/upgrades? Yes No

10. Are Optical Isolators required? Yes No

11. Is a Fiber Location analysis required? Yes No

Depending if we are using fiber/OHGW configuration instead of using OPGW,

12. Are there any of the following:

a. Tall structures (above 200 ft.) Yes No

b. River crossings Yes No

c. Airports, heliports or airstrips Yes No

13. Do existing Marker Balls need replacement/upgrades? Yes No

14. Other TELC (Electrical Effects) requirements Yes No

All the responses reflect the assumptions of the project and only looking from 10/1-12/3. Red markings are TELC's newest revisions to the CDD to accommodate the newest changes from

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1/9/2018.

Civil Design (TELF)

1. Is an access road design required? Yes No

The proposed site sits atop a high ridge that is difficult to access. There are two separate possible routes that could be used to access the site. The property owner's preferred route to access the site is up a ravine almost directly south of the proposed site. Preliminary analysis looks like this access route is feasible but a more detailed analysis will be necessary during final design to ensure that is viable. To meet entrance road standards the road would have to be widened to a 20' road width with 5' shoulders on each side for a total width of 30'. For entrance roads the maximum grade for gravel roads is 8%. The maximum allowable grade of 12% for paved roads. During final design, if it is found that the owner's preferred route is not feasible, there is a second option for an entrance road farther to the East. This entrance road would be longer but would provide a flatter option.

To access the new towers new 14' wide access roads will be required to each tower. The design of the access roads should be coordinated with realty to ensure access rights are obtained to allow access to the towers and lines.

Please see attached map in Real Property Services (TER) Question 5.

2. Are retaining walls required? Yes No
3. Are access road bridges required? Yes No
4. Are gates required? Yes No
5. Does a geotechnical analysis need to be performed? Yes No
6. Culverts (new or improved) required? Yes No

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- 7. Fords required? Yes No
- 8. Oil Spill Containment required? Yes No
- 9. Site development required? Yes No
- 10. Other TELF Requirements Yes No

From a civil standpoint the proposed project is feasible. It should also be noted that in talking with the geotechnical engineer, that if deep cuts are necessary, it is quite likely that very dense rock that would require blasting could be encountered. Preliminary research indicates that the existing bedrock lies between 2 and 4' below the existing ground surface. To allow for the installation of new and future underground utilities and conduits at least 5' of material that can be trenched through is required, There are two options to achieve this result. The first is to remove the overburden and then blast and crush the existing basalt in place and then rebuild the in lifts to the final elevation. The second is to remove the organic materials from the ground surface, compact the remaining existing soil and then place additional fill material from offsite to achieve the required 5' to bedrock.

System Control Engineering (TEC)

- 1. Preliminary control house/relay house layout Yes No

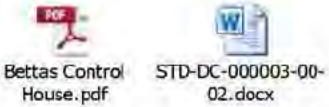
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Boyd Ridge new Control House will comply with CPaT Standard STD-DC-000003-00-02, Control/Relay House Equipment Layout , dated 09/22/2015 . Boyd Ridge Control House equipment layout will comply with STD-DC-000003-00-02 Section 4.3 Organization of Racks – Floor Layout and STD-DC-000003-00-02, Section 4.4, Rack Spacing Requirements.

Preliminary count of 24 inch wide free-standing CRAM Rack for TECC is (8), plus (3) spare. Preliminary count of 24 inch wide X 12 inch deep against wall mount Racks for TECC is (2) . Additional TECC Control House equipment includes 10 foot wide cable Termination Frame, (3) wall mount 24 inch wide 125 VDC Panelboards, (1) wall mount enclosed circuit breaker and (1) through exterior wall Battery maintenance plug/receptacle. Boyd Ridge Control house to include (2) pipe mount GPS dome antennas spaced minimum 10 feet apart with clear view of south sky.

Preliminary estimate for Control House 125 VDC Station Battery is minimum 200 AH at 12 hour rate. 125VDC Station Battery 200AH dimension with Rack is 48 inches H X 144 inches W X 32 inches D .

PE Note: We used Bettas Road Substation as a general template for this control house. The projects were very similar (tapping a 230kV line, three breaker ring bus, connected to a collector sub for a wind site). Design may find the Bettas Road drawings useful as a reference.



PE Note: During the re-scoping of this project, TECC was able to provide markups that would be useful during design. There are too many to attach to this document so they have been posted to the following drive: <\\hfile\PUBLIC\KWRoberts>

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2. Control/Relay House Space Requirements, and is there enough rack space? Yes No

Boyd Ridge will be a new Control House built to accommodate both present and future space requirements.

RDMD RACK REQUIREMENTS:
RDMD Line Relay Rk 11A with two sets SEL-321 relays to remain for 230 KV MOPN Line 1 , PCB 10H. RDMD 230 KV Bus Tie Relay Rack 8A, PCB 7H with two sets SEL-421 relays to remain.

This Project removes existing RDMD CRK-14 complete with SEL-2595 , event reporting aux relays and aux timing relays communicating to BIGE. This Project field removes panel segment with SEL-2595 from existing RDMD CRK 15 communicating to MOPN and provides blank CRK-15 panel segment in its place.

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This Project provides new RDMD CRK-14. CRK-14 will have (4) new Lux link fiber optic cutout switches and (2) new SEL-2126 fiber optic transfer switches. SEL-2126 set 1 will route MB RRTT from Boyd Ridge Substation SEL-411L set 1 to either RDMD Rk 11A Line SEL-321 set 1 or RDMD Rk 8A, Bus Tie, SEL-421 set 1. SEL-2126 set 2 will route MB RRTT from Boyd Ridge Substation SEL-411L set 2 to either RDMD Rk 11A Line SEL-321 set 2 or RDMD Rk 8A, Bus Tie, SEL-421 set 2.

RDMD CRK-14 SEL-2126 set 1 will also route MB TT DTT/DTR from MOPN SEL-421 set 1 to either RDMD Rk 11A Line SEL-321 set 1 or RDMD Rk 8A, Bus Tie, SEL-421 set 1. CRK-14 SEL-2126 set 2 will also route MB TT DTT/DTR from MOPN SEL-421 set 2 to either RDMD Rk 11A Line SEL-321 set 2 or RDMD Rk 8A, Bus Tie, SEL-421 set 2.

A Programmable Automation Controller type SEL-2411 or SEL-2440 will be provided on new CRK-14 for MBTT event reporting.

MOPN RACK REQUIREMENTS:

This project will field remove existing SEL-2595 panel segment from top of MOPN Panel 2 and add replacement panel segment with two Lux Link fiber optic cutout switches to cut in or cut out MB RRTT communication with RDMD. Existing MOPN SEL-421 set 1 with added SEL-2894 in RS232 Port, will communicate MB RRTT DTT/DTR to RDMD new SEL-2126 set 1 and on to RDMD Line relay set 1 or Bus Tie relay set 1. Existing MOPN SEL-421 set 2 with added SEL-2894 in RS232 Port will communicate MB RRTT DTT/DTR to RDMD new SEL-2126 set 2 and on to RDMD Line relay set 2 or Bus Tie relay set 2.

BIGE RACK REQUIREMENTS:

For this project the existing electromechanical relays on BIGE Rk 109 will remain and existing two sets SEL-321 on BIGE 230KV Bus Tie Sect 2, Rk 110 will remain.

For this project the existing BIGE CRK-34 will be removed and replaced. Existing CRK-34 includes existing single set SEL-2595 communicates permissive and direct TT with current reversal logic aux relay timing panel to RDMD. Per this Project BIGE 230 KV Line will connect to and communicate with new Boyd Ridge Substation, no protective relay

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BOYD RIDGE RACK REQUIREMENTS:

New Boyd Ridge Control House will have three line relay CRAM racks, each with two sets SEL-411L. There will be one protective relay rack for each of lines MOPN, BIGE and G0345 Collector Site, one CRAM Rack for SEL Programmable Automation Controller interface to Orion, one CRAM Rk for GPS and D400 , and one CRAM Rk for NERC/CIP Security.

Boyd Ridge will have (2) , 24 inch wide X 12 inch deep, against the wall Racks , one for Battery Chargers and one for Battery Monitor and DC Arc Flash Relays.

2. What is the rack/cabinet color requirement?

Color of new Rack and panel segments at RDMD, MOPN and BIGE will match color of existing Station Racks at each Site. Rack color at new Boyd Ridge Substation will be Bonneville standard Sage Green.

3. Station one line diagram

Yes

No

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The protective relay transfer trip input and One Line Diagram revisions for this Project follow the removed and new communication 64Kbps DS0 paths shown on Project Communication PRD 285137-4-2.dgn . MOPN remains a 3-Terminal Line 60Hz tap now on RDMD – Boyd Ridge 230 KV Line. Boyd Ridge has 230 KV 60Hz line connection to BIGE, G0345 Collector Site and MOPN. RDMD passes DTT/DTR between MOPN and Boyd Ridge.

Project Communication PRD shows existing DS0 path #7253 RDMD to MOPN to remain and adds one new DS0 path from RDMD to MOPN. Existing single set SEL-2595 TT RDMD to MOPN will be replaced with MB RRTT sets 1 and 2. At RDMD 230KV main/transfer bus, MB RRTT will be routed through SEL-2126 fiber optic transfer switch sets 1 and 2 between Line and Bus Tie relays.

This Project provides two new DS0 MB RRTT communication paths from RDMD to Boyd Ridge. MB RRTT DS0 signals at RDMD pass through SEL-2126 sets 1 & 2 to route between RDMD Line and Bus Tie relays.

This Project provides two new DS0 MB TT communication paths from Boyd Ridge to BIGE. At BIGE SEL-2506/SEL-2894 MB TT contact repeater interfaces to BIGE Line and Bus Tie relays by copper connections through RTS. At Boyd Ridge MB TT passes directly to RS232/SEL-2894 port on SEL-411L sets 1 & 2.

AC Current and Potential template for Boyd Ridge Substation One Line Diagram will be a combination of TECC Template 291404-2-2.dgn 230KV PCB& ½ One Line Diagram, existing 230KV 3 PCB ring bus examples such as Bettas Road Substation and example provided by TECC to show Orion HMI trip and close control logic on One Line Diagram.

Bettas Road One Line Reference Example:



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A. Control and Protection

1. Relay Requirements

This Project does not change protective Line relays at RDMD, MOPN or BIGE. At RDMD two sets SEL-321 Line relays on Rack 11A and two sets SEL-421 Bus Tie relays on Rack 8A remain. At MOPN two sets SEL-421 on PNL 2 remain. At BIGE electromechanical Line relays on Rack 109 remain and two sets SEL-321 Bus Tie #2 relays on Rack 110 remain.

At new Boyd Ridge Control House each of MOPN, BIGE and Collector G0345 Site protective relay racks will have two sets SEL-411L and associated SEL-2411/2440 Programmable Automation Controllers for event reporting and logic. Three sets 230KV Boyd Ridge PCB BFR and Differential protection, SEL-787 will be on dedicated PCB CRAM Rack.

2. Station DC Requirements

Boyd Ridge Control House will comply with Draft TECC DC Distribution Standard which splits 125 VDC Bus for protective relay sets 1&2. 125VDC Station Battery Power goes through an enclosed circuit breaker then to main 125VDC Panel B. Panel B distributes 125VDC power to DC Panels B1 and B2. DC Panel B1 powers relay sets 1 and biases relay set 1 trips to PCB trip coils one. DC Panel B2 powers relay sets 2 and biases relay set 2 trips to PCB trip coils 2. GE A60 Relays will provide DC Arc Flash protection for DC Panels B, B1 and B2. 120VAC biased GE A60 output contacts will shunt trip circuit breakers upstream from Panels B, B1 and B2 for detected light flash and sound pressure wave inside arc flash protected DC Panelboard.

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3. Local Control Requirements

Orion HMI will be used to perform local Boyd Ridge PCB trip and close control. Orion will forward SCADA Control signals to local Boyd Ridge SEL-411L Line relays. SEL-411L line relays will receive DNP3 commands over Ethernet ring from Orion. SEL-411L will apply any required internal SEL-411L logic, such as 79 Reclose Block logic and operate SEL-411L Output contacts as interposing relays to trip and close appropriate local Boyd Ridge PCB. SEL-411L front panel Push Buttons serve as manual backup to trip and close Boyd Ridge switchyard PCB's from Control House if Orion HMI fails.

4. New Relays or Relay Settings required? Yes No

New protective relays and new protective relay settings by SPC are required at Boyd Ridge Substation.

5. Is there an existing termination frame? Yes No

A new 10 foot wide Cable Termination Frame is required at Boyd Ridge Control House.

6. Is there an existing GPS Clock? Yes No

7. If there an existing GPS Clock, it is, or needs to be: Sufficient Replace New Added

Two new GPS dome antennas pipe mounted 10 feet apart with clear view of south sky and two new GPS Receiver Clocks will be required at Boyd Ridge Control House.

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B. Telecommunications

Telecommunications Contributor: Mason Tabata

Date: 11/29/17

Fiber related items

1. Is there existing fiber at the site that is adequate for this project? Yes No
2. Is an additional fiber installation needed? Yes No
 - a. If yes, contact TESD or Line P.E./Comm. Planning

Boyd Ridge Sub will need a new fiber loop-in to access the Ross-Malin fiber system between Big Eddy and Buckley. Two diversely routed 72-fiber singlemode cables will be required from Boyd Ridge to the splice points. Outages will be required to loop fiber into Boyd Ridge. Four fiber patch panels with SC/APC connectors will be required within the Boyd Ridge control house, two 72-port panels for the Big Eddy and Buckley connections and two 36-port patch panels for the connections to the collector site. For the connections to the collector site, 24 fibers must be spliced and terminated for each cable.

The collector site will require two diversely routed singlemode fiber cables to be installed by the developer to connect to Boyd Ridge. Two 36-port patch panels are required to terminate 24 fibers from each cable.

Building related items

3. Is there rack space available for new equipment?

Boyd Ridge will require 6 rack spaces: 1 for fiber patch panels, 1 for SONET node and channel banks, 1 for charger and DC distribution, 1 for alarms/NMS/FIN, 1 for OMET, and 1 spare.

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The collector site will require 6 rack spaces: 1 for fiber patch panels, 1 for SONET node and channel banks, 1 for charger and DC distribution, 1 for alarms/NMS/FIN, 1 for OMET, and 1 spare. BPA equipment at the collector site will need to be in a separate locked area.

Circuit related items

4. Verify communication equipment capacities (local and remote sites) for project circuit requirements.

Optic cards need to be re-evaluated at Big Eddy and Buckley to account for the shorter distance between SONET nodes when Boyd Ridge is added to the ring.

5. FIN connectivity sufficient? Yes No

FIN connectivity will be extended to Boyd Ridge from Big Eddy and Buckley. FIN will be extended to the Collector Site from Boyd Ridge.

6. NMS connectivity sufficient? Yes No

NMS connectivity will be extended to Boyd Ridge from Big Eddy and Buckley. NMS will be extended to the Collector Site from Boyd Ridge.

7. Does site need a DATS line?

Two DATS lines required for Boyd Ridge: one to Big Eddy switch, one to Redmond switch.
Two DATS lines required for the Collector Site: one to Big Eddy switch, one to Redmond switch.

Equipment related items

8. Battery/Charger size adequate? Yes No

Boyd Ridge and the collector site will need new 48V batteries, chargers, distribution panel, and gas detector systems.
There is no significant impact to the DC plant at any of the other comm sites.

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9. Timing system upgrades for communication synchronization needed? Yes No
a. Will GPS be required? Yes No

The SONET node at Boyd Ridge will be line timed from the Big Eddy SONET node.
The SONET node at the collector site will be line timed from the Boyd Ridge SONET node.
Both sites will need TimeProviders to provide BITS timing to the channel banks.

10. Are the Positron, ROWS, and paging equipment adequate? Yes No

Boyd Ridge and the collector site both need new Positron, ROWS, and paging system.

11. Any aging or non-standard equipment that would be beneficial to replace at the time the project is coming through with upgrades? Yes No

Big Eddy:

- Cisco 3845 and 2620 FIN routers would benefit from an upgrade.
- Cisco 2951 NMS router is probably okay as-is.

Buckley:

- Cisco 2811 FIN router that could benefit from an upgrade.
- Cisco 2911 NMS router is probably okay as-is.

12. Are there other project that affect this project or are affected by this project? Yes No

Adding Boyd Ridge to the Ross-Mallin fiber system affects the AFMS and OMET projects.

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C. Data Systems

Data and Control

Rebekah Capiral 10/27/2016 N/A
 Data Systems Contributor Date

1. What is the data and control project overview?

Boyd Ridge: Install a redundant SER/SCADA Orion system at BPA's new Boyd Ridge Substation.

G0345 Collector: Install a single SER/SCADA Orion system at Lotus' G0345 Collector Substation. Install redundant large generation JEMStar meters. Install (2) data PMUs.


Maupin (MOPN): Add points to existing D400 SER for new RRTT using the existing SEL-421 relays. There is a contact extender sending critical and non-critical SCADA points over to the Buckley SCADA. Split points between those two SCADA points to follow the existing system architecture.


Redmond (RDMD): Add points to existing SNW SCADA and D20 SER to support new RRTT using existing relays and local RAS. There is adequate space in the existing systems at this time. Per RAS design, no new control points needed at Redmond.


Big Eddy (BIGE): The existing Big Eddy Beta SER and SNW SCADA are scheduled to be replaced in the next couple years. Either way, we can add the new points to the existing system or the new Orion system, whichever will be in service at the time of installation. Points will need added to support new RRTT using existing relays and local RAS. There is adequate space in the existing systems at this time. Per RAS design, no new control points needed at Big Eddy.


2. What substation equipment is being added?


Boyd Ridge: (1) Rack with redundant SER/SCADA Orions, I/O, and alarm HMI. (1) Rack with (6) additional digital input SEL-2440s. See marked up standard drawings.


 317197-1-7_SERSCA
 DAHMI_Boyd Ridge.p


 317199-1-3_DI
 EXP_Boyd Ridge.pdf



 316285_Network
 Block Diagram_Boyd f



 316287-2-0_DO
 PLC.pdf



 316287-3-0_DO
 PLC.pdf


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G0345 Collector: (1) rack with a single SCADA Orion, I/O, and no HMI/ROWS/Howler. (1) Rack with redundant JEMStar meters, large generation package. (1) Rack for (2) data PMUs. See marked up standard drawings.


 317197-1-7_SERSCA 280708_RackLOWirin



 316285_Network



 316286-1-1_Analog



 316287-2-0_DO



 DAHMI_G0345 Collecg_G0345 Collector.pxB


Block Diagram_G0345Inputs_G0345 CollectPLC_G0345 Collector.


 316287-3-0_DO



 316287-5-0_DO



 316288-2-0_Input



 316288-3-0_Input


 316288-4-0_Input

PLC_G0345 Collector.PLC_G0345 Collector.Schem_G0345 CollectSchem_G0345 Collect


 322337-1-0_IRIG_G 280707_Schematics_


 303889-1-1_G0345


 0345 Collector.pdf G0345 Collector.pdf Collector.pdf

3. What substation equipment is being replaced?

None.

4. What are the SER and SCADA RTU types and locations?

See #1.

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5. How many SER and SCADA RTU points are available?

Boyd Ridge: The brand new redundant Orion SER/SCADA will have 296 physical digital inputs, 4 physical analog inputs, 4 physical analog outputs, and 16 T/C pairs.

G0345 Collector: The brand new single Orion SCADA will have 200 physical digital inputs, 36 physical analog inputs, 4 physical analog outputs, and 16 T/C pairs.

Maupin: I don't see any available I/O for hardwired inputs. It appears all alarms are being polled directly from the end devices using DNP3. Points can be added over DNP3, but if hardwired points are necessary, we will need to look into adding an SEL-2440 for digital inputs on the bottom of panel 6. This device can be polled by the D400 using DNP3 over serial.

Redmond: 177 spare SER inputs, 21 spare SCADA digital inputs.

Big Eddy: 512 spare SER inputs, 37 spare SCADA digital inputs.

6. How many spare SER and SCADA RTU points are required for this project?

Boyd Ridge Conservative Estimate: ~135 physical DIs, ~0 physical AIs, and ~8 DOs.

G0345 Collector Conservative Estimate: ~115 physical DIs, ~3 AIs, and ~14 DOs.

Maupin Conservative Estimate: ~10 SER points and use existing SCADA points going to Buckley.

Redmond Conservative Estimate: ~20 SER points and a handful of SCADA points.

Big Eddy Conservative Estimate: ~20 SER points and a handful of SCADA points.

7. Will the SCADA RTU need to be expanded?

No.

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8. Can the SCADA RTU be expanded?

N/A.

9. Is there space to expand the SCADA RTU?

N/A.

10. What hardware is required for the SCADA RTU expansion?

N/A.

11. Will the SER need to be expanded?

Maupin: The SER at Maupin may need to be expanded to support hardwired digital inputs, depending on what TECC needs. If all alarms can be sent via DNP3 from the relays, then no expansion will be needed.

12. Can the SER be expanded?

Yes.

13. Is there space to expand the SER?

Yes.

14. What hardware and location is required for the SER expansion?

If needed, add an SEL-2440 for digital inputs to the bottom of panel 6.

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15. Will equipment integration be required for this project? Equipment type? Network type? Protocol?

Boyd Ridge: Yes, the Orions will need to talk DNP3 over Ethernet to the 411Ls, the 411L I/O devices, and the Shark meters.

G0345 Collector: Yes, the Orion will need to talk DNP3 over serial to the JEMStar meters for kWh. If dispatch wants any analog quantities at this site, we can also speak DNP3 or Modbus over serial or Ethernet to any meters at the site currently gathering those desired quantities (Orion is the master, the end device is the slave). The Orion will be polling the Wind Farm Management System for data (Orion will be the master and the WFMS will be the slave) via DNP3 over serial.

Maupin: There are already DNP3 over serial connections from the D400 SER to the existing relays that will be used for RRTT. We will probably need to update that mapping to include additional points associated with this project (this will depend on what TECC and SPC would like to monitor).

16. What design standard should be used?

See Boyd Ridge and G0345 Collector mark ups.

Digital Fault Recorder (DFR) –N/A, no DFR work needed.

Phase Angle Measurement Unit (PMU)

17. How many PMU current and voltage analog inputs are required for the project?

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3 potential readings (1 high side, 2 low side) and 4 current readings (1 high side, 2 low side, and 1 reactor).

18. How many PMU current and voltage analog spare inputs are available?

N/A, this will be a new data PMU setup.

19. Will the PMU need to be expanded?

N/A

20. What hardware will be required for a PMU expansion? Location?

(1) CRAM rack with (2) data PMUs will be needed at this site. Use standards: 295526, 295527, and 295528.

NERC/CIP

21. Is this site a low or medium impact site?

(b) (2)

22. Is/Are the building(s) physically secured?

See #21.

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23. Are there any networks leaving the ESP (electronic security perimeter)? Clarify if the network connections are routable and/or interactive?

Only point to point RS-232 serial connections will be leaving the buildings.

24. Is there an existing ESP diagram that will need to be updated?

No.

SER/SCADA

25. What is the data system SER/SCADA project overview?

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Boyd Ridge: Install a redundant SER/SCADA Orion system at BPA's new Boyd Ridge Substation.

G0345 Collector: Install a single SER/SCADA Orion system at Lotus' G0345 Collector Substation.

Maupin (MOPN): Add points to existing D400 SER for new RRTT using the existing SEL-421 relays. There is a contact extender sending critical and non-critical SCADA points over to the Buckley SCADA. Split points between those two SCADA points to follow the existing system architecture.

Redmond (RDMD): Add points to existing SNW SCADA and D20 SER to support new RRTT using existing relays and local RAS. There is adequate space in the existing systems at this time. Per RAS design, no new control points needed at Redmond.

Big Eddy (BIGE): The existing Big Eddy Beta SER and SNW SCADA are scheduled to be replaced in the next couple years. Either way, we can add the new points to the existing system or the new Orion system, whichever will be in service at the time of installation. Points will need added to support new RRTT using existing relays and local RAS. There is adequate space in the existing systems at this time. Per RAS design, no new control points needed at Big Eddy.

26. How many analog, digital, and control points are present in the existing SER/SCADA system?

See Data Systems #5.

27. What building(s) will the equipment be installed in?

Boyd Ridge: Control house.

G0345: Control house.

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28. Is there space in the building?

Yes.

29. What equipment will be added? List all the equipment to be added, including the rack locations.

Boyd Ridge: (1) rack with redundant SER/SCADA Orions, I/O, and alarm HMI. (1) rack with (6) additional digital input SEL-2440s. See marked up standard drawings. Rack locations unknown.

G0345 Collector: (1) rack with a single SCADA Orion, I/O, and no HMI/ROWS/Howler. See marked up standard drawings. Rack locations unknown.

30. Will modems be required?

No.

31. Is any customer IED integration required?

G0345 Collector: send metering pulses and analogs to the wind developer. The Orion will need to poll the WMFS using DNP3 over serial. We may also need to poll some of their meters for analog values, depending on what dispatch wants. Metering AGC analogs will most likely be sufficient.

32. Is any BPA IED integration required?

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Boyd Ridge: Yes, the Orions will need to talk DNP3 over Ethernet to the 411Ls, the 411L I/O devices, and the Shark meters.

G0345 Collector: Yes, the Orion will need to talk DNP3 over serial to the JEMStar meters for kWh. If dispatch wants any analog quantities at this site, we can also speak DNP3 or Modbus over serial or Ethernet to any meters at the site currently gathering those desired quantities (Orion is the master, the end device is the slave).

Maupin: There are already DNP3 over serial connections from the D400 SER to the existing relays that will be used for RRTT. We will probably need to update that mapping to include additional points associated with this project (this will depend on what TECC and SPC would like to monitor).

33. What equipment will be removed? List all the equipment to be removed, including the rack locations.

None.

34. Is there a building termination frame?

Boyd Ridge/G0345 Collector: There will be.

35. Will the SER/SCADA system be redundant?

Boyd Ridge: Yes.

G0345 Collector: No.

36. Is 125VDC power available?

Yes.

37. What design standards will be used?

See marked up Boyd Ridge and G0345 Collector drawings.

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38. Is demodulated IRIG-B available?

Yes.

39. Is ambient temperature required?

Per Jim Burns, add outdoor temperature transducers.

40. Is bus frequency required? Which bus voltage transformer?

Per Jim Burns, no high resolution frequency required.

41. What are the SCADA and SER RTU addresses?

Design to contact Data Systems for address assignment.
Per Jim Burns, both sites need a SEMM connection for RAS feedback.

42. Do any outdoor cables need replacing?

N/A.

43. Is substation fiber required? Available? Multimode or Single Mode?

No.

44. Where are the outdoor cables terminated?

Outdoor cables will be terminated at the term frame.

45. Are the outdoor cables long enough?

N/A

Metering

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46. What is the data system metering project overview?

G0345 Collector: Add redundant JEMStar meters (large generation package) with pulses and analogs to customer, MV-90 via cell modem, and analogs/alarms/kWh to SCADA via DNP3 over serial.

47. What is the balancing authority area?

Unknown.

48. What is the time zone?

Pacific.

49. What location or building will the metering system be located in?

Control house.

50. What metering equipment will be added? List all the metering equipment to be added and rack locations.

Add (1) rack with (2) JEMStar meters, (2) repeat relays, (1) LSS, and (2) isolation amplifiers.
Rack location unknown.

51. What is the rack type? Cram rack, radio rack, 24", 19"?

24" CRAM.

52. What equipment will be removed? List all the metering equipment to be removed and rack locations.

None.

53. What metering design standard should be used? Revenue, interchange, generation?

Large generation standard.

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54. What are the customer meter data requirements?

kWh, kVARh, KVAR, and kW.

55. How will the customer get access to the data they require? Analog, pulses, dial up, internet, network integration?

Via repeat relays and isolation amplifiers.

56. How will the meter equipment be powered? 125VDC, 115VAC?

125VDC.

57. Are there any recording voltmeters or ammeters to be removed?

No.

58. Are analog isolation transducers required?

Yes.

59. Are kWh, kVarh repeat relays required?

Yes.

60. What are the assigned meter JS numbers?

JS818 (Mtr A), JS819 (Mtr B)

61. What is the meter kWh ID number?

N/A, kWh will go through SCADA.

62. What is the MV90 communication path type? Cell, land line, Ethernet?

Cell modem.

63. Is there adequate cell phone coverage?

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N/A

64. What are the SPP (Service Point Profile) in/out meter point numbers and names?

Request from Meter Data Management during design.

65. What is the KWh LTA port assignment?

N/A

66. What is the KWh communication circuit number?

N/A

67. Does the metering system report on any local equipment alarms?

No.

68. What RFL telemetry equipment is being added? Include the rack location.

None.

69. What RFL telemetry equipment is being removed? Include the rack location.

None.

70. Is there room in the telemetry shelf?

N/A

71. Is there enough bandwidth in the telemetry communication path?

N/A

72. Do the SER and SCADA systems have adequate capacity for this metering equipment?

Yes.

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73. Do any outdoor cables need replacing?

N/A

74. Where are the outdoor cables terminated?

Outdoor cables will be terminated at the term frame.

75. Are the existing outdoor cables long enough for this project?

N/A

76. Are the current transformers metering accuracy 0.3% or better?

Required, see PRD.

77. What are the current transformer ratios?

Unknown.

78. What is the CT rating factor?

Unknown.

79. What are the potential transformer ratios?

Unknown.

80. What is the maximum MVA load being measured by the meter?

200 MVA.

81. Is this meter providing AGC automatic generation control data?

Yes.

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Substation Design (TESD)

General Project Narrative

Intercept the existing Big Eddy – Redmond 230kV line and add a 2-bay, ring bus substation for customer generation interconnection from nearby planned 201MW wind farm.



Plot Plan Option 1
Boyd Ridge.pdf

Design

1. Total Estimated Design Hours

600 hours

2. Design Standard Exceptions Yes No

No exceptions required on the substation design side. Possibilities exist on the line side.

3. Referenced Document List

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- a. This list is intended as a guideline for drawings expected to be in the final design package. This is not a complete list. It is the responsibility of the contracted engineering firm to submit a design that includes all the necessary drawings for a complete construction package.
- b. The following drawings are from a substation site, Bettas Road, which is somewhat similar to the new Boyd Ridge site. This list is included as a starting point only. The preliminary plot plan provided for Boyd Ridge is the ultimate design direction the winning design firm should use – this list is provided as an additional reference.

Document Number	Document Title
287224	Construction One Line Diagram
287225	Dispatcher's One Line Diagram
287226	Plot Plan
287227	230kV Bus Layout and Elevations
287230	Conduit Layout
287246	Cable List
287239	Station Service AC One line, Panel Schedules, Yard Wiring, and Load List
287236	Grounding Layout
287242	242kV PCB Wiring
287245	Instrument Transformer Wiring
286752	Structural - Footing Plan
285446	Civil - Rock Surfacing and Road Plan
284158	Control House AC Panel

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PE Note: A folder with all of the referenced drawings above from Bettas Road has been uploaded to the project web space for this project in case any members of the PDT would find them useful. The drawings can be found under "Document Category-1 -> Document Category-2 -> Bettas Road Reference" in the Project Documents section found here:

<https://project.bud.bpa.gov/sites/tpmo/OfficialProjectWorkspaceSite/P00627/Documents/Forms/By%20Category.aspx>

Civil

1. Yard expansion required? Yes No
 - a. Land purchase (<50 ft fence line to property) Yes No
 - b. Retention pond (>5000 sq. ft) Yes No
 - c. Significant cut/fill required? Yes No

New substation – not a substation expansion.

2. Nearby Wetland or Cultural areas? Yes No

Awaiting cultural survey but none known at this time.

3. Oil Containment required? Yes No

None required at this time – no transformer banks being installed. Should future transformer/reactor banks be installed then oil containment would need to be addressed at that time.

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4. Underground conflicts, i.e. pipes, drainage, vaults? Yes No

New substation.

5. Special security fencing requirements? Yes No

Project Engineer should coordinate with security group for any special security or NERP CIP requirements.

6. Road access issues
- a. Delivery and installation of equipment Yes No
 - b. Maintenance Yes No

The access road to the substation is still under review. One option looks difficult to transport large equipment on, while the second option seems more favorable. From a maintenance standpoint there don't appear to be any issues in accessing the site. Hauling heavy equipment (such as future transformer/reactive bank) could cause issues. Also, hauling in a modular control house could be problematic. Verify access prior to making decision on the control house.

7. Other Yes No

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Structural

1. Footings condition concerns? Yes No

New substation.

2. Custom footings required? Yes No

New substation.

3. Abandoned footings requiring removal? Yes No

New substation.

4. Non-standard structures required
 - a. Tertiary Rack modifications? Yes No
 - b. Unique bus supports? Yes No

5. Deadend Tower take-off angle (>10 deg.)? Yes No

None identified during scoping process.

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6. Cable tray installation in tunnel? Yes No

7. Other Yes No

Line Design

1. Strain bus or overhead ground wire required? Yes No

A lightning study will be required to verify OHGW requirements.
 Strain bus will be needed for risers to and from SCADA-controlled 230kV disconnect at customer line interface.

2. Transmission fiber transition to control or relay house? Yes No

The fiber source has not yet been identified. Assume it's coming off of one of the two existing lines parallel to the new station. At least (1) fiber vault will be required. Adhere to WECC fiber separation requirements for redundant fiber paths.

3. Nearest transmission tower location coordinated. Yes No

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Big Eddy – Redmond 230kV line, between tower's 11/2 and 11/3.

4. Temporary shoeffly required during construction Yes No

5. Other Yes No

Grounding

1. Corrosion mitigation required? Yes No

Will need geotech and soil resistivity verified for site before grounding design and/or corrosion mitigation plan is developed.

2. Other grounding upgrade opportunities (check with SME) Yes No

New substation.

3. Other Yes No

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Raceway

1. Capacity constraints Yes No

New substation.

2. Condition issues (i.e. degraded or collapsed) Yes No

New substation.

3. Drainage issues? Yes No

New substation – drainage to be determined by civil.

4. Control House entrance required? Yes No

Decision will be made during design as to whether trench or duct bank will be used to enter control house from the yard equipment. See comment "other" with respect to fire suppression requirements.

5. Roadway or transfer track crossing? Yes No

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There are potential road crossings but no details yet as design will dictate ultimate routing of raceway system. There are no transfer tracks to cross as this is a new substation.

6. Additional manholes / duct bank required? Yes No
 Yes – new substation, entire raceway system will be required.

7. Other Yes No
 Fire suppression shall be required between the station service conduits and the trench/transition into the control house. Contracted designer must ensure fire in duct bank or trench system does not cascade to control cables or (worse) into the control house term frame area.

Bus

1. Main bus and/or bay capacity issues Yes No
 New substation.

2. Vibration concerns Yes No
 To be determined based upon available wind speed data or field concerns during design.

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3. Unique / Non-standard configuration required. Yes No

4. Sustain Work for possible inclusion in scope

- a. Rigid Risers Yes No
- b. Surge Arresters Yes No
- c. Other Yes No

New substation.

5. Other Yes No

Major Equipment

1. Equipment Delivery is critical path Yes No

The 230kV PCBs and crank-operated 230kV disconnect switches should be standard lead time items, which can take up to 26 weeks. A modular control house (PCA) will take approximately 26 weeks as well.

2. Unique Manufacturer prints (no example available) Yes No

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None anticipated.

3. Other Yes No
-

Station Service

1. Main service capacity issues Yes No
- New substation.

2. Coordination with local utility required Yes No
- Primary source of power will be from SSVT sourced from 230kV main bus. Suggest three-phase, redundant source system. Assumed that BPA will source alternate station service power from local utility. Should be either North Wasco PUD or Wasco Electric Coop.

3. New yard panel required
- a. AC Yes No
- b. DC Yes No
- Requirements to be determined during design. Load study will be required.

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4. Arc Flash mitigation required Yes No

Station service system assumed to be 240VAC – no arc flash mitigation will be required.

5. Significant outlet or lighting circuit modification required Yes No

New Substation.

PE Note: Field personnel have requested more convenience outlets both indoor and outdoor in the design. One issue that was brought up was with the new Mitsubishi PCBs needing more usable outlets nearby,

6. Significant radial feed requirements Yes No

Requirements to be determined during design. All dedicated yard equipment circuits assumed to be radially-fed. Station service system will include the install of at least (1) dedicated yard panel with the opportunity for future expansion as required.

7. Other Yes No

Cabling

1. Additional cable issues requiring replacement Yes No

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2. Other Yes No

Facilities

1. Building (or other facilities) removal required Yes No

2. HVAC upgrades
- a. Base board heaters abandoned Yes No
 - b. Feeder or source issues Yes No
 - c. Other Yes No

New substation.

District Operations

PE Note: The local field personnel have stated that they need gate and entrance road access 24/7 for Boyd Ridge and portions of Summit Ridge where BPA equipment is housed.

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1. Is there a plan for permitting? Yes No

With a greenfield build, access permits should not be required.
2. Is there a need for Safety Watchers? Yes No

Not until connecting to the system.
3. Is PE/PM aware of all upcoming work and future plans for this site? Yes No
4. Has enough land been purchased to include future growth? Yes No

Appears so at this stage of the process
5. Is Control House large enough to accommodate future growth? Yes No

Design not complete, will assure adequate space is provided
6. Does Control House design/Rack layout make sense operationally? Yes No
7. Does yard design/Equipment layout make sense operationally? Yes No

District Sub Maintenance

1. Will the current station service need to be upgraded to support project? Yes No

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N/A - New substation build.

2. Will station wire ways (cable tray, trenwa, conduit runs) need to be changed or upgraded to support project? Yes No

N/A - New substation build.

3. Special environmental conditions (snow loads, drainage, soil abnormalities, salt fogs)? Yes No

As an electrician, unqualified to answer this question.
 PM Note: Snow and wind loads will need be considered during design.
 Drainage plan will be required.
 Soil abnormalities will be identified through the Geotech drilling.

4. Will the current control/ Relay room need to be significantly modified to accommodate this project with correct spacing? Yes No

N/A - New substation build.

5. Will we need to disturb any splices for this project? This becomes important because it will drive the installation of a new yard power panel. Yes No

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N/A – New substation build

District PSC + TPMC

1. What modifications are necessary on the installed AC and DC supplies to handle this project? If it is AC powered equipment should it be backed up with an inverter and can the DC power plant handle this extra load. At radio sites is the Engine Generator sized to handle the extra load.

Yes No

Inverter should be considered for possible IT equipment.

2. Should the current communication system be modified to operate this plan or should it be replaced? Yes No

The fiber cable which the #KC Ring uses will be modified in that between structures 11/2 and 11/3 the cable will traverse through an added Node being built as part of the Boyd Ridge substation.

3. Is the communication tower able to handle the extra wind loading and the sites future growth plans? Are there obstructions (such as trees) in the planned path? Yes No

A communications tower is not required for this project.

4. Have Joint Users at the site and building access been considered? Yes No

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TPMC did consider and expects, as relating to telecommunications, no access will be necessary by a Joint User.

5. Is there availability and access to the site during winter months? Gates and access road requirements through private or public lands. Yes No

The proposed access road would allow access to the site during winter months.

6. BPA equipment in a foreign site and the requirement of locked cabinets. Leased agreements to handle foreign use. Yes No

As noted in Planning (TPMC) Question 6: For cyber security reasons in non-BPA owned substations, BPA telecommunications equipment, including, but not limited to SONET, channel banks, Ethernet devices, FIN, and NMS will be housed in the control house in a separate, alarmed, and locked area.

7. Environmental and security requirements. Yes No

Depending on NERC-CIP site level, it would need BPA IT infrastructure to support security panels and cameras. Communications circuits built in support of this IT infrastructure should be redundant.

8. Is communications room large enough to accommodate future growth? Yes No

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TPMC anticipates future growth of the communications room will be considered during the design phase.

District SPC + TPMC

1. Has the district been notified of the project & sent details regarding its scope prior to the release of this document & the requirements of protection/metering reviews?

Yes No

2. What modifications are necessary on the installed AC and DC supplies to handle this project? If it is AC powered equipment, should it be backed up with an inverter and can the DC power plant handle this extra load.

Yes No

Typically use customer 125vDC at the collector site.

3. Should the current remote equipment communication system be modified to operate this plan or should it be replaced?

Yes No

Needs replaced, i.e. upgrade relays to 411L. Remote connectivity will be determined upon NERC-CIP class assignment.
 PE Note: Remote relay replacement to be determined at design stage.

4. If upgrade project, do any CTs/PTs or cabling (indoor/outdoor) need

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ratings verified and/or to be replaced? Yes No

5. If an upgrade project, does any board metering, controls, remote communications need to be installed or replaced? Yes No

6. Have Joint Users at the site and building access been considered? Yes No

Comment true but we must assure the correct access methods are obtained.

7. Is there availability and access to the site during winter months? Gates and access road requirements through private or public lands. Also, any contracts with local business for snow removal?
 Yes No

Don't know yet
 PE Note: TBD

8. BPA equipment in a foreign site and the requirement of locked cabinets. Leased agreements to handle foreign use. Yes No

No SPC equipment is required to be in a locked cabinet at this time.

9. BPA equipment in a foreign site and contract agreement for unescorted access requirements? Yes No

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24/7 unescorted access required. Can coordinate pre-communication prior to site entry if applicable with customer. Separate entry points required.

10. Is Control room large enough to accommodate future controls, relaying, RAS, metering, etc.?
 Yes No

If design looks like Dooley substation then it should be fine

Outages (TOT)

Address input from TOT/Outage Office and local/District Outage Coordinators/Substation Operators/TLM Clearance Holders, etc. as may be applicable to the project.

1. Are there any outage constraints? Yes No

None under normal circumstances. Typically you don't want to take this line out to connect line drops to dead ends during winter months and assure that the other portion of the loop, Big Eddy / Demoss / Fossil / Maupin is intact.

2. Are there any customer utilities requiring an outage? Yes No

3. Is a Step Plan required? Yes No

4. Other outage considerations Yes No

Line outage requests need to be a minimum of 45 days prior to the month that the work will take place, per new PEAK requirements.

Transmission Line Maintenance (TLM)

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1. Specific TLM requirements? Yes No

The outdoor design print was looked at and the project looks feasible. Until a decision is made whether the work will be done in house or contracted out, there are no concerns. If it will be done in house the project will be looked at further and recommendations/ requirements given.

- During the outage for the substation interconnect there may be opportunity for TLM to replace aging wood poles along BIGE-RDMD-1.
- During the outage for the substation interconnect there may be opportunity for TLM to continue replacing aging insulators along BIGE-RDMD-1.

Construction (TETQ)

1. Type of construction recommended? BPA Contract

2. Which BPA Transmission Line Maintenance districts will this construction take place in?

South Region, The Dalles District

3. Is there an existing infrastructure to be removed? Yes No

4. Existing footing removal Yes No

5. Is there special permitting? Yes No

6. Is a special construction sequence required? Yes No

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7. Are there site construction constraints? Yes No

Potentially

8. Are there special landowner considerations? Yes No

Potentially

9. Are there construction coordination requirements? Yes No

10. Is there split construction between contract and BPA crews? Yes No

11. Other TETQ considerations Yes No

Environmental/Cultural

12. Is a curtesy walk with the local Fire Marshal needed? Yes No

13. Are there any permits required? E.G., stormwater, well, etc. Yes No

As far as I am aware we only file permits for the septic system. BPA follows guidelines for the Electrical, Stormwater, etc. but don't actually file for a formal permit. For wells, we do have the driller contact the state to let them know but do not submit for water rights, permit. We do submit soil profile, GPM, Depth and diameter...etc. Jeff Welter is a great resource for this information.

14. Owner-provided QA/QC (A 3rd party hire may be required).

a. Construction Manager: TETQ Other _____

b. Constructability Review (pre-construction): TETQ Other _____

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I would recommend MSI does a constructability review

c. Code Check Document Review (pre-constr.): NF Other _____

I would recommend MSI does a code review

d. Inspections Services are defined: Yes N/A

Not too familiar with this project but it should be pretty easy to define.

e. Inspections Services provided by: TETQ Other _____

I would recommend MSI perform inspection services

f. Special Inspections are defined: Yes N/A

Seismic considerations should be made so special inspections will be required.

g. Special Inspections provided by: TETQ Other _____

I would recommend that MSI hire out the special inspections to the closest special inspection agency that BPA has experience with.

h. Commissioning Agent (design review) required: Yes N/A

I would recommend a commissioning agent.

i. Commissioning Agent provided by: TET Other _____

Sub of MSI

Supply Chain (NSSV)

1. Material GFM CFM BOTH Undecided

2. Long lead time materials (with estimated lead time) Yes No

SEL 411L Relays: 4 – 8 weeks

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230kV Breaker: ABB - 22 weeks Mitsubishi-42 weeks
7/8" EHS OHGW: 8 weeks
S15DLE Double Line Tower: 15 weeks for fabrication, roughly 6 months total including procurement process and transport.

3. Staging locations – Is it a BPA set up material, contractor yard or Ross or another BPA site?

Material is usually shipped to a BPA or contractor yard.

- 4. IF GFM will contractor pick up any material at Ross? Yes No
- 5. Any GFM that will be direct ship? Yes No
- 6. If GFM where will contractor return unused material at end of the job? Ross Field Yard
- 7. Salvage items Yes No

- 8. Other Supply Chain considerations Yes No

Safety (NF)

- 1. Hazardous Materials? Yes No

New Construction

a. What hazardous materials testing reports need to be collected from the Contractor?

N/A

- 2. Is a Drawing and Specification review of the project required prior to construction? Yes No
- 3. Will a building life-safety walk-through be required? Yes No

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New Construction

4. De-energized lines/Abandoned Equipment/Abandoned Facilities Requirements? Yes No

Follow safe work practices when Big Eddy – Redmond 1 line is de-energized to be brought into Boyd Ridge.

5. Other, including available information (e.g., Arc-flash tables)? Yes No

New Construction

Physical Security (NNT)

- Is this a NERC/CIP site? Yes No
 PE Note: I was told by the GOISSM office, the answer to this question is not protected information, but the classification level of a site that is a NERC/CIP site is what is protected. However, there is still some confusion about this going around so in the interest of making the document comfortable for everyone involved I will leave this answer blank. Please reference the link found in the "Scope Detail: General" section near the top of this document.
- Are there routable connections that will leave the electronic security perimeter (ESP)?
 PE Note: The answer to question 2 is protected information and has been removed from the current CDD template. Please reference the link found in the "Scope Detail: General" section near the top of this document.
 Yes No
- Are there ESP drawings that will require updating to the latest drawing standards and other drawing maintenance work? Yes No

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4. Physical & Electronic security requirements. Yes No

- Physical needs are locked doors with hinges on the inside; no windows if possible (if not possible then no operable windows). If windows then we would very much like for them to be less than 96 square inches. If bigger than 96 square inches then we would like the windows to have some sort of mesh, bars, or security film to protect the windows.



CAN-0031 CIP-006
R1 Acceptable Openir

- There is no need for electronic security however if the budget would allow for it, it is recommended to be plumbed for it.
- There will need to be fencing (see standard STD-DS-000028) around the energized facility. If the budget would allow for it, it is recommended to upgrade to more durable fencing material than required.

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ADMINISTRATIVE & ADDITIONAL INFORMATION

REVISION HISTORY

<u>Version</u>	<u>Date</u>	<u>Description of Revision</u>
1.0	12/30/16	Initial Document Creation

REFERENCED DOCUMENT LIST

Document Number	Sheet	Revision	Document Title
306451	1	0	230KV Single Circuit Transmission Tower MWT = 16,700 LBS. Type 32DL
306451	2	0	230KV Single Circuit Transmission Tower MWT = 16,700 LBS. Type 32DL
278199	1	0	230 KV Double Circuit Transmission Tower MWT = 16,700 LBS. Type S15DLE
278199	2	0	230 KV Double Circuit Transmission Tower MWT = 16,700 LBS. Type S15DLE
304501	1	1	230KV Single Circuit Transmission Tower MWT = 16,700 LBS. Type 32A
304501	2	1	230KV Single Circuit Transmission Tower MWT = 16,700 LBS. Type 32A
39660	1	8	230 KV. Single Circuit Transmission Towers MWT = 16,700 LBS. Type 4B1 & 4B2 TWRS Structural Details
285137	1	4	G0345 Wind Generation Interconnection

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285137	2	1	G0345 Wind Generation Interconnection
285137	3	2	G0345 Wind Generation Interconnection
285137	4	2	G0345 Wind Generation Interconnection
285137	1-3	Memo	PRD 285137 - G0345 Wind Generation Interconnection
N/A	N/A	N/A	Proposed Boyd Ridge Substation (Map A)
N/A	N/A	N/A	Proposed Boyd Ridge Substation (Map B)
N/A	N/A	N/A	Boyd Ridge Substation Plot Plan Ultimate Option A
285605	1	4	Bettas Road Substation Equipment Layout Control House
STD-DC-000003	1-13	2	Control/Relay House Equipment Layout
291404	2	2	Protective Relay Template One Line Diagram 230KV Bkr & Half Bay 1 SEL 311L Relaying
317197	1	7	XXX Substation Layout & Wiring Rack WWW Orion LX SER/SCADA HMI/RTU
317199	1	3	XXX Substation Layout & Wiring Rack ZZZ Orion LX SER/SCADA Exp (DI)
316285	1-2	4,0	XXX Substation Block Diagram Orioin LX SER/SCADA Network
316287	2	0	XXX Substation Schematic Diagram Orion LX SER/SCADA PLC Outputs (7v)
316287	3	0	XXX Substation Schematic Diagram Orion LX SER/SCADA Alarm Pts PLC1 (7v) 501-508
316287	4	0	XXX Substation Layout & Wiring Orion LX SER/SCADA SEL-2411 Analog Pts (64-71)
316287	5	0	XXX Substation Layout & Wiring Orion LX SER/SCADA SEL-2411 Analog Pts (72-81)

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316288	2	0	XXX Substation Schematic Diagram Orion LX SER/SCADA Alarm Pts DI1 (5F) 101-108
316288	3	0	XXX Substation Schematic Diagram Orion LX SER/SCADA Alarm Pts DI1 (5F) 109-116
316288	4	0	XXX Substation Schematic Diagram Orion LX SER/SCADA Alarm Pts DI1 (5F) 201-208
322337	1	0	XXX Substation Block Diagram SER/SCADA IRIG-B Network
316290	1-4	5,0,0,1	XXX Substation Schematic Diagram Orion LX SER/SCADA (POS) Equipment Power (Rack WWW)
317197	1	7	XXX Substation Layout & Wiring Rack WWW Orion LX SER/SCADA HMI/RTU
280708	1-4	4,2,3,3	XXX Substation Layout & Wiring Rack XX Metering (Large Generation)
316285	1-2	4,0	XXX Substation Block Diagram Orioin LX SER/SCADA Network
316286	1	1	XXX Substation Layout & Wiring Orion LX SER/SCADA SEL-2411 Analog Pts (00-07)
316287	2	0	XXX Substation Schematic Diagram Orion LX SER/SCADA PLC Outputs (7v)
316287	3	0	XXX Substation Schematic Diagram Orion LX SER/SCADA Alarm Pts PLC1 (7v) 501-508
316287	5	0	XXX Substation Layout & Wiring Orion LX SER/SCADA SEL-2411 Analog Pts (72-81)
316288	2	0	XXX Substation Schematic Diagram Orion LX SER/SCADA Alarm Pts DI1 (5F) 101-108

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316288	3	0	XXX Substation Schematic Diagram Orion LX SER/SCADA Alarm Pts D11 (5F) 109-116
316288	4	0	XXX Substation Schematic Diagram Orion LX SER/SCADA Alarm Pts D11 (5F) 201-208
322337	1	0	XXX Substation Block Diagram SER/SCADA IRIG-B Network
280707	1-2	1,1	XXX Substation Schematic Diagram Current & Potential Metering (LRG Generation)
303889	1	1	XXX Substation Block Diagram Metering (Large Generation)
N/A	N/A	N/A	Boyd Ridge Substation Plot Plan Option 1
N/A	1-4	N/A	(NERC) Compliance Application Notice – 0031 CIP-006 R1 Acceptable Opening Dimensions



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CONSULTING SUBJECT MATTER EXPERTS

Reviewed by: Rasha Kroonen _____
Project Manager Date

Reviewed by: Jenny Brockway _____
Transmission Planning Date

Reviewed by: Cherilyn Randall _____
Customer Service Engineering Date

Reviewed by: Kenneth Owen _____
Communications Planning Engineer Date

Reviewed by: Jana Jusupovic _____



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Program Manager (add blocks as required)

Date

- Control Center
- Wood Pole Lines
- Steel Lines
- Rights of Way
- Access Roads
- Substations AC
- Substation DC
- System Protection Control (SPC)
- Power System Control (PSC)
- System Telecommunications Upgrades

Reviewed by: Laura Loop _____ Date _____

Real Property Services _____ Date _____

Reviewed by: Michael O'Connell _____ Date _____

Environment Planning & Analysis _____ Date _____

Reviewed by: Ken Roberts / Dan Nunez _____ Date _____

Project Engineering _____ Date _____

Reviewed by: Jourdan Kintz _____ Date _____

Transmission Line Design _____ Date _____

Reviewed by: Robert Wahrgren _____ Date _____

Structural Engineering _____ Date _____

Reviewed by: Christopher Wong _____ Date _____

Transmission Line Electrical Design _____ Date _____

Reviewed by: Kerry Cook / Scott Wood _____ Date _____

Civil Design _____ Date _____



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Reviewed by: Robert Ackerman _____
System Control Engineering Date

Reviewed by: Mason Tabata _____
Telecom Engineering Date

Reviewed by: John Belanger Jr. _____
Substation Engineering Date

Reviewed by: Joe Bebee-Carl Bean / Jeffery Welter _____
Facilities Engineering 02/06/18 Date

Reviewed by: Jonathan Ayers _____
Construction Management and
Inspection Date

Reviewed by: Dennis Billings _____
Maintenance District Foreman Date

Reviewed by: Scott Williams _____
TLM Foreman III Date

Reviewed by: Mike Gilroy _____
Acquisition Analyst Date

Reviewed by: Craig Rademacher _____
Physical Security Date

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Fri Jan 12 08:49:25 2018

To: Kelly,Shanna M (CONTR) - TPC-TPP-4; Lynard,Gene P (BPA) - ECT-4; Naef,Amber L (BPA) - FRG-2; Shier,Robert P (BPA) - FRG-2; Dull,Jon M (BPA) - FT-2; Bleiler,Damen C (BPA) - FTL-2; Acosta,Esteban (BPA) - FTOA-2; Kannan,Sue (BPA) - TFB-DOB1; Hakala,Tuuli M (BPA) - LT-7; Kroonen,Rasha (CONTR) - TEP-TPP-1; Sauer,Dena J (BPA) - TPCC-TPP-4; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (BPA) - TSE-TPP-2; Boehle,Jennifer M (BPA) - TSES-TPP-2; TEPO Reimbursable Team; PWASstudy; CCM_Support

Subject: G0345 EXECUTED 16TP-11044 A2_Summit Ridge_Prelim Engrg 1-12-18 1

Importance: Normal

Attachments: 11044_02_SummitRidgeWind.pdf

Attached is an executed amendment with Pattern Renewables (Summit Ridge). Work Order No. 421854 is assigned to this project. The \$(b) (4) deposit has been received.

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Fri Apr 06 07:54:39 2018

To: Kelly,Shanna M (CONTR) - TPC-TPP-4; Lynard,Gene P (BPA) - ECT-4; Naef,Amber L (BPA) - FRG-2; Shier,Robert P (BPA) - FRG-2; Dull,Jon M (BPA) - FT-2; Bleiler,Damen C (BPA) - FTL-2; Acosta,Esteban (BPA) - FTOA-2; Perkins,Matthew W (BPA) - LT-7; Kroonen,Rasha (CONTR) - TEP-TPP-1; Allen,Neva J (BPA) - TFAW-REDMOND; Sauer,Dena J (BPA) - TPCC-TPP-4; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (BPA) - TSE-TPP-2; Boehle,Jennifer M (BPA) - TSES-TPP-2; TEPO Reimbursable Team; TF_Region Resource Specialists; CCM_Support

Subject: G0345 EXECUTED Agreement No. 16TP-11044 A3_Summit Ridge_Prelim Engrg 4-6-18 1

Importance: Normal

Attachments: 11044_03_SummitRidgeWind.pdf

Attached is an executed Amendment No. 3 with Summit Ridge c/o Pattern Energy.

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Thu Feb 08 13:00:28 2018

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: G0345 FUNDING ALLOCATION/SCHEDULE CONFIRMATION - 16TX-11044 Amend No 3 2-8-18 1

Importance: High

Attachments: RE: CHECKLIST Agreement No. 16TX-11044; 11044 A3 Checklist.docm

Hi Cherilyn,

Amendment No. 3 is ready for CCM but I need a current checklist and new schedule confirmation from the PM. I've forwarded the documents we used for A2 and added the new completion date and required deposit due. Make any additional changes you see fit and send it back to me with the new confirmation and we'll be ready to go!

Thanks

Anna

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Sent: Monday, October 02, 2017 2:21 PM

To: Cosola,Anna M (BPA) - TPCC-TPP-4

Subject: FUNDING ALLOCATION/SCHEDULE CONFIRMATION FOR TPC AGREEMENTS - 16TX-11044 mod 2

The CSE is to describe funding allocation (Item 1 below) and coordinate with the PM to obtain schedule confirmation and work order requirements (Item 2 below). The CSE will provide this information, via email, to the TPCC contract specialist with the final draft agreement.

This information will be included in the final agreement package that is submitted to the TPC Delegate^[1] for approval in CCM, and will be stored in the PWA project folder. This information is also used by TPCC when submitting a work order request to TPWP for your project.

1. Funding allocation (CSE provides this information):

(a) Total project cost: additional \$(b) (includes oh)

Total capital amount: \$0

Total expense amount: \$(b)

(b) Amount of total project cost to be funded by the customer: \$(b)

Total capital amount: \$0k

Total expense amount: \$(b)

(c) Amount of total project cost to be financed by the customer (always capital): \$0k

2. Written confirmation from the PM that clearly states:

(a) Bookend schedule has been confirmed for work being committed to in this agreement. Email attached.

(b) Work order requirements.

(1) List any work orders already issued for work described in this agreement: 00421854

(2) If new/additional work orders are needed for work described in this agreement, provide the following: No new wo needed

(A) Type(s) of work order(s) needed:

Include funding break-out if multiple work orders are needed.

(B) Date new/additional work orders are needed to meet the project completion schedule (work start date).

Note that the schedule must factor in a minimum of 60 days from when the schedule is confirmed by the PM to the date work orders are needed to allow for agreement processing/execution and work order creation.

(B) Projected Energization Date.^[2]

(C) Projected In-Service Date (for expense projects only).^[3]

Note that this date should never be the same as the Projected Energization Date (always should be after).

(D) Affected workgroups based on expected or typical design/construction assignments.^[4]

(E) District or Districts in which work will be performed.^[5]

1 TPC Delegate is the TPC manager, TPCF/TPCV/TPCC supervisors, or interconnection leads.

2 Energization Date is the date the project is expected to be turned over to operations. This date will be listed in the "Project Schedule" section of the agreement.

3 In-Service Date is used for financial purposes including asset depreciation, and is required when requesting an expense work order (not required for capital because ISD is already provided in the WOR ID). This is the date the work order(s) should be ready to be sent to the "WO Completion" mailbox.

4 Group(s) performing the work (e.g. design/construction: BPA/BPA, BPA/CMO, CMO/BPA, CMO/CMO).

5 Asset Suite district where the facility is located (e.g. Eugene, Covington, Dittmer Control Center, Idaho Falls, Kalispell, Longview, Olympia, Redmond, Salem, Snohomish, Spokane, The Dalles, Tri-Cities, Wenatchee, Ross Complex, Munro Control Center, and Miscellaneous (used for laboratory services)).

[1] TPC Delegate is the TPC manager, TPCF/TPCV/TPCC supervisors, or interconnection leads.

[2] Energization Date is the date the project is expected to be turned over to operations. This date will be listed in the "Project Schedule" section of the agreement.

[3] In-Service Date is used for financial purposes including asset depreciation, and is required when requesting an

expense work order (not required for capital because ISD is already provided in the WOR ID). This is the date the work order(s) should be ready to be sent to the "WO Completion" mailbox.

[4] Group(s) performing the work (e.g. design/construction: BPA/BPA, BPA/CMO, CMO/BPA, CMO/CMO).

[5] Asset Suite district where the facility is located (e.g. Eugene, Covington, Dittmer Control Center, Idaho Falls, Kalispell, Longview, Olympia, Redmond, Salem, Snohomish, Spokane, The Dalles, Tri-Cities, Wenatchee, Ross Complex, Munro Control Center, and Miscellaneous (used for laboratory services)).

**U.S. DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
AGREEMENT**

1. AGREEMENT NUMBER 16TP-11044	2. AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL June 29, 2021	3. AMENDMENT NO. -2-	4. EFFECTIVE DATE Same as Block #17
--	---	--------------------------------	---

ISSUED TO		ISSUED BY	
5. ORGANIZATION AND ADDRESS Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP ATTN: Kevin Wetzel Pier 1, Bay 3 San Francisco, CA 98662		6. ORGANIZATION AND ADDRESS U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola - TPCC/TPP-4 P.O. Box 61409 Vancouver, WA 98666	
7. TECHNICAL CONTACT Steven Ostrowski	PHONE NUMBER (b) (6)	8. TECHNICAL CONTACT Rasha Kroonen	PHONE NUMBER (360) 619-6918
9. ADMINISTRATIVE CONTACT Steven Ostrowski	PHONE NUMBER (b) (6)	10. ADMINISTRATIVE CONTACT Cherilyn Randall	PHONE NUMBER (360) 619-6051

11. TITLE/BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT
AMENDMENT NO. 2: PRELIMINARY ENGINEERING ACTIVITIES FOR LARGE GENERATOR INTERCONNECTION REQUEST NO. G0345 SUMMIT RIDGE WIND, LLC c/o PATTERN RENEWABLES 2 LP

Background: Reimbursable Agreement No. 16TP-11044 (Agreement) between the Bonneville Power Administration (BPA), and Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP (Summit Ridge) provides for BPA, at Summit Ridge's expense, to perform preliminary engineering and design activities needed to interconnect Summit Ridge's proposed 200 MW Summit Ridge Wind Project to the proposed BPA-owned (b) (4). The activities include topological surveys of the proposed substation site as necessary to support design.

This Amendment No. 2 (Amendment) to the Agreement provides additional funds needed to complete the preliminary engineering activities, and extends the estimated completion date for the preliminary engineering activities to July 2, 2018.

This Amendment is hereby incorporated and made a part of the original Agreement and is subject to all the provisions therein. All provisions of the original Agreement unless expressly deleted, modified, or otherwise superseded in this Amendment shall continue to be binding on all parties hereto.

The following document is attached to and becomes a part of this Amendment:

- Financial Terms and Conditions Statement, Amendment No. 2.

12. AMOUNT TO BE PAID BY BPA	13. AMOUNT TO BE PAID TO BPA (b) (4) (estimated)
14. SUBMIT SIGNED AMENDMENT TO U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola - TPCC/TPP-4 P.O. Box 61409 Vancouver, WA 98666	15. ACCOUNTING INFORMATION (For BPA Use Only)
	16. SUBMIT INVOICE TO (Name and Address) Same as Block #5 above.

PARTICIPANT		BPA	
17. APPROVED BY (Signature)	DATE (mm/dd/yyyy)	18. APPROVED BY (Signature)	DATE (mm/dd/yyyy)
NAME AND TITLE		NAME AND TITLE Transmission Account Executive Transmission Sales	

FINANCIAL TERMS AND CONDITIONS STATEMENT

BPA's cost of performing the project at Summit Ridge's expense shall be the actual cost of doing the work specified in this Agreement, plus the following overhead rates, representing the indirect costs of the project office plus the contractual support costs of contract negotiation, billing and accounting functions, and contract management.

BPA Labor	45%
Materials/Supplies/Equipment	15%
Supplemental Labor and Service Contracts	45%
Construction, Survey and Turnkey Contracts	15%

Summit Ridge hereby agrees to advance \$(b) (4) the estimated project cost, to BPA based on the following payment schedule:

Payment	Amount	Date Due
1	\$(b) (4)	(b) (4)
2	\$(b) (4)	(b) (4)
3	\$(b) (4)	(b) (4)

If BPA needs additional funds to complete the work at any time during performance of this Agreement, BPA may request, in writing, for Summit Ridge to advance such additional funds to BPA for deposit in the account. Summit Ridge shall advance such additional funds within 30 days of BPA's written request, and BPA may temporarily stop work until Summit Ridge supplies the requested funds.

If Summit Ridge does not advance such additional funds by the due date or, if at any time before completion of the project Summit Ridge elects to terminate or suspend work under this Agreement, BPA has the right to cease all work and restore, as a cost to the project at Summit Ridge expense, government facilities and/or records to their condition prior to the beginning of work under this Agreement. BPA shall then make a full accounting to Summit Ridge showing the actual costs charged against the account, and shall either remit any unexpended balance in the account to Summit Ridge or bill for any costs in excess of the deposits in the account. Summit Ridge shall pay any excess costs within 30 days of the invoice date (due date).

Payments not received by the due date will accrue interest on the amount due beginning the first calendar day after due date to the date paid, at the appropriate rate calculated in accordance with the methodology specified for interest on refunds in the Federal Energy Regulatory Commission's regulations at 18 C.F.R. § 35.19a(a)(2)(iii).

**U.S. DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
AGREEMENT**

1. AGREEMENT NUMBER 16TP-11044	2. AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL June 29, 2021	3. AMENDMENT NO. -3-	4. EFFECTIVE DATE Same as Block #17
--	---	--------------------------------	---

ISSUED TO		ISSUED BY	
5. ORGANIZATION AND ADDRESS Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP ATTN: General Counsel Pier 1, Bay 3 San Francisco, CA 94111		6. ORGANIZATION AND ADDRESS U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola - TPCC/TPP-4 P.O. Box 61409 Vancouver, WA 98666	
7. TECHNICAL CONTACT Stan Gray	PHONE NUMBER (b) (6)	8. TECHNICAL CONTACT Rasha Kroonen	PHONE NUMBER (360) 619-6918
9. ADMINISTRATIVE CONTACT Kevin Wetzel	PHONE NUMBER (b) (6)	10. ADMINISTRATIVE CONTACT Cherilyn Randall	PHONE NUMBER (360) 619-6051

11. TITLE/BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT

**AMENDMENT NO. 3: DESIGN ACTIVITIES FOR LARGE GENERATOR INTERCONNECTION
REQUEST NO. G0345 SUMMIT RIDGE WIND, LLC C/O PATTERN RENEWABLES 2 LP**


Background: This Reimbursable Agreement No. 16TP-11044 (Agreement) between the Bonneville Power Administration (BPA) and Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP (Summit Ridge) provides for BPA, at Summit Ridge's expense, to perform design activities needed to interconnect Summit Ridge's proposed 200 MW Summit Ridge Wind Project (Project) to the proposed BPA-owned (b) (4). The activities will include the completion of design and land acquisition for the (b) (4).

This Amendment No. 3 (Amendment) to the Agreement provides for additional funds needed to complete design and to acquire the land needed for (b) (4), extends the estimated completion date for such activities to October 1, 2019, and adds language to the Financial Terms and Conditions Statement (FTC) regarding a future Large Generator Interconnection Agreement that will provide classification of Network Upgrades eligible for transmission credits.

This Amendment is hereby incorporated and made a part of the original Agreement and is subject to all the provisions therein. All provisions of the original Agreement unless expressly deleted, modified, or otherwise superseded in this Amendment shall continue to be binding on all parties hereto.

The following document is attached to and becomes a part of this Amendment:

- Financial Terms and Conditions Statement, Amendment No. 3

12. AMOUNT TO BE PAID BY BPA -0-	13. AMOUNT TO BE PAID TO BPA (b) (4) (estimated, see FTC)
14. SUBMIT SIGNED AMENDMENT TO U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola - TPCC/TPP-4 P.O. Box 61409 Vancouver, WA 98666	15. ACCOUNTING INFORMATION (For BPA Use Only) Work Order No. 00421854
	16. SUBMIT INVOICE TO (Name and Address) Same as Block #5 above.
PARTICIPANT	BPA
(b) (6) DATE (mm/dd/yyyy) 04/05/2018	18. APPROVED BY (Signature)  Digitally signed by ERIC TAYLOR Date: 2018.04.04 09:51:05 -0700 DATE (mm/dd/yyyy)
NAME AND TITLE Dyann Blaine Authorized Signatory	NAME AND TITLE Transmission Account Executive Transmission Sales

FINANCIAL TERMS AND CONDITIONS STATEMENT

BPA's cost of performing the project at Summit Ridge's expense shall be the actual cost of doing the work specified in this Agreement, plus the following overhead rates, representing the indirect costs of the project office plus the contractual support costs of contract negotiation, billing and accounting functions, and contract management.

BPA Labor	45%
Materials/Supplies/Equipment	15%
Supplemental Labor and Service Contracts	45%
Construction, Survey and Turnkey Contracts	15%

Summit Ridge hereby agrees to advance \$(b) (4), the estimated project cost, to BPA based on the following payment schedule:

Payment	Amount	Date Due
1	\$(b) (4)	(b) (4)
2	\$(b) (4)	(b) (4)
3	\$(b) (4)	(b) (4)
4	\$(b) (4)	(b) (4)

If BPA and Summit Ridge execute a Large Generator Interconnection Agreement (LGIA), the advance funds received and costs incurred under this Amendment will be accounted for under the LGIA, which will describe the final plan of service, cost estimates and deposits, as well as the classification of those Network Upgrades eligible for credits.

If BPA needs additional funds to complete the work at any time during performance of this Agreement, BPA may request, in writing, for Summit Ridge to advance such additional funds to BPA for deposit in the account. Summit Ridge shall advance such additional funds within 30 days of BPA's written request, and BPA may temporarily stop work until Summit Ridge supplies the requested funds.

If Summit Ridge does not advance such additional funds by the due date or, if at any time before completion of the project Summit Ridge elects to terminate or suspend work under this Agreement, BPA has the right to cease all work and restore, as a cost to the project at Summit Ridge's expense, government facilities and/or records to their condition prior to the beginning of work under this Agreement. BPA shall then make a full accounting to Summit Ridge showing the actual costs charged against the account, and shall either remit any unexpended balance in the account to Summit Ridge or bill for any costs in excess of the deposits in the account. Summit Ridge shall pay any excess costs within 30 days of the invoice date (due date). BPA shall return to stock any reusable equipment and materials, as determined by BPA, and Summit Ridge shall receive no transmission credits or associated interest for amounts paid to BPA for network upgrades under this provision.

Payments not received by the due date will accrue interest on the amount due beginning the first calendar day after due date to the date paid, at the appropriate rate calculated in accordance with the methodology specified for interest on refunds in the Federal Energy Regulatory Commission's regulations at 18 C.F.R. § 35.19a(a)(2)(iii).



Bonneville Power Administration
CAPITAL INVESTMENT PROPOSAL
Business Case

Business Case Status: Approval in Progress

Highest Approval Required: FC - 90 days to approval

1. PROJECT IDENTIFICATION

Project Name	G0345 Summit Ridge Wind
Project Number	667
Asset Category	Transmission
Portfolio (Level 4 Node)	0004861 -- PFIA
Sub-Portfolio (Level 5 Node)	<input type="checkbox"/> 0004861 -- PFIA <input type="checkbox"/> 0005348 -- Generator Interconnections
New Start or Amendment?	<input type="checkbox"/> New Start <input type="checkbox"/> Amendment
Sustain or Expansion?	<u>Expansion - Policy Commitment</u>

2. KEY PROJECT DATES

Submission or Revision Date	5/14/2018
Project Start Date	7/2/2018
Describe start date	<i>Begin Design</i>
Estimated Completion Date	6/30/2021

3. PROJECT SPECIFICS

In Start of Year (SOY) Budget? Transmission FY13-27 Rolling Budget Report	<input type="checkbox"/> Yes <input type="checkbox"/> No
If "Yes" provide \$ amount: <i>(in thousands)</i>	(b) (4)
Is this a stage-gate project?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If "Yes" explain:	This project has been scoped, and has been approved through Stage Gate 3. This business case is for design and construction.

4. PROJECT INVESTMENT SUMMARY TABLE

Cut and paste the summary table from financial model into the box below:

<i>Dollars in Thousands</i>	Prior Years	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Future Years	Total Project
Capital Investment	(b) (4)							
Direct Costs								
Overheads								
AFUDC								
Total Capital								

Project Expense	-	-	-	-	-	-	-	-	-
Total Project Costs	-	(b)	(b)	(b)	(b)	(b)	-	-	(b) (4)

Recommended Alternative	(b) (4)	Next Best Alternative	
NPV - risk adjusted	(b) (4)	NPV - risk adjusted	-
NPV - risk free	(b) (4)	NPV - risk free	-
Net benefit to cost ratio	(b) (4)	Net benefit to cost ratio	NA
Economic benefit/cost	(b) (4)	Economic benefit/cost	NA
Discount rate - risk adjusted	8.2%		
Discount rate - risk free	4.2%		

Use this file as a template. Open and save the file to hard drive, make changes then attach here by right clicking on the file and selecting "Attach".

 G0345 Boyd Ridge Financial Model.xlsx
Microsoft Excel Worksheet
148 KB


Need Help

COST SPREAD (in thousands)

	Prior FY	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Capital Cost										
Expense Cost										

Capital Cost Total: \$0

** If Cost go beyond FY24 please complete and attach the following spread sheet

 Under 500k CashFlow.xlsx
Microsoft Excel Worksheet
12.9 KB

BUSINESS CASE SYNOPSIS

This section should be completed last

5. APPROVALS

Asset Accounting Capitalization Review	Date Approved
Lorinda Limpf, Asset Accounting	5/24/2018
Enterprise Risk Management Review (if over \$7m direct capital)	Date Submitted
Erik Westman	5/16/2018
This form completed by	Date Submitted
Cherilyn Randall; Matt Hagensen; Rasha Kroonen	5/30/2018
Name of Project Sponsor/Title	Date Approved
Jim Hallar, Expand Program Manager	5/30/2018
Asset Category Approval/Title	Date Approved

ADDITIONAL INFORMATION

Attach any other files or documentation here:

📎 File Attachment	📎 File Attachment	📎 File Attachment
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6. PROJECT CONTEXT / BACKGROUND

See section 8

7. INVESTMENT OBJECTIVES

List the specific and measurable objectives of this investment

See section 8

Describe how the investment objectives relate to execution of the relevant asset strategy

8. PROPOSED INVESTMENT AND ALTERNATIVES

Describe the proposed investment:

Background

This project will create a new BPA 230kV substation named Boyd Ridge Substation, located in Boyd, Oregon. The purpose of Boyd Ridge Substation is to interconnect a 201 MW wind project proposed by Lotus Energy Group then sold to Pattern Energy, located at Summit Ridge in Wasco County, OR. Boyd Ridge Substation will connect to a collector substation through a generation tie line to be built and owned by Pattern Energy (or successor), tentatively named Summit Ridge Substation, which will be located approximately 7 miles east of Boyd Ridge. Boyd Ridge Substation will loop in the 230kV Big Eddy – Redmond 1 line at structure 11/2, between Big Eddy and Maupin substations. This project was previously approved by the CAB in 2011; the customer placed it on hold, and requested to resume the project in 2016. This business case includes updates to the scope, schedule, and budget of the project. The expected annual revenue, once credits are repaid, is \$3.6M.

Scope

Boyd Ridge Substation [BPA]

The proposed location for Boyd Ridge Substation is a greenfield site, currently part of a wheat farm. A purchase of 16 acres is proposed, with approximately 8.5 acres being developed. Environmental and cultural resources work will need to be done to make sure this location is suitable for a substation build. Assuming it is acceptable, realty and surveying will need to work to identify boundaries and purchase the appropriate 16 acre plot of land.

Boyd Ridge Substation will be built in a two bay, ring bus configuration. Approximately a half mile of double circuit line with new towers will need to be built and installed to loop Boyd Ridge Substation in at structure 11/2 on the 230kV Big Eddy - Redmond 1 line. Three new 230kV breakers, rated at 2000A, 40KAIC will be installed along with disconnect switches rated at 2000A. A new substation building will need to be constructed. Fencing and other security measure standards will need to be installed. Appropriate station service, 130VDC battery bank and 48VDC battery bank with chargers will be installed. Appropriate 230kV relay protection will be installed along with PCB failure and DLC relays required for the PCB. Associated relays and control will be installed on line terminals back to wind collector station, including hot bus/dead line check reclosing. Redundant transfer trip and redundant Line Loss Logic equipment will be installed. Appropriate communications systems to be installed, including SER/SCADA, dual generation RMS with telemetry, PMU,

Generation Limiting System, FIN, NMS, DATS, Howler, Rose alarm and if reasonable and possible, a PSTN line.

Summit Ridge Wind Collector Substation [Pattern Energy]

BPA will install bi-directional RMS remote generation integration metering for plant output at the wind collector substation. BPA will provide and maintain fiber mux equipment at the wind collector substation for BPA communication circuits. BPA will install a data PMU on each collector transformer at the wind collector substation.

Loop-in line (from Big Eddy - Redmond #1)

The Boyd Ridge loop-in should split Big Eddy – Redmond No. 1 transmission line at Tower 11/2 (AP 40). Half a mile of double circuit steel transmission line should travel east to connect BIGE-RDMD-1 to Boyd Ridge Substation on the hill to the east. The interconnect should consist of approximately two dead-end towers allowing the loop-in to BIGE-RDMD-1, three suspension towers bringing the loop-in to Boyd Ridge Substation, and finally a dead-end tower allowing the lines to reduce tension and terminate into the Boyd Ridge Substation dead-end bays.

BPA has completed a line ratings analysis on the BIGE-RDMD-1 and has identified 26 impairments that shall require remediation before Big Eddy – Boyd Ridge and Boyd Ridge – Redmond can be rated for operation. Remediation for each impairment location shall be determined during the design phase of the project.

BPA will install and maintain fiber from Boyd Ridge substation feeding into the OC-48 #KC00 backbone fiber ring. The Ross – Malin Fiber System travels on BIGE-RDMD-1 and shall be connected to Boyd Substation. The existing fiber on BIGE-RDMD-1 will be split at a pre-existing splice point on Tower 11/2. Customer will install and maintain two fiber cables between the wind collector substation and Boyd Ridge substation.

Big Eddy Substation

One set of transfer trip will be installed at Big Eddy, as well as redundant Line Loss Logic for local RAS schemes.

Redmond Substation [BPA]

One set of transfer trip will be installed at Redmond, as well as redundant Line Loss Logic for local RAS schemes.

Funding/Ownership

BPA will own, operate, and maintain all of the assets detailed in the scope section above, with the exception of the customer fiber, transmission line, and collector substation. The customer will finance the entire cost of the project. Network assets will be eligible for transmission credits (b) (4). The remainder will be direct assigned ((b)). It is expected the credits would be repaid in less than 8 years.

Describe the next best alternatives:

Transmission Planning has eliminated any other options during the study process. The John Day - Marion 500 kV line was considered as an alternate Point of Interconnection, but was significantly more expensive.

Describe the status quo:

BPA would not complete this investment. The wind generator would be unable to interconnect. BPA would lose the opportunity for transmission revenue, and would likely face legal and political challenges.

9. RISKS ADDRESSED BY THIS PROJECT

Describe any relationship to the Agency Top Enterprise Risks or Strategic Objectives:

D. Changing Business Environment - This project will integrate renewable energy, and provide a new revenue source for BPA Transmission.

Describe the risks to the agency if this investment does not occur (copy format as necessary):

1	Risk:	Legal Risk: Failure to proceed with an investment that would enable BPA to perform on a Large Generator Interconnection Agreement with a counterparty leads to a claim made against BPA by the counterparty.
---	-------	--

Likelihood:	Almost Certain -	▼
Consequence:	4 = Major	
Consequence Description:	Determination of the magnitude of the consequence will depend on the specific terms of the agreement and the facts surrounding BPAs actions requiring a legal risk analysis by the General Counsel's Office (GC). If BPA is considering a decision not to approve the proposed investment contact the General Counsel's Office for a legal analysis prior to rendering a decision not to proceed.	
2	Risk:	Reputational Risk: BPA's reputation in the region is harmed, due to its failure to integrate this new wind resource
Likelihood:	Almost Certain -	▼
Consequence:	3 = Moderate	
Consequence Description:	If BPA backs out of this project, it would lead to damage to BPA's public reputation, scrutiny from Oregon politicians, and damage to the working relationship between BPA and wind developers.	


10. FINANCIAL AND ECONOMIC ANALYSIS

Discuss the NPV results (refer to the project investment summary table):

The NPV is positive due to the incremental revenue, which more than offsets the investment and O&M costs.

For projects subject to the investment prioritization process:

A. Insert a PDF containing the Investment Summary Report from the prioritization model in the box at the right

 G0345 Output.pdf
PDF File
348 KB

B. Discuss the prioritization analysis results (refer to the Investment Summary Report):

This is an economically favorable project for BPA, indicated by the NEBR of 1.5. The customer will finance the project costs, with transmission credits repaid in approximately 8 years. After that point, the expected annual transmission revenue is \$3.6M.

11. PROJECT EXECUTION RISKS AND MITIGATION PLANS

Describe the risks to the agency if this project is undertaken (insert additional sections as needed):

1	Risk:	Test & Energization resource constraints result in schedule delays and cost overruns
Likelihood:	5 - Almost Certain - 90-100%, once a year or more frequently	
Consequence:	4 = Major	
Consequence Description:	This is an issue with all of the projects currently in execution; lack of T&E resource could cause delays in the schedule and additional contracting costs	
Mitigation:	PM: Coordinate very closely with the T&E organization and monitor the project's priority; PfMT may delay other projects to reprioritize resources; Term employees and contracting is a possibility.	
2	Risk:	Construction schedule/outage constraints lead to a delay in schedule

Likelihood:	3 - Possible 35-65%, should happen at sometime once in every 5 years
Consequence:	3 = Moderate
Consequence Description:	Schedule delays are costly and problematic in the relationship with the costumer.
Mitigation:	PM: Establish a construction step plan early in the process and work closely with the district and dispatcher to secure outages for the work.

3	Risk:	Construction impact due to environmental/archeology permitting issues leads to higher cost and schedule delays
Likelihood:	3 - Possible 35-65%, should happen at sometime once in every 5 years	
Consequence:	4 = Major	
Consequence Description:	Any issues with environmental could have a big impact on the location of the substation, transmission line structures and access road	
Mitigation:	Environmental: Start the environmental s urveys and permitting process during the scoping to insure timely delivery.	

4	Risk:	Potential changes to redundant station service source leads to increase in cost and schedule delays
Likelihood:	3 - Possible 35-65%, should happen at sometime once in every 5 years	
Consequence:	3 = Moderate	
Consequence Description:	Currently the alternate station service is scoped to come from local utility, if that is not possible we might need an EG. This could be a costly change of scope	
Mitigation:	Substation Design: Contact the local utility at the beginning of design and determine the station service needs	

5	Risk:	Design and construction contract bid environments leads to variability in costs
Likelihood:	4 - Likely - 65-90%, probably happen in most conditions once in every 2 years	
Consequence:	4 = Major	
Consequence Description:	Construction and design costs could vary depending on the bid environment, schedule constraints	
Mitigation:	PM: Insure statement of work is well-defined, and provide ample time for construction	

6	Risk:	Realty process delays results in delay in construction
Likelihood:	4 - Likely - 65-90%, probably happen in most conditions once in every 2 years	
Consequence:	4 = Major	
Consequence Description:	Although we have a willing land owner, realty negotiation can't start until environmental permitting is complete which would cause a delay in project construction.	
Mitigation:	Environment/Realty: Expedite the environmental permitting process to move the realty work forward	

7	Risk:	RAS design resource constraints leads to delays in construction and design
Likelihood:	4 - Likely - 65-90%, probably happen in most conditions once in every 2 years	
Consequence:	3 = Moderate	
Consequence Description:	This risk could cause a year long delay in the project schedule, if unable to meet RAS approval timelines.	
Mitigation:	PM: Work to secure the design team as soon as possible; coordinate with other RAS projects for WECC approval and UT testing	

12. PROPOSED TARGETS AND ACCEPTABLE PERFORMANCE RANGES

Project Cost

Progress Indicators	Green	Direct capital costs are forecast to be less than \$(b) M
	Yellow	Direct capital costs are forecast to be less than \$(b) M
	Red	Direct capital costs are forecast to be greater than \$(b) M
End of Project Target (yellow becomes green)	Green	Direct capital costs are less than or equal to \$(b) M
	Red	Direct capital costs are greater than \$(b) M
Measure Owner	Amit Sinha	
Point of Contact	Rasha Kroonen	
Subject Matter Expert	Cherilyn Randall	
Data Entry Owner	Jini Karras	

Explain why the proposed "yellow" range is needed:

The proposed yellow range reflects a 13% contingency, based on the Monte Carlo risk analysis (see attachment).

Project Schedule

Progress Indicators	Green	Customer energization is forecast to be enabled by 6/30/2021
	Yellow	Customer energization is forecast to be enabled by 10/30/2021
	Red	Customer energization is forecast to be enabled after 10/30/2021
End of Project Target (yellow becomes green)	Green	Customer energization is enabled by 10/29/2021
	Red	Customer energization is enabled after 10/29/2021
Measure Owner	Amit Sinha	
Point of Contact	Rasha Kroonen	
Subject Matter Expert	Cherilyn Randall	
Data Entry Owner	Jini Karras	

Explain why the proposed "yellow" range is needed:

A 4 month yellow range is proposed to cover any of the identified schedule risks that could occur, including outage constraints, customer changes, resource constraints, and minor scope changes.

Project Scope / Capability

Progress Indicators	Green	BPA is able to interconnect all 200MW of new wind generation
	Yellow	N/A
	Red	

		Less than green
End of Project Target (yellow becomes green)	Green	BPA is able to interconnect all 200MW of new wind generation
	Red	Less than green
Measure Owner	Amit Sinha	
Point of Contact	Rasha Kroonen	
Subject Matter Expert	Cherilyn Randall	
Data Entry Owner	Jini Karras	

Explain why the proposed "yellow" range is needed:

n/a

Other Performance Measure

Progress Indicators	Green	Not required for projects <\$3M
	Yellow	Not required for projects <\$3M
	Red	Not required for projects <\$3M
End of Project Target (yellow becomes green)	Green	
	Red	
Measure Owner	TEP Manager	
Point of Contact		
Subject Matter Expert		
Data Entry Owner	TEPO Business Analyst	

Explain why the proposed "yellow" range is needed:


13. INVESTMENT PERFORMANCE METRICS

Provide the appropriate metrics to judge the success/measure the benefits of the investment once it is completed and provide today's baselines for those metrics.


See section 8

14. OTHER ATTACHMENTS

Attach any other files or documentation here:



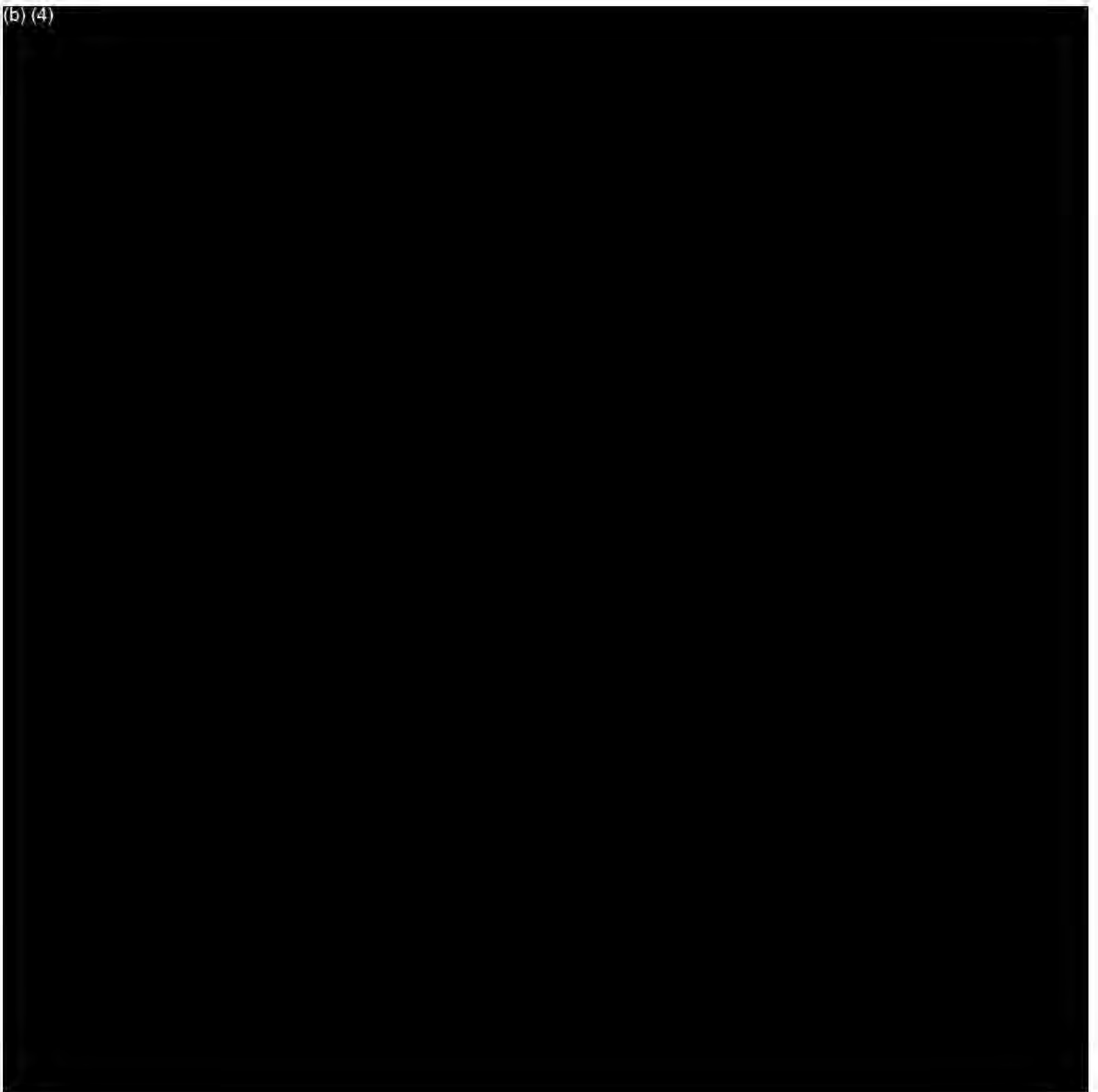
Boyd Ridge Risk Analysis.pdf
PDF File
288 KB



G0345 FC Decision.pptx
Microsoft PowerPoint Presentation
2.11 MB

 File Attachment

(b) (4)



Financial Analysis Notes

Explain the Calculation of Investment Costs:

Capital costs are based on SG3 estimates. Spread is based on portfolio at time of BC creation.

Explain the Calculation of Incremental Ongoing Benefits:

The benefit is the revenue associated with 200MW of new transmission service, less transmission credits.

Explain the Calculation of Incremental Ongoing Costs:

Incremental ongoing costs are O&M cost associated with a new substation. See Prioritization model for more details.

From: O'Connell,Michael J (BPA) - ECT-4

Sent: Tue Jan 16 13:21:34 2018

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Roberts,Ken (BPA) - TELP-CSB-2; Kroonen,Rasha (CONTR) - TEP-TPP-1

Cc: O'Donnchadha,Brian M (BPA) - ECC-4

Subject: G0345 NEPA 1-16-18 1

Importance: Normal

Hi all,

Could you please get me in touch with the Pattern Energy contacts that would be able to help me find existing species survey data and USFWS permits, etc? It would be helpful to coordinate as they may be gearing up to freshen data as needed or are interested in getting the data that BPA will need to finish compliance.

Sounds like I will be invited to a 1/25 meeting the developer will attend. I'll come prepared to discuss then.

Ken: please provide me with a schedule snapshot that you and Jana were to discuss after the general meeting call-

Thanks,

[Mike O'Connell](#)

Environmental Protection Specialist | ECT-4

Bonneville Power Administration

905 NE 11th Avenue / P.O. Box 3621 – ECT-4

Portland, Oregon 97208-3621

[bpa.gov](#) | P 503-230-7692 | C (b)(6)



Department of Energy

Bonneville Power Administration
P.O. Box 61409
Vancouver, WA 98666-1409

TRANSMISSION SERVICES

December 12, 2017

In reply refer to: TSE/TPP-2

Mr. Kevin Wetzel
Summit Ridge Wind, LLC
c/o Pattern Renewables 2 LP
Pier 1, Bay 3
San Francisco, CA 94111

Dear Mr. Wetzel:

Enclosed is a signed original of Amendment No. 2 (Amendment) to Reimbursable Agreement No. 16TP-11044 (Agreement) between the Bonneville Power Administration (BPA) and Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP (Summit Ridge).

This Amendment provides for additional funds to be paid to BPA to complete the preliminary engineering work for this project and extends the estimated project completion date to July 2, 2018. All other terms of the original Agreement remain in effect.

Please have Summit Ridge's authorizing official electronically sign the flagged signature field in the Agreement and return by email to tpcc_contracts@bpa.gov by Close of Business (COB) on January 11, 2018. Alternatively, Summit Ridge may print, sign and scan the Agreement into a PDF file and return to BPA by email, or send a signed paper copy to one of the following addresses:

First Class Mail

U.S. Department of Energy
Bonneville Power Administration
ATTN: Anna Cosola – TPCC/TPP-4
P.O. Box 61409
Vancouver, WA 98666

Overnight Delivery Service

U.S. Department of Energy
Bonneville Power Administration
ATTN: Anna Cosola – TPCC/TPP-4
905 NE 11th Avenue
Portland, OR 97232
Phone: (360) 619-6047

The required additional advance payment of (b) 0 can be made by wire transfer or ACH credit (payment instructions enclosed). Please reference Agreement No. 16TP-11044 when remitting payment. In order to meet the project schedule, the executed Amendment and payment must be received by COB on January 11, 2018. If BPA does not receive the executed Amendment and payment by COB on January 11, 2018, this offer will be considered withdrawn.

If you have any questions concerning this matter, please contact me at (360) 619-6014, or Cheryl Randall, Customer Service Engineer, at (360) 619-6051.

Sincerely,

Transmission Account Executive
Transmission Sales

2 Enclosures

cc: Mr. Steven Ostrowski, Summit Ridge Wind, LLC

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Sent: Wed Apr 11 17:15:15 2018

To: Cosola,Anna M (BPA) - TPCC-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1

Cc: Allen,Neva J (BPA) - TFAW-REDMOND

Subject: RE: PAYMENT RECEIVED G0345 EXECUTED Agreement No. 16TP-11044 A3_Summit Ridge_Prelim Engrg

Importance: Normal

We do need to open new work orders because these are design work orders. Scoping is expense. Design is capital. I would like the following work orders. Rasha can weigh in on the titles of the work orders if she wants something different. The dollars are direct. The contract had a 15% overhead for contract labor and 45% overhead for BPA labor.

TC Work Order – Boyd Ridge Substation - \$(b) (4)

CF Work Order – Boyd Ridge Communications - \$(b) (4)

CF Work Order – Summit Ridge Communications - \$(b) (4)

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Monday, April 09, 2018 7:46 AM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1

Cc: Allen, Neva J (BPA) - TFAW-REDMOND

Subject: PAYMENT RECEIVED G0345 EXECUTED Agreement No. 16TP-11044 A3_Summit Ridge_Prelim Engrg

Good morning,

The \$(b) (4) has been received. Should this be an increase to the existing work order 00421854? I recall the mention of creating an additional work order but could be mistaken. Please clarify.

Thanks

Anna

4/6/2018

SUMMIT RIDGE WIND, LLC

7000175565

SUMMIT RIDGE WIND PAYMENT FOR REIMBURSABLE AGREEMENT AMENDMENT 3

2544231.000

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Friday, April 06, 2018 7:55 AM

To: Kelly,Shanna M (CONTR) - TPC-TPP-4; Lynard,Gene P (BPA) - ECT-4; Naef,Amber L (BPA) - FRG-2; Shier,Robert P (BPA) - FRG-2; Dull,Jon M (BPA) - FT-2; Bleiler,Damen C (BPA) - FTL-2; Acosta,Esteban (BPA) - FTOA-2; Perkins,Matthew W (BPA) - LT-7; Kroonen,Rasha (CONTR) - TEP-TPP-1; Allen,Neva J (BPA) - TFAW-REDMOND; Sauer,Dena J (BPA) - TPCC-TPP-4; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (BPA) - TSE-TPP-2; Boehle,Jennifer M (BPA) - TSES-TPP-2; TEPO Reimbursable Team; TF_Region Resource Specialists; CCM_Support

Subject: G0345 EXECUTED Agreement No. 16TP-11044 A3_Summit Ridge_Prelim Engrg

Attached is an executed Amendment No. 3 with Summit Ridge c/o Pattern Energy.



Department of Energy

Bonneville Power Administration
P.O. Box 61409
Vancouver, WA 98666-1409

TRANSMISSION SERVICES

March 22, 2018

In reply refer to: TSE/TPP-2

Mr. Kevin Wetzel
Summit Ridge Wind, LLC
c/o Pattern Renewables 2 LP
Pier 1, Bay 3
San Francisco, CA 94111

Dear Mr. Wetzel:

Enclosed is a signed original of Amendment No. 3 (Amendment) to Reimbursable Agreement No. 16TP-11044 (Agreement) between the Bonneville Power Administration (BPA) and Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP (Summit Ridge).

This Amendment provides for additional funds to be paid to BPA to complete the design and land acquisition work for this project, adds reference to a future Large Generator Interconnection Agreement that will provide classification of Network Upgrades eligible for transmission credits to the Financial Terms and Conditions Statement and extends the estimated project completion date to October 1, 2019. All other terms of the original Agreement remain in effect.

Please have Summit Ridge's authorizing official electronically sign the flagged signature field in the Amendment and return by email to tpcc_contracts@bpa.gov by Close of Business (COB) on March 30, 2018. Alternatively, Summit Ridge may print, sign and scan the Amendment into a PDF file and return to BPA by email, or send a signed paper copy to one of the following addresses:

First Class Mail
U.S. Department of Energy
Bonneville Power Administration
ATTN: Anna Cosola – TPCC/TPP-4
P.O. Box 61409
Vancouver, WA 98666

Overnight Delivery Service
U.S. Department of Energy
Bonneville Power Administration
ATTN: Anna Cosola – TPCC/TPP-4
905 NE 11th Avenue
Portland, OR 97232
Phone: (360) 619-6047

The required additional advance payment of \$ (b) (4) can be made by wire transfer or ACH credit (payment instructions enclosed). Please reference Agreement No. 16TP-11044 when remitting payment. In order to meet the project schedule, the executed Amendment and payment must be received by COB on March 30, 2018, or this offer will be considered withdrawn.

If you have any questions concerning this matter, please contact me at (360) 619-6014, or Cherilyn Randall, Customer Service Engineer, at (360) 619-6051.

Sincerely,

(b) (6)

Digitally signed by ERIG
TAYLOR
Date: 2018.03.22
13:11:22 -07'00'

Transmission Account Executive
Transmission Sales

2 Enclosures

cc:

Mr. Steven Ostrowski, Summit Ridge Wind, LLC

What is the proposed investment?

3 breaker, 230 kV ring bus substation. Access Roads. Meter, telemetry, SCADA/SER, FIN, PMU, relays, local RAS, and other communication equipment.

QIP-0345R01Foot1

Why is this investment needed?

This investment is needed to enable G0345 (200 MW wind project) to connect to the Big Eddy – Redmond 230 kV line

What assumptions are behind the investment need?

G0345 can connect to the Big Eddy – Redmond 230 kV line, but only through a new 230 kV ring bus substation. This would be a new, green field substation

QIP-0345R01Foot1

What actions would be taken if this investment were not made?

None – this project is only needed by the wind project. If we don't build it though, they have no other way to connect their project to the grid.

QIP-0345R01Foot2

What investment alternatives were considered and why are they not recommended?

Interconnection at 500KV was considered, but is significantly more expensive.

QIP-0345R01Foot4

Who would benefit from this investment?

Pattern Energy (wind project developer)

QIP-0345R01Foot3

Timing and Costs of the Investment
 (2018 dollars in thousands)
 (AFUDC not included in capital costs)

Timing of Investment				Range of Investment Costs (Direct Capital Costs)			Fiscal Year Flow of Investment Expenditures (Base) (Direct Capital Cost plus Indirects/Overheads and Expense)						Cap/Exp Split	Economic Life of Assets			
Start	Complete			Low	Base	High	Pre-2018	2018	2019	2020	2021	Post 2021	Total	% of Investment that is expense	Low	Base	High
	Early	Base	Late														
Jun-18	Mar-21	Jun-21	Dec-21	\$(b)	\$(b)	\$(b)	\$0	\$(b)	\$(b)	\$(b)	\$0	\$0	\$(b)	0%	40	50	60

What drives the investment costs to be low or high?
 Contract Bid Environment; Outage/Schedule Constraints; Resource Constraints; Environmental/Archeological delays

How will asset O&M costs change with this investment?			
	Before Invest	After Invest	Change
Average annual	\$0	\$1	\$1
Present value:	\$0	\$(b)	\$(b)

Benefits of the Investment

Benefit name	Benefit description	% of Total
Sales Revenue	New transmission sales revenue	100%
		0%
		0%
		0.0%
		0%
		0%
		0%

Net Economic Benefits and Cash Flows
(2018 dollars in thousands)
(AFUDC not included)

(b) (4)



Additional considerations:



(b) (4)



memorandum

DATE:

REPLY TO

ATTN OF: Kelly G. Johnson, Manager, Customer Service Engineering, TPC/TPP-4

SUBJECT: Pattern Renewables 2 LP – Summit Ridge Wind Project – Generation Interconnection Request G0345
Interconnection Cost Allocation Determination

to: Jeffrey W. Cook, Vice President, Planning and Asset Management

On September 16, 2008, Lotus Group USA, Inc. submitted a Large Generation Interconnection Request (Request) under Attachment L of the Bonneville Power Administration (BPA) Open Access Transmission Tariff (Tariff). The Request was later acquired by Pattern Renewables 2 LP (Pattern). This Request is to interconnect Pattern's new Summit Ridge Wind Project.

Pattern requested the new interconnection point to BPA's Big Eddy – Redmond No 1 230 kV line. The project nameplate capacity is 201 MW.

In accordance with the BPA Transmission Services Commercial Business Policy for Interconnection Cost Segmentation (policy number 2007-1), this Interconnection Cost Allocation Determination memo recommends the cost allocation for the Pattern request for a new Point of Interconnection of G0345, Summit Ridge Wind Project to the Federal Columbia River Transmission System in Wasco County, Oregon. BPA completed a Facility Study in August 2010, which studied the requested interconnection and provided a recommended plan of service. Currently, the planned energization date is June 2021. Reference PRD Number 285137.

Interconnection Plan of Service

The proposed plan of service is for BPA to construct a new 230 kV ring bus substation (expandable to breaker-and-a-half in the future) named Boyd Ridge Substation approximately 11 miles south of Big Eddy Substation. The Big Eddy – Redmond No 1 230 kV line will be looped into Boyd Ridge Substation.

Pattern will construct a 230/34.5 kV collector station named Summit Ridge Substation and approximately 19 miles of 230 kV gen tie line. BPA will help terminate the new line into Boyd Ridge Substation.

Direct Assignment Facilities

Section 1.11 of BPA's Open Access Transmission Tariff (Tariff) addresses Direct Assignment Facilities, which are those facilities constructed and owned by BPA where the costs are directly assigned to the customer. Additionally, BPA has developed the "Facility Ownership and Cost

Assignment Guidelines” as an aid in making cost assignment determinations. In general, facilities that benefit other Network customers are not directly assigned. Network benefit may be financial (increased revenue) or operational, such as terminal equipment in a Network substation that protects the Network from faults on a customer’s transmission line.

Attachment G Section 13.(b)(3) of BPA’s Tariff specifies that metering for points of convenience are the cost responsibility of the transmission customer.

BPA’s Big Eddy – Redmond No 1 230 kV line is segmented to the Network. Therefore the proposed Boyd Ridge Substation will be integrated into the Network. Boyd Ridge Substation will be eligible for transmission credits. Relay upgrades at Big Eddy Substation, Maupin Substation, and Redmond Substation are also eligible for transmission credits.

Pattern’s Summit Ridge Substation is not segmented to BPA’s Network. All BPA equipment installed at Summit Ridge Substation, including meters, RAS equipment, SCADA/SER, and comm equipment will be directly assigned to the customer.

Cost Allocation Determination

1. **Costs Assigned to the Network:**
 Pattern will advance funds for the new Network Upgrade portion of the work, briefly described as the Boyd Ridge Substation and relay upgrades at Big Eddy Substation, Maupin Substation, and Redmond Substation. BPA should not directly assign the costs of these facilities to Pattern. Based on a BPA cost estimate dated April 11, 2018, the estimated cost to add the Network Upgrades is \$(b) (4) in direct cost plus \$(b) (4) in overhead, for a total of \$(b) (4) that Pattern will advance to BPA. Pattern will pay actual costs plus overheads based on the final accounting. Pattern is eligible for transmission credits on the Network Upgrade costs.
2. **Costs directly Assigned (constructed by BPA at customer expense):** In accordance with provisions in BPA’s Tariff, the cost of the Transmission Provider’s Interconnection Facilities should be directly assign to Pattern. Therefore, the costs of the meters, RAS equipment, SCADA, PMU, communications and controls at Summit Ridge Substation should be directly assigned to Pattern. Based on a BPA cost estimate dated April 11, 2018, the estimated cost to add the Interconnection Facilities is (b) (4) in direct cost plus (b) (4) in overhead, for a total of \$(b) (4) that Pattern will advance to BPA. Pattern will pay actual costs plus overheads based on the final accounting. Pattern is not eligible for transmission credits on the Interconnection Facilities.
3. **Customer construction:**
 Pattern will build, at their own cost, the Summit Ridge Substation, the Summit Ridge Wind Project, and the Summit Ridge – Boyd Ridge 230 kV transmission line.

Customer Funding/Financing

Pattern has elected to execute an Engineering & Procurement agreement with BPA in May 2018 to advance the design of Boyd Ridge Substation. Customer Service Engineering requested and received non-discretionary, tariff-driven capital funding approval for the design cost. Customer Service Engineering is requesting non-discretionary, tariff-driven capital funding approval for the entire project cost.

Recommended by:

Kelly G. Johnson
Manager, Customer Service Engineering

Approved by:

Jeffrey W. Cook
Vice President
Planning and Asset Management

Approved by:

Michelle L. Manary
Acting Vice President
Transmission Marketing and Sales

cc:

E. Taylor – TSE/TPP-2

K. Johnson – TPC/TPP-4

D. Sauer – TPCC/TPP-4

C. Randall – TPCV/TPP-4

J. Jusupovic – TPCV/TPP-4

A. Cosola – TPCC/TPP-3

C. Matthews – TPPA/OPP-3

P. Rowe – TPW/TPP-4

M. Hagensen – TPWP/TPP-4

J. Simmons – TPWP/TPP-4

P. Willhite – TPWP/TPP-4

Customer File – TPC/TPP-4 (Pattern Renewables 2 LP)



Department of Energy

Bonneville Power Administration
P.O. Box 61409
Vancouver, WA 98666-1409

TRANSMISSION SERVICES

April 3, 2018

In reply refer to: TSE/TPP-2

Mr. Kevin Wetzel
Summit Ridge Wind, LLC
c/o Pattern Renewables 2 LP
Pier 1, Bay 3
San Francisco, CA 94111

Dear Mr. Wetzel:

Enclosed is a signed original of Amendment No. 3 (Amendment) to Reimbursable Agreement No. 16TP-11044 (Agreement) between the Bonneville Power Administration (BPA) and Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP (Summit Ridge).

This Amendment provides for additional funds to be paid to BPA to complete the design and land acquisition work for this project, adds reference to a future Large Generator Interconnection Agreement that will provide classification of Network Upgrades eligible for transmission credits to the Financial Terms and Conditions Statement and extends the estimated project completion date to October 1, 2019. All other terms of the original Agreement remain in effect.

This Amendment is being retendered to remove the additional progress payment that was originally reflected on the Financial Terms and Conditions Statement.

Please have Summit Ridge's authorizing official electronically sign the flagged signature field in the Amendment and return by email to tpcc_contracts@bpa.gov by Close of Business (COB) on April 15, 2018. Alternatively, Summit Ridge may print, sign and scan the Amendment into a PDF file and return to BPA by email, or send a signed paper copy to one of the following addresses:

First Class Mail

U.S. Department of Energy
Bonneville Power Administration
ATTN: Anna Cosola – TPCC/TPP-4
P.O. Box 61409
Vancouver, WA 98666

Overnight Delivery Service

U.S. Department of Energy
Bonneville Power Administration
ATTN: Anna Cosola – TPCC/TPP-4
905 NE 11th Avenue
Portland, OR 97232
Phone: (360) 619-6047

The required additional advance payment of (b) (4) can be made by wire transfer or ACH credit (payment instructions enclosed). Please reference Agreement No. 16TP-11044 when remitting payment. In order to meet the project schedule, the executed Amendment and payment must be received by COB on April 15, 2018, or this offer will be considered withdrawn.

If you have any questions concerning this matter, please contact me at (360) 619-6014, or Cherilyn Randall, Customer Service Engineer, at (360) 619-6051.

Sincerely,

(b) (6)

Digitally signed by ERIC
TAYLOR
Date: 2018.04.04
09:51:35 -0700

Transmission Account Executive
Transmission Sales

2 Enclosures

cc:
Mr. Steven Ostrowski, Summit Ridge Wind, LLC

**U.S. DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
AGREEMENT**

1. AGREEMENT NUMBER	2. AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL	3. AMENDMENT NO.	4. EFFECTIVE DATE
16TP-11044	June 29, 2021	-3-	Same as Block #17

ISSUED TO		ISSUED BY	
5. ORGANIZATION AND ADDRESS Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP ATTN: General Counsel Pier 1, Bay 3 San Francisco, CA 94111		6. ORGANIZATION AND ADDRESS U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola – TPCC/TPP-4 P.O. Box 61409 Vancouver, WA 98666	
7. TECHNICAL CONTACT	PHONE NUMBER	8. TECHNICAL CONTACT	PHONE NUMBER
Stan Gray	(b) (6)	Rasha Kroonen	(360) 619-6918
9. ADMINISTRATIVE CONTACT	PHONE NUMBER	10. ADMINISTRATIVE CONTACT	PHONE NUMBER
Kevin Wetzel	(b) (6)	Cherilyn Randall	(360) 619-6051

11. TITLE/BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT
**AMENDMENT NO. 3: DESIGN ACTIVITIES FOR LARGE GENERATOR INTERCONNECTION
REQUEST NO. G0345 SUMMIT RIDGE WIND, LLC C/O PATTERN RENEWABLES 2 LP**

Background: This Reimbursable Agreement No. 16TP-11044 (Agreement) between the Bonneville Power Administration (BPA) and Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP (Summit Ridge) provides for BPA, at Summit Ridge's expense, to perform design activities needed to interconnect Summit Ridge's proposed 200 MW Summit Ridge Wind Project (Project) to the proposed BPA-owned (b) (4). The activities will include the completion of design and land acquisition for the (b) (4).

This Amendment No. 3 (Amendment) to the Agreement provides for additional funds needed to complete design and to acquire the land needed for (b) (4). (b) (4) extends the estimated completion date for such activities to October 1, 2019, and adds language to the Financial Terms and Conditions Statement (FTC) regarding a future Large Generator Interconnection Agreement that will provide classification of Network Upgrades eligible for transmission credits.

This Amendment is hereby incorporated and made a part of the original Agreement and is subject to all the provisions therein. All provisions of the original Agreement unless expressly deleted, modified, or otherwise superseded in this Amendment shall continue to be binding on all parties hereto.

The following document is attached to and becomes a part of this Amendment:

- Financial Terms and Conditions Statement, Amendment No. 3

12. AMOUNT TO BE PAID BY BPA -0-	13. AMOUNT TO BE PAID TO BPA (b) (4) (estimated, see FTC)
14. SUBMIT SIGNED AMENDMENT TO U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola – TPCC/TPP-4 P.O. Box 61409 Vancouver, WA 98666	15. ACCOUNTING INFORMATION (For BPA Use Only) Work Order No. 00421854
	16. SUBMIT INVOICE TO (Name and Address) Same as Block #5 above.

PARTICIPANT		BPA	
17. APPROVED BY (Signature)	DATE (mm/dd/yyyy)	18. APPROVED BY (Signature)	DATE (mm/dd/yyyy)
NAME AND TITLE		NAME AND TITLE	
		Transmission Account Executive Transmission Sales	

FINANCIAL TERMS AND CONDITIONS STATEMENT

BPA's cost of performing the project at Summit Ridge's expense shall be the actual cost of doing the work specified in this Agreement, plus the following overhead rates, representing the indirect costs of the project office plus the contractual support costs of contract negotiation, billing and accounting functions, and contract management.

BPA Labor	45%
Materials/Supplies/Equipment	15%
Supplemental Labor and Service Contracts	45%
Construction, Survey and Turnkey Contracts	15%

Summit Ridge hereby agrees to advance \$(b) (4), the estimated project cost, to BPA based on the following payment schedule:

Payment	Amount	Date Due
1	\$(b)	(b) (4)
2	\$(b)	(b) (4)
3	\$(b)(b)	(b) (4)
4	\$(b) (4)	(b) (4)
5	\$(b) (4)	(b) (4)

If BPA and Summit Ridge execute a Large Generator Interconnection Agreement (LGIA), the advance funds received and costs incurred under this Amendment will be accounted for under the LGIA, which will describe the final plan of service, cost estimates and deposits, as well as the classification of those Network Upgrades eligible for credits.

If BPA needs additional funds to complete the work at any time during performance of this Agreement, BPA may request, in writing, for Summit Ridge to advance such additional funds to BPA for deposit in the account. Summit Ridge shall advance such additional funds within 30 days of BPA's written request, and BPA may temporarily stop work until Summit Ridge supplies the requested funds.

If Summit Ridge does not advance such additional funds by the due date or, if at any time before completion of the project Summit Ridge elects to terminate or suspend work under this Agreement, BPA has the right to cease all work and restore, as a cost to the project at Summit Ridge's expense, government facilities and/or records to their condition prior to the beginning of work under this Agreement. BPA shall then make a full accounting to Summit Ridge showing the actual costs charged against the account, and shall either remit any unexpended balance in the account to Summit Ridge or bill for any costs in excess of the deposits in the account. Summit Ridge shall pay any excess costs within 30 days of the invoice date (due date). BPA shall return to stock any reusable equipment and materials, as determined by BPA, and Summit Ridge shall receive no transmission credits or associated interest for amounts paid to BPA for network upgrades under this provision.

Payments not received by the due date will accrue interest on the amount due beginning the first calendar day after due date to the date paid, at the appropriate rate calculated in accordance with the methodology specified for interest on refunds in the Federal Energy Regulatory Commission's regulations at 18 C.F.R. § 35.19a(a)(2)(iii).

**U.S. DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
AGREEMENT**

1. AGREEMENT NUMBER 16TP-11044	2. AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL June 29, 2021	3. AMENDMENT NO -3-	4. EFFECTIVE DATE Same as Block #17
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ISSUED TO		ISSUED BY	
5. ORGANIZATION AND ADDRESS Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP ATTN: General Counsel Pier 1, Bay 3 San Francisco, CA 94111		6. ORGANIZATION AND ADDRESS U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola - TPCC/TPP-4 P.O. Box 61409 Vancouver, WA 98666	
7. TECHNICAL CONTACT Stan Gray	PHONE NUMBER (b) (6)	8. TECHNICAL CONTACT Rasha Kroonen	PHONE NUMBER (360) 619-6918
9. ADMINISTRATIVE CONTACT Kevin Wetzel	PHONE NUMBER (b) (6)	10. ADMINISTRATIVE CONTACT Cherilyn Randall	PHONE NUMBER (360) 619-6051

11. TITLE/BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT
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This Amendment is hereby incorporated and made a part of the original Agreement and is subject to all the provisions therein. All provisions of the original Agreement unless expressly deleted, modified, or otherwise superseded in this Amendment shall continue to be binding on all parties hereto.

The following document is attached to and becomes a part of this Amendment:
 • Financial Terms and Conditions Statement, Amendment No. 3

12. AMOUNT TO BE PAID BY BPA -0-	13. AMOUNT TO BE PAID TO BPA (b) (4) 1 (estimated, see FTC)
14. SUBMIT SIGNED AMENDMENT TO U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola - TPCC/TPP-4 P.O. Box 61409 Vancouver, WA 98666	15. ACCOUNTING INFORMATION (For BPA Use Only) Work Order No. 00421854
	16. SUBMIT INVOICE TO (Name and Address) Same as Block #5 above.

PARTICIPANT		BPA	
17. APPROVED BY (Signature)	DATE (mm/dd/yyyy)	18. APPROVED BY (Signature)	DATE (mm/dd/yyyy)
NAME AND TITLE		NAME AND TITLE	
		Transmission Account Executive Transmission Sales	

FINANCIAL TERMS AND CONDITIONS STATEMENT

BPA's cost of performing the project at Summit Ridge's expense shall be the actual cost of doing the work specified in this Agreement, plus the following overhead rates, representing the indirect costs of the project office plus the contractual support costs of contract negotiation, billing and accounting functions, and contract management.

BPA Labor	45%
Materials/Supplies/Equipment	15%
Supplemental Labor and Service Contracts	45%
Construction, Survey and Turnkey Contracts	15%

Summit Ridge hereby agrees to advance \$ (b) (4) 1, the estimated project cost, to BPA based on the following payment schedule:

Payment	Amount	Date Due
1	\$(b)	(b) (4)
2	\$(b)	(b) (4)
3	\$(b)(b)	(b) (4)
4	\$(b) (4)	(b) (4)

If BPA and Summit Ridge execute a Large Generator Interconnection Agreement (LGIA), the advance funds received and costs incurred under this Amendment will be accounted for under the LGIA, which will describe the final plan of service, cost estimates and deposits, as well as the classification of those Network Upgrades eligible for credits.

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If Summit Ridge does not advance such additional funds by the due date or, if at any time before completion of the project Summit Ridge elects to terminate or suspend work under this Agreement, BPA has the right to cease all work and restore, as a cost to the project at Summit Ridge's expense, government facilities and/or records to their condition prior to the beginning of work under this Agreement. BPA shall then make a full accounting to Summit Ridge showing the actual costs charged against the account, and shall either remit any unexpended balance in the account to Summit Ridge or bill for any costs in excess of the deposits in the account. Summit Ridge shall pay any excess costs within 30 days of the invoice date (due date). BPA shall return to stock any reusable equipment and materials, as determined by BPA, and Summit Ridge shall receive no transmission credits or associated interest for amounts paid to BPA for network upgrades under this provision.

Payments not received by the due date will accrue interest on the amount due beginning the first calendar day after due date to the date paid, at the appropriate rate calculated in accordance with the methodology specified for interest on refunds in the Federal Energy Regulatory Commission's regulations at 18 C.F.R. § 35.19a(a)(2)(iii).

From: O'Connell,Michael J (BPA) - ECT-4

Sent: Thu Mar 15 11:52:41 2018

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Roberts,Ken (BPA) - TELP-CSB-2

Subject: Ground squirrel surveys G0345, G0517 3-15-18 1

Importance: Normal

Cherilyn, Ken,

I'm chatting in a bit with biologists in the field for the Summit Ridge Wind project. I would be looking to get them on a sole source contract ASAP to survey for ground squirrel and burrowing owl at the G0345 and perhaps the G0517 areas.

G0345 survey area seems well defined and unlikely to change drastically. If G0517 can get surveyed (ie **if money is there**), what is the degree of confidence in the siting of BPA facilities. The one-mile from Boardman for a line upgrade is easily defined, but what about the interconnection piece? 6/3 of the Boardman Alkali seems far from the generation at three mile canyon. Is it more like the 19 mile?

Thanks,

[Mike O'Connell](#), ECT-4

P: 503-230-7692

C: (b)(6)

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Fri Jan 19 15:08:48 2018

To: Ackerman, Robert (BPA) - TECC-CSB-2; Amrine, Liz (CONTR) - TERG-3; Bebee, Joseph Ray (BPA) - TESF-CSB-2; Brady, Brian P (CONTR) - TERS-3; Brockway, Jenny (BPA) - TPPC-OPP-3; Burn, Beverley D (CONTR) - NWM-1; Christianson, Corey C (BPA) - TFDE-THE DALLES; Gilroy, Michael J (CONTR) - TERM-TPP-4; Goldman, Rebekah S (BPA) - TECD-CSB-1; Hagensen, Matt L (BPA) - TPWP-TPP-4; Hoang, Anthony D (CONTR) - TERS-3; Hollenbeck, Justin M (CONTR) - TERM-TPP-4; Jacobsen, Nancy L (BPA) - TFDB-THE DALLES; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Kintz, Jourdan C (BPA) - TELC-TPP-3; Konency, Thomas J (BPA) - TERS-3; Kroonen, Rasha (CONTR) - TEP-TPP-1; Lee, Christina A (BPA) - TPPA-OPP-3; Legare, Jonathan L (CONTR) - TERR-3; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Loop, Laura A (BPA) - TERR-3; Lunde, Rod T (BPA) - TECR-CSB-1; Lynch, William C (BPA) - TERM-TPP-4; Mifsud, Frank D (BPA) - TERM-TPP-4; Moe, Chance C (BPA) - TFDD-THE DALLES; O'Connell, Michael J (BPA) - ECT-4; O'Donnchadha, Brian M (BPA) - ECC-4; Owen, Kenneth E (CONTR) - TPMC-OPP-3; Patterson, Shawn M (BPA) - TFD-THE DALLES; Platt, Travis J (BPA) - TERG-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Sager, Andrew (CONTR) - TERM-TPP-4; Schmidt, Patrick L (BPA) - TFDC-THE DALLES; Tabata, Mason I (BPA) - TECT-CSB-1; Thurston, Jamie S (CONTR) - TERM-TPP-4; Wahrgren, Robert O (CONTR) - TELD-TPP-3; Williams, Scott M (BPA) - TFD-DF-THE DALLES; Wong, Christopher M (CONTR) - TELC-TPP-3; Wood, Scott E (CONTR) - TELF-TPP-3

Subject: Meeting Notes from 1-16-18

Importance: Normal

Attachments: Boyd Meeting Notes 1-16-18.docx

Team,

Attached are the meeting notes from our last meeting with the newly revised CDD due date of 2/9/18.

Have a great weekend everyone,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Tue Jan 23 08:59:03 2018

To: Ackerman, Robert (BPA) - TECC-CSB-2; Amrine, Liz (CONTR) - TERG-3; Bebee, Joseph Ray (BPA) - TESF-CSB-2; Brady, Brian P (CONTR) - TERS-3; Brockway, Jenny (BPA) - TPPC-OPP-3; Burn, Beverley D (CONTR) - NWM-1; Christianson, Corey C (BPA) - TFDE-THE DALLES; Gilroy, Michael J (CONTR) - TERM-TPP-4; Goldman, Rebekah S (BPA) - TECD-CSB-1; Hagensen, Matt L (BPA) - TPWP-TPP-4; Hoang, Anthony D (CONTR) - TERS-3; Hollenbeck, Justin M (CONTR) - TERM-TPP-4; Jacobsen, Nancy L (BPA) - TFDB-THE DALLES; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Kintz, Jourdan C (BPA) - TELC-TPP-3; Konency, Thomas J (BPA) - TERS-3; Kroonen, Rasha (CONTR) - TEP-TPP-1; Lee, Christina A (BPA) - TPPA-OPP-3; Legare, Jonathan L (CONTR) - TERR-3; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Loop, Laura A (BPA) - TERR-3; Lunde, Rod T (BPA) - TECR-CSB-1; Lynch, William C (BPA) - TERM-TPP-4; Mifsud, Frank D (BPA) - TERM-TPP-4; Moe, Chance C (BPA) - TFDD-THE DALLES; O'Connell, Michael J (BPA) - ECT-4; O'Donnchadha, Brian M (BPA) - ECC-4; Owen, Kenneth E (CONTR) - TPMC-OPP-3; Patterson, Shawn M (BPA) - TFD-THE DALLES; Platt, Travis J (BPA) - TERG-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Sager, Andrew (CONTR) - TERM-TPP-4; Schmidt, Patrick L (BPA) - TFDC-THE DALLES; Tabata, Mason I (BPA) - TECT-CSB-1; Thurston, Jamie S (CONTR) - TERM-TPP-4; Wahrgren, Robert O (CONTR) - TELD-TPP-3; Williams, Scott M (BPA) - TFD-THE DALLES; Wong, Christopher M (CONTR) - TELC-TPP-3; Wood, Scott E (CONTR) - TELF-TPP-3

Subject: New Rough Map for site 3 1-23-18 1

Importance: Normal

Attachments: Option 3- 16 acre adjusted reference.pdf

Team,

At the last team meeting we discussed moving the plot location slightly to the east to give us the flattest location possible for the sub. It was agreed upon that we should shoot for this to minimize shoring at the site. I have drawn

up a new reference map of 16 acres that demonstrates an approximate location for the plot. I did it in such a way that the outdoor ultimate buildout would fit within this area and the area with the largest slope (NE corner) is the area not build upon with the ultimate build out drawing. Please note this is not an official map but simply a rough idea to help with discussion and scoping.

Best Regards,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Mon Apr 09 07:46:15 2018

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1

Cc: Allen,Neva J (BPA) - TFAW-REDMOND

Subject: PAYMENT RECEIVED G0345 EXECUTED Agreement No. 16TP-11044 A3_Summit Ridge_Prelim Engrg 4-9-18 1

Importance: Normal

Attachments: 11044_03_SummitRidgeWind.pdf

Good morning,

The \$(b) (4) has been received. Should this be an increase to the existing work order 00421854? I recall the mention of creating an additional work order but could be mistaken. Please clarify.

Thanks

Anna

4/6/2018

SUMMIT RIDGE WIND, LLC

7000175565

SUMMIT RIDGE WIND PAYMENT FOR REIMBURSABLE AGREEMENT AMENDMENT 3

2544231.000

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Friday, April 06, 2018 7:55 AM

To: Kelly,Shanna M (CONTR) - TPC-TPP-4; Lynard,Gene P (BPA) - ECT-4; Naef,Amber L (BPA) - FRG-2; Shier,Robert P (BPA) - FRG-2; Dull,Jon M (BPA) - FT-2; Bleiler,Damen C (BPA) - FTL-2; Acosta,Esteban (BPA) - FTOA-2; Perkins,Matthew W (BPA) - LT-7; Kroonen,Rasha (CONTR) - TEP-TPP-1; Allen,Neva J (BPA) - TFAW-REDMOND; Sauer,Dena J (BPA) - TPCC-TPP-4; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (BPA) - TSE-TPP-2; Boehle,Jennifer M (BPA) - TSES-TPP-2; TEPO Reimbursable Team; TF_Region Resource Specialists; CCM_Support

Subject: G0345 EXECUTED Agreement No. 16TP-11044 A3_Summit Ridge_Prelim Engrg

Attached is an executed Amendment No. 3 with Summit Ridge c/o Pattern Energy.

From: Cavasher,Colin P (CONTR) - TPW-TPP-4

Sent: Fri May 25 13:38:46 2018

To: Allen,Neva J (BPA) - TFAW-REDMOND; Alvarez,Gabriela V (BPA) - TELP-TPP-3; Anderson,Todd L (BPA) - TFH-CSB-1; Becker II,Richard (BPA) - TES-CSB-1; Brown,Joelle S (BPA) - TEC-CSB-1; Bustamante,Richard (BPA) - TPP-OPP-3; Castro,Corinn (BPA) - TPO-TPP-3; Fiedler,Paul A (BPA) - TPO-TPP-4; Gupta,Julie E (CONTR) - TEP-TPP-1; Hensley,Stacie R (BPA) - TERR-3; Hester,Shane H (BPA) - TFAW-DOB-1; Idowu,Ayodele O (BPA) - TPMC-OPP-3; Jackson,Breezy (CONTR) - TPWP-TPP-4; Johnson,Kelly G (BPA) - TPC-TPP-4; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Knoll,Karl W (BPA) - TPMC-OPP-3; Kohne,Kyle R (BPA) - TPM-OPP-3; Lynam,Gene P (BPA) - ECT-4; McGee,Joyce (BPA) - NSSV-4400-2; Miller,Kelly L (BPA) - TERM-TPP-4; Okuda,Jeremy S (BPA) - TETC-CSB-1; Phillips,Catherine O (CONTR) - TPO-TPP-4; Roberts,Ken (BPA) - TELP-CSB-2; Rodrigues,Melvin (BPA) - TPP-OPP-3; Rowe,Pilar R (BPA) - TPW-TPP-4; Schmidt,Sunshine R (BPA) - ECC-4; Sherlock,Anthony J (CONTR) - TFAW-DOB-1; Simmons,Jessica K (BPA) - TPWP-TPP-4; Sinha,Amit (BPA) - TEP-TPP-1; Slocum,Roy W (CONTR) - TPO-TPP-4; Smith,Philip W (BPA) - EPR-4; Staats,Michael L (BPA) - TEL-TPP-3; Stimmel,Jonathan R (BPA) - TECC-CSB-2; Supalla,Laura E (BPA) - TECT-CSB-1; Vasbinder,Brenda E (BPA) - TFAB-OPP-2; Willhite,Paula L (BPA) - TPWP-TPP-4; Zwingli,Peter C (CONTR) - TPW-TPP-4; Cavasher,Colin P (CONTR) - TPW-TPP-4; Hannigan,Wesley R (CONTR) - TPMG-OPP-3; Randall,James L (BPA) - TPMG-OPP-3

Cc: Hagensen,Matt L (BPA) - TPWP-TPP-4; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Wick,Martin A (BPA) - TPCV-TPP-4; Jaramillo,Emmanuel (BPA) - TEP-TPP-1; Nichols,Chris D (BPA) - TPWP-TPP-4; Korsness,Mark A (BPA) - TEP-TPP-1; Miller,Walker (BPA) - TPCV-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Hallar Jr,James J (BPA) - TPO-TPP-4; Moon,Denise H (CONTR) - TTB-DITT-2; Ngov,Tommy K (BPA) - TPWP-TPP-4; Flynn,Karla J (BPA) - TERP-TPP-4

Subject: PfMT Agenda: 2018-05-30

Importance: Normal

PfMT Agenda 2018-05-30

9:00 AM – 11:00 AM

TPP 400

[Join Skype Meeting](#)

VCMS audio conferencing call-in number:

(b)(2)

Stage Gate 0 Decisions (9:00 am – 10:00 am)

Name	PfMT SG0 Decision Date	Primary Project Type	Total Bundle Value SG0	In Service Date	In Service Date Flexibility	Primary Asset Manager	Primary Program Coordinator
Non-responsive							


Non-responsive



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Stage Gate 3 Decisions (10:00 am – 10:10 am)

Non-responsive



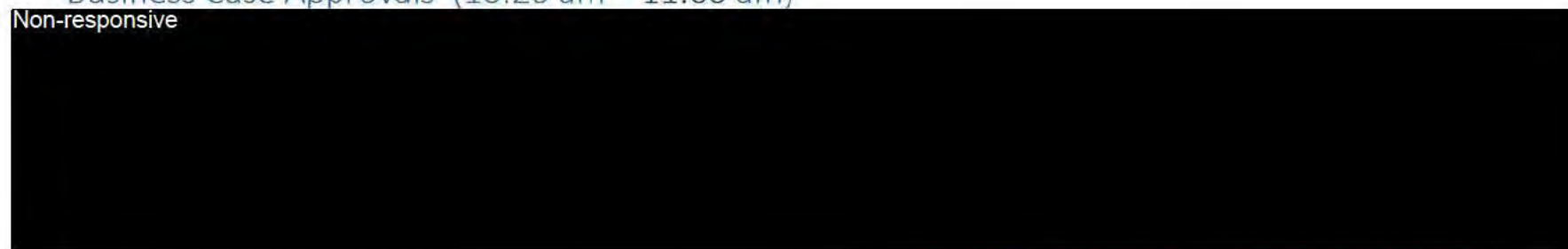
Stage Gate 4 Decisions (10:10 am – 10:20 am)

Non-responsive



Business Case Approvals (10:20 am – 11:00 am)

Non-responsive



16. [Business Case 667-G0345 Summit Ridge Wind.xml](#). §(b) (4) [P00627 – G0345 BOYD RIDGE SUBSTATION](#)

Matt Hagensen, Jana Jusupovic, Cherilyn Randall, Rasha Kroonen, Ken Roberts

From: Zwingli, Peter C (CONTR) - TPW-TPP-4

Sent: Fri Jun 01 15:47:52 2018

To: Cavasher, Colin P (CONTR) - TPW-TPP-4; Allen, Neva J (BPA) - TFAW-REDMOND; Alvarez, Gabriela V (BPA) - TELP-TPP-3; Anderson, Todd L (BPA) - TFH-CSB-1; Becker II, Richard (BPA) - TES-CSB-1; Brown, Joelle S (BPA) - TEC-CSB-1; Bustamante, Richard (BPA) - TPP-OPP-3; Castro, Corinn (BPA) - TPO-TPP-3; Fiedler, Paul A (BPA) - TPO-TPP-4; Gupta, Julie E (CONTR) - TEP-TPP-1; Hensley, Stacie R (BPA) - TERR-3; Hester, Shane H (BPA) - TFAW-DOB-1; Idowu, Ayodele O (BPA) - TPMC-OPP-3; Jackson, Breezy (CONTR) - TPWP-TPP-4; Johnson, Kelly G (BPA) - TPC-TPP-4; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Knoll, Karl W (BPA) - TPMC-OPP-3; Kohne, Kyle R (BPA) - TPM-OPP-3; Lynard, Gene P (BPA) - ECT-4; McGee, Joyce (BPA) - NSSV-4400-2; Miller, Kelly L (BPA) - TERM-TPP-4; Okuda, Jeremy S (BPA) - TETC-CSB-1; Phillips, Catherine O (CONTR) - TPO-TPP-4; Roberts, Ken (BPA) - TELP-CSB-2; Rodrigues, Melvin (BPA) - TPP-OPP-3; Rowe, Pilar R (BPA) - TPW-TPP-4; Schmidt, Sunshine R (BPA) - ECC-4; Sherlock, Anthony J (CONTR) - TFAW-DOB-1; Simmons, Jessica K (BPA) - TPWP-TPP-4; Sinha, Amit (BPA) - TEP-TPP-1; Slocum, Roy W (CONTR) - TPO-TPP-4; Smith, Philip W (BPA) - EPR-4; Staats, Michael L (BPA) - TEL-TPP-3; Stimmel, Jonathan R (BPA) - TECC-CSB-2; Supalla, Laura E (BPA) - TECT-CSB-1; Vasbinder, Brenda E (BPA) - TFAB-OPP-2; Willhite, Paula L (BPA) - TPWP-TPP-4; Hannigan, Wesley R (CONTR) - TPMG-OPP-3; Randall, James L (BPA) - TPMG-OPP-3

Cc: Hagensen, Matt L (BPA) - TPWP-TPP-4; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Wick, Martin A (BPA) - TPCV-TPP-4; Jaramillo, Emmanuel (BPA) - TEP-TPP-1; Nichols, Chris D (BPA) - TPWP-TPP-4; Korsness, Mark A (BPA) - TEP-TPP-1; Miller, Walker (BPA) - TPCV-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Kroonen, Rasha (CONTR) - TEP-TPP-1; Roberts, Ken (BPA) - TELP-CSB-2; Hallar Jr, James J (BPA) - TPO-TPP-4; Moon, Denise H (CONTR) - TTB-DITT-2; Ngov, Tommy K (BPA) - TPWP-TPP-4; Flynn, Karla J (BPA) - TERP-TPP-4; Rehmer, Kathryn C (BPA) - FAC-OPP-2; Dickinson, Sheila L (BPA) - FAC-MODD; Korsness, Mark A (BPA) - TEP-TPP-1

Subject: PfMT Meeting Minutes: 2018-05-30

Importance: Normal

PfMT Detailed Meeting Minutes - May 30, 2018

(all Meeting Minutes posted here: [PfMT Meeting Minutes](#)) ← *Tip: bookmark this link! Or set yourself up for an **automatic Alert!***

Decisions in **green**, action items in **yellow**.

Decision & Action Summary

Topic	Request	SG - Decision	BC - Decision	Priority	Action	Action assigned to
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Business Case 667-G0345 Summit Ridge Wind	\$(b) This project has been scoped, and has been approved through Stage Gate 3. This business case is for design and construction.	N/A	Approved	N/A	Add more info under mitigation for environmental and land procurement -- Add content that we transfer the risk, and delay the project.	Jana Jusupovic
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Transmission Finance Team – TfT (9:00 am – 9:30 am)

Sheila Dickinson

- BP18 IPR FY19 Capital Spending Forecast Levels
- FY19 SOY Budgets

Discussion:

Sheila Dickinson of FAC on phone.

240-3 updating for authorization, close to being finalized, by end of FY18. Not expecting additional changes. Reporting and accountability: business units will report and monitor their own performance. FAC will maintain ability to check on business unit monitoring. They won't dictate, but they will advise on monitoring adequacy. Increased executive interest has shown first on the expense side, with significant amount of cuts. Capital is expected to receive similar scrutiny. Work on the tech model has been great. 19SOY is already in flight. Perception that data by program, what's in flight, etc. is difficult to get or not in the right format. Pilar clarified that all of this is available on the Portfolio. Sheila: Questions are more probing – like regards to specific contracts. The dashboard is a good starting point, but not to the point yet where we can answer all the questions finance is asking. We still have FY18 budgets in, but brought down. This is now being applied for FY19 for expense and likely used for capital in the near future. We haven't made these decisions yet, but we are talking. What's in 19, what's in contacting... these are questions that are coming up. We can see WOs and APIs. We just want you to be aware that these talks are happening. Analysis work going to FC in June. Week of 17th. Just be aware and could have a potential impact for the start of your FY19 budget.

Dashboard info is powerful and we use it as best we can. Pilar is going to provide some training in their future.

Finance is looking at FAC to play a larger role across the business lines. FAC is still morphing since the reorg.

240-3 needs to align – especially on the reporting. This doesn't currently align with 240-3

Current IPR focus is expense. We go out in June; here's what we've heard. In SOY, with 18 down due to underrun, 19 should also be reduced. Capital being brought into the mix: In 19, bring capital in, and asking reduction, can we apply same expense logic to capital?. We see 18 is running significantly down in 18, can we also reduce in 19?

Pilar: It's not going to be that simple. We need a smaller focus group working on that. Value that you are expecting from what's in a contact is not accurate. We do not contract everything out – so you're not going to see the full picture.

Might be helpful to explain to us what you're trying to get to. If you're trying to move things, WHAT are you trying to move. We can better help by us knowing how we can figure out the details on our end.

Sheila: FAC is not pushing this, coming from higher up in the org; this is just a heads-up. Not our preference to go this way, but you're right. If we can give them better answers to help resolve this, it could avoid a bad decision. Provide us with a problem statement – we can help.

We'll have a better idea today on the details of the problem.

Q/ Who can we pull together for an after action?

A/ AMIT, KATHY, SHEILA, PILAR.

If we could get the person of origin who is asking this, so we can get first hand of the problem statement, this will be beneficial.

What if we do a "Transmission capital 101" with Marcus (Sheila's boss)?

Agreed that this would be a great idea.

ACTION: Meet with Marcus to present "Transmission capital 101" and better understand the problem statement.

SIDE NOTE:

Questions about Benton-Scootney – Gaby still needs a PM assigned for this project. Has PfMT made a decision?

Take offline to resolve.

Stage Gate 0 Decisions (9:30 am – 10:45 am)

1. Request:

Name	PfMT SGO Decision Date	Primary Project Type	Total Bundle Value SGO	In Service Date	In Service Date Flexibility	Primary Asset Manager	Primary Program Coordinator
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Non-responsive

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16. Request:

[Business Case 667-G0345 Summit Ridge Wind.xml](#). **(b) (4)** [P00627 – G0345 BOYD RIDGE SUBSTATION](#)

Matt Hagensen, Jana Jusupovic, Cherilyn Randall, Rasha Kroonen, Ken Roberts

Discussion:

Wind interconnection in queue for 7 years now. New BPA owned Boyd Ridge substation, looping in BPA's transmission line. Project was first scoped in 2011, customer changed the plan of service, then project was sold to a new customer. Ken started scoping based on old info, then the location changed to allow siting the interconnection substation on a willing landowner's parcel. This is the 3rd scoping effort – the CDD is complete. We just need BC approval to move forward to contract the work out. New BC to approve to meet Dennis Naef's request. Scoping is RE EXP. Summit Ridge is the developers site; Boyd Ridge is ours.

This was approved for Design Only, this is for Construction – so SG4 approval as well.

ISD: 6/20/2021. There are no legal ramifications if BPA misses the schedule date (agreement transfers the schedule and cost risk to the Customer).

Realty started during scoping. Access Roads are located and potential environmental impacts are identified. Many processes running in parallel.

Construction contractor would start in fall of 2019 and give us 2 construction seasons.

If there are land or environmental delays, we have a cushion.

Customer already advanced (b) (4) in funds. We'd like to sign the LGIA to commit the remaining funding.

(b) (4) /year new transmission revenue so credits are repaid in about 7 years.

ACTION: Add more description in the BC under mitigation for environmental and land procurement.... Add verbiage that we transferring the risk of schedule and cost risk to the Customer.

Decisions: *(Paul, Amit, Pilar)*

Approved

-----End Minutes-----

9:00 AM – 11:00 AM

TPP 400

[Join Skype Meeting](#)

VCMS audio conferencing call-in number:

(b) (2) (internal calls only need to call 4000)

(b) (2) (toll free)

ID#: (b) (2) #

Transmission Finance Team – TfT (9:00 am – 9:15 am)

Sheila Dickinson

- BP18 IPR FY19 Capital Spending Forecast Levels
- FY19 SOY Budgets


Stage Gate 0 Decisions (9:00 am – 10:00 am)

Name	PfMT SGO Decision Date	Primary Project Type	Total Bundle Value SGO	In Service Date	In Service Date Flexibility	Primary Asset Manager	Primary Program Coordinator
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Non-responsive

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Non-responsive




Stage Gate 3 Decisions (10:30 am – 10:40 am)

Non-responsive



Stage Gate 4 Decisions (10:40 am – 10:50 am)

Non-responsive



Business Case Approvals (10:50 am – 11:00 am)

Non-responsive



16. [Business Case 667-G0345 Summit Ridge Wind.xml](#). §(b) (4) [P00627 – G0345 BOYD RIDGE SUBSTATION](#)

Matt Hagensen, Jana Jusupovic, Cherilyn Randall, Rasha Kroonen, Ken Roberts

From: Seufert,James G (CONTR) - TPW-TPP-4

Sent: Thu Jan 25 09:25:57 2018

To: Sinha,Amit (BPA) - TEP-TPP-1; Seufert,James G (CONTR) - TPW-TPP-4; Sherlock,Anthony J (CONTR) - TFAW-DOB-1; Rowe,Pilar R (BPA) - TPW-TPP-4; Tyson,Ivy L (BPA) - TP-DITT-2; Alvarez,Gabriela V (BPA) - TELP-TPP-3; Anderson,Todd L (BPA) - TFH-CSB-1; Becker II,Richard (BPA) - TES-CSB-1; Brown,Joelle S (BPA) - TEC-CSB-1; Cavasher,Colin P (CONTR) - TPW-TPP-4; Gupta,Julie E (CONTR) - TEP-TPP-1; Hester,Shane H (BPA) - TFAW-DOB-1; Linson,Trudy W (BPA) - NSSS-4400-2; Staats,Michael L (BPA) - TEL-TPP-3; Vasbinder,Brenda E (BPA) - TFAI-OPP-2; Willhite,Paula L (BPA) - TPWP-TPP-4; Majors,Vincent C (CONTR) - TEP-CSB-2; Hagensen,Matt L (BPA) - TPWP-TPP-4; Nichols,Chris D (BPA) - TPWP-TPP-4; Slocum,Roy W (CONTR) - TPO-TPP-4; Gress,R Wayne (BPA) - TPO-TPP-2; Deschuytter,Benjamin W (BPA) - TEP-CSB-2; Nguyen,Steven T (CONTR) - TPMC-OPP-3; Idowu,Ayodele O (BPA) - TPMC-OPP-3; Starke,Stephanie J (CONTR) - TPW-TPP-4; Hallar Jr,James J (BPA) - TPO-TPP-4; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Baker,Alissa R (BPA) - TPCV-TPP-4; ADL_TPMC_ALL; Knoll,Karl W (BPA) - TPMC-OPP-3; Witthaus,Christopher C (CONTR) - TPMC-OPP-3; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Hallar Jr,James J (BPA) - TPO-TPP-4; Simmons,Jessica K (BPA) - TPWP-TPP-4; Hammack,Debby (BPA) - TPPC-OPP-3; Hallar Jr,James J (BPA) - TPO-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1; Stepanoff,D'Angelo J (BPA) - TECC-CSB-2; Gutierrez,Lindsey A (CONTR) - TEPO-TPP-1; McNutt,Aaron P (CONTR) - TEP-TPP-1; Tesema,Berhanu K (BPA) - TPPC-OPP-3; Lynard,Gene P (BPA) - ECT-4; Smith,Philip W (BPA) - EPR-4; Schmidt,Sunshine R (BPA) - ECC-4; Bustamante,Richard (BPA) - TPP-OPP-3; Kohne,Kyle R (BPA) - TPM-OPP-3; Johnson,Kelly G (BPA) - TPC-TPP-4; Rodrigues,Melvin (BPA) - TPP-OPP-3; Supalla,Laura E (BPA) - TECT-CSB-1; Castro,Corinn (BPA) - TPO-TPP-3; Slocum,Roy W (CONTR) - TPO-TPP-4; Lacambra,Jared M (BPA) - TPCF-MEAD-GOB; Moffett,Justin T (BPA) - ECT-4

Cc: Fiedler,Paul A (BPA) - TPO-TPP-4; Phillips,Catherine O (CONTR) - TPO-TPP-4

Subject: PfMT Minutes 1/24/18

Importance: Normal

Portfolio Management Team

Meeting Minutes

1/24/2018

9:00 – Noon

TPP 400

Decisions in **green**, action items in **yellow**.

Summarized notes (detail below):


SG0 Decisions:

Non-responsive



Discuss project status and schedule of “Design Only” communications projects (Majors):

Non-responsive



Other Business:

Non-responsive



Non-responsive

Detailed Minutes:

9:00 – 10:00

SGO Decisions

Non-responsive



Non-responsive

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8. P00627 G0345 Boyd Ridge - approval to offer an E&P agreement (ie. Design and Procurement) immediately – Randall (see email from Jana)

- Already have SG3 approval and have attended the PDT twice (land owner issues caused a substation move). All scoping is complete except for line section. Would like to issue ENP for design portion and will do a BC for just design portion.

- o Has approval from PDT and are ready to get project moving

- Will be contracting out design and construction

- Total project cost: ~(b) (4) (including loaded overheads) -- BC will be brought forth with just design at this time

- CDD to be completed by 2/9

- Requesting approval to move into Design and to send out the ENP agreement

- Scoping to be complete by the end of the ENP agreement process with the customer

- Will have draft of ENP tomorrow for review

- **Amit:** what will be the harm in waiting a few more weeks? **Cherilynn:** in order to meet the 2020 ISD, we need to get moving on this now. If we push out to January 2021, then we may interfere with their tax credits, etc.

- **Decision:** Approved to send out agreement (**Paul, Amit, Pilar**)

Non-responsive

Non-responsive

Non-responsive

Non-responsive

Non-responsive



From: Starke,Stephanie J (CONTR) - TPW-TPP-4

Sent: Fri Apr 20 10:49:53 2018

To: Kohne,Kyle R (BPA) - TPM-OPP-3; Idowu,Ayodele O (BPA) - TPMC-OPP-3; Johnson,Kelly G (BPA) - TPC-TPP-4; Knoll,Karl W (BPA) - TPMC-OPP-3; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Reynolds,Tyler L (BPA) - TECT-CSB-1; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Hallar Jr,James J (BPA) - TPO-TPP-4; Hagensen,Matt L (BPA) - TPWP-TPP-4; Hsu,Alaric H (BPA) - TEP-TPP-1; Lewis,Lance E (BPA) - TPWP-TPP-4; McClatchie,Tom (BPA) - TF-BELL-1; Miller,Walker (BPA) - TPCV-TPP-4; Elwess,Dason D (CONTR) - TPMC-OPP-3; Tesema,Berhanu K (BPA) - TPPC-OPP-3; Bustamante,Richard (BPA) - TPP-OPP-3; Lacambra,Jared M (BPA) - TPCF-MEAD-GOB; Huitron-Azcuaga,Luis Raul (BPA) - TPPC-OPP-3; Slocum,Roy W (CONTR) - TPO-TPP-4; Willhite,Paula L (BPA) - TPWP-TPP-4; Murphy,Thomas R (CONTR) - TELP-TPP-3; Rounds,Cynthia M (BPA) - TEP-TPP-1; Simmons,Jessica K (BPA) - TPWP-TPP-4; Ochs,Robert A (BPA) - TPO-TPP-3; Gress,R Wayne (BPA) - TPO-TPP-2; Nichols,Chris D (BPA) - TPWP-TPP-4; Meyer,Heidi R (BPA) - TELF-TPP-3; Gilbreath,Julia S (BPA) - TEPO-TPP-1; Karras,Jini J (CONTR) - TEPO-TPP-1; Alvarez,Gabriela V (BPA) - TELP-TPP-3; Rowe,Pilar R (BPA) - TPW-TPP-4; Sinha,Amit (BPA) - TEP-TPP-1; Fiedler,Paul A (BPA) - TPO-TPP-4; Staats,Michael L (BPA) - TEL-TPP-3; Becker II,Richard (BPA) - TES-CSB-1; Brown,Joelle S (BPA) - TEC-CSB-1; Hester,Shane H (BPA) - TFAW-DOB-1; Cavasher,Colin P (CONTR) - TPW-TPP-4; Jackson,Breezy (CONTR) - TPWP-TPP-4; Hensley,Stacie R (BPA) - TERR-3; Miller,Kelly L (BPA) - TERM-TPP-4; Okuda,Jeremy S (BPA) - TETC-CSB-1; Rodrigues,Melvin (BPA) - TPP-OPP-3; Supalla,Laura E (BPA) - TECT-CSB-1; Castro,Corinn (BPA) - TPO-TPP-3; Lynard,Gene P (BPA) - ECT-4; Smith,Philip W (BPA) - EPR-4; Schmidt,Sunshine R (BPA) - ECC-4; Gupta,Julie E (CONTR) - TEP-TPP-1; Flynn,Karla J (BPA) - TERP-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Majors,Vincent C (CONTR) - TEP-CSB-2; Deschuytter,Benjamin W (BPA) - TEP-CSB-2; Phillips,Catherine O (CONTR) - TPO-TPP-4; Williams,Amanda M (BPA) - TEP-TPP-1; Berry,Theresa M (BPA) - TEP-TPP-1; Hamm,Nickolas T (BPA) - TFB-DOB1; Jaramillo,Emmanuel (BPA) - TEP-TPP-1; Ballou,Douglas W (BPA) - FAC-OPP-2

Subject: PfMT Minutes 2018-04-18

Importance: Normal

PfMT Abbreviated Meeting Minutes - April 18, 2018

Please set an Alert to all [PfMT Meeting Minutes](#)

Decisions in **green**, action items in **yellow**.

SUMMARY

Non-responsive



Non-responsive

Non Responsive

Stage Gate 3 Approval

10:55 AM – 11:05 AM

[P00627](#) G0345 BOYD RIDGE SUBSTATION

Matt, Cherilyn, Jim

Decision: PfMT Approved

Non-Responsive



Non-responsive

PfMT Detailed Meeting Minutes - April 18, 2018

Please set an Alert to all [PfMT Meeting Minutes](#)

Decisions in **green**, action items in **yellow**.

DETAILED Discussion

Non-responsive



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P00627 G0345 BOYD RIDGE SUBSTATION

Matt: originally approved for \$(b) thru CAB. Came thru, rescoped... **Cherilyn:** come back with an incremental increase. **Matt:** we have enough for design approved. **Cherilyn:** went up to about \$(b) (4) due to inflation.

Matt: we have design agreement, cutting WOs for design. This is PFIA. We need SG3 approval to move forward to cut WOs. From now on we'll come with the BC and SG3 approval. **Rasha:** ISD: 12/1/2020 (for tax credits) **Amit:** we can do that? **Rasha:** yes. **Cherilyn:** there is a LIT requirement. Environmental expecting to do a CX on this. **Rasha:** this was scoped twice, no willing seller on access road. So we moved away, put substation and access road on the land of a different owner with a financial interest in the wind project. **Amit:** if this is on the hill top, does that affect the cost? **Rasha:** already accounted for that. **Ken:** all hill or valley in this area. Previous location AR would have been longer. This is a win.

Decision: PfMT Approved

Non-responsive



Non-responsive

Non-responsive

Non-responsive

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Wed Jan 24 09:36:35 2018

To: Randall, Cherilyn C (BPA) - TPCV-TPP-4

Cc: Roberts, Ken (BPA) - TELP-CSB-2

Subject: PP if needed for tomorrow's meeting with Pattern Energy 1-24-18 1

Importance: Normal

Attachments: New Scope Prelim Maps 1-25-18.pptx

Cherilyn,

Here are some maps/drawings that I can use during the Boyd meeting tomorrow if needed. Even if Pattern Energy isn't in the room they may find them interesting. Can you take a quick peek and see if you think I missed anything they would want to look at. See you in a bit for the PfmT.

Thank you,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Masho,Abebe T (BPA) - TPPC-OPP-3

Sent: Tue May 08 15:22:57 2018


To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: PRD notes G0362 G0345 Morrow Flats PRD 331325 5-8-18 1

Importance: Normal

Attachments: PRD notes G0362 G0345 Morrow Flats PRD 331325.docx

**U.S. DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
AGREEMENT**

1. AGREEMENT NUMBER 16TP-11044	2. AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL June 29, 2021	3. AMENDMENT NO. -2-	4. EFFECTIVE DATE Same as Block #17
ISSUED TO		ISSUED BY	
5. ORGANIZATION AND ADDRESS Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP ATTN: Kecia Mosol General Counsel Pier 1, Bay 3 San Francisco, CA 98682 (b) (6)		8. ORGANIZATION AND ADDRESS U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola - TPCC/TPP-4 P.O. Box 61409 Vancouver, WA 98666	
7. TECHNICAL CONTACT Steven Ostrowski Stan Gray	PHONE NUMBER (360) 587-9692	8. TECHNICAL CONTACT Rasha Kroonen	PHONE NUMBER (360) 619-6918
9. ADMINISTRATIVE CONTACT Steven Ostrowski Kevin Wetzel	PHONE NUMBER (360) 587-9692	10. ADMINISTRATIVE CONTACT Cherilyn Randall	PHONE NUMBER (360) 619-6051
11. TITLE/BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT AMENDMENT NO. 2: PRELIMINARY ENGINEERING ACTIVITIES FOR LARGE GENERATOR INTERCONNECTION REQUEST NO. G0345 SUMMIT RIDGE WIND, LLC c/o PATTERN RENEWABLES 2 LP			
<p>Background: Reimbursable Agreement No. 16TP-11044 (Agreement) between the Bonneville Power Administration (BPA), and Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP (Summit Ridge) provides for BPA, at Summit Ridge's expense, to perform preliminary engineering and design activities needed to interconnect Summit Ridge's proposed 200 MW Summit Ridge Wind Project to the proposed BPA-owned (b) (4). The activities include topological surveys of the proposed substation site as necessary to support design.</p> <p>This Amendment No. 2 (Amendment) to the Agreement provides additional funds needed to complete the preliminary engineering activities, and extends the estimated completion date for the preliminary engineering activities to July 2, 2018.</p> <p>This Amendment is hereby incorporated and made a part of the original Agreement and is subject to all the provisions therein. All provisions of the original Agreement unless expressly deleted, modified, or otherwise superseded in this Amendment shall continue to be binding on all parties hereto.</p> <p>The following document is attached to and becomes a part of this Amendment:</p> <ul style="list-style-type: none"> Financial Terms and Conditions Statement, Amendment No. 2. 			
12. AMOUNT TO BE PAID BY BPA		13. AMOUNT TO BE PAID TO BPA (b) (6) (estimated)	
14. SUBMIT SIGNED AMENDMENT TO U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola - TPCC/TPP-4 P.O. Box 61409 Vancouver, WA 98666		15. ACCOUNTING INFORMATION (For BPA Use Only)	
		16. SUBMIT INVOICE TO (Name and Address) Same as Block #5 above.	
PARTICIPANT		BPA	
(b) (6)		18. APPROVED BY (Signature) 	
DATE (mm/dd/yyyy) 01/09/2018		DATE (mm/dd/yyyy)	
NAME AND TITLE Amy Smolen Authorized Signatory		NAME AND TITLE Transmission Account Executive Transmission Sales	

FINANCIAL TERMS AND CONDITIONS STATEMENT

BPA's cost of performing the project at Summit Ridge's expense shall be the actual cost of doing the work specified in this Agreement, plus the following overhead rates, representing the indirect costs of the project office plus the contractual support costs of contract negotiation, billing and accounting functions, and contract management.

BPA Labor	45%
Materials/Supplies/Equipment	15%
Supplemental Labor and Service Contracts	45%
Construction, Survey and Turnkey Contracts	15%

Summit Ridge hereby agrees to advance (b) (4), the estimated project cost, to BPA based on the following payment schedule:

Payment	Amount	Date Due
1	(b) (4)	(b) (4)
2	(b) (4)	(b) (4)
3	(b) (4)	(b) (4)

If BPA needs additional funds to complete the work at any time during performance of this Agreement, BPA may request, in writing, for Summit Ridge to advance such additional funds to BPA for deposit in the account. Summit Ridge shall advance such additional funds within 30 days of BPA's written request, and BPA may temporarily stop work until Summit Ridge supplies the requested funds.

If Summit Ridge does not advance such additional funds by the due date or, if at any time before completion of the project Summit Ridge elects to terminate or suspend work under this Agreement, BPA has the right to cease all work and restore, as a cost to the project at Summit Ridge expense, government facilities and/or records to their condition prior to the beginning of work under this Agreement. BPA shall then make a full accounting to Summit Ridge showing the actual costs charged against the account, and shall either remit any unexpended balance in the account to Summit Ridge or bill for any costs in excess of the deposits in the account. Summit Ridge shall pay any excess costs within 30 days of the invoice date (due date).

Payments not received by the due date will accrue interest on the amount due beginning the first calendar day after due date to the date paid, at the appropriate rate calculated in accordance with the methodology specified for interest on refunds in the Federal Energy Regulatory Commission's regulations at 18 C.F.R. § 35.19a(a)(2)(iii).

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Thu Sep 21 15:57:54 2017

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Roberts,Ken (BPA) - TELP-CSB-2

Subject: RE: CHECKLIST Agreement No. 16TX-11044

Importance: Normal

Yes

Kind Regards,

Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration

Flux Resources, LLC | A David Evans Enterprises Company
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b) (6)
Email: rmkroonen@bpa.gov

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Sent: Thursday, September 21, 2017 3:57 PM

To: Roberts,Ken (BPA) - TELP-CSB-2; Kroonen,Rasha (CONTR) - TEP-TPP-1

Subject: RE: CHECKLIST Agreement No. 16TX-11044

So you're ok if I put in July 2018 in the agreement?

From: Roberts, Ken (BPA) - TELP-CSB-2
Sent: Thursday, September 21, 2017 3:00 PM
To: Kroonen, Rasha (CONTR) - TEP-TPP-1; Randall, Cherilyn C (BPA) - TPCV-TPP-4
Subject: RE: CHECKLIST Agreement No. 16TX-11044

Yes, we now consider the end of scoping to be when the project has gone through the SG3 Review, PfMT SG3 Decision and off to Execution. I have drawn up 2 potential calendars. ***Barring an unforeseen problem***, the best case scenario I could be done by the first week of May. Worst case scenario would be the first week of June. The reason I drew 2 up is because of the holiday season in late December. I would like to talk to the team to get a feel for the first proposed CDD input due date. If the team isn't comfortable with it then I would blow that out 4 weeks to get us past the holidays and into mid-January.

Both calendars would have me restarting the project with a first meeting the week of Oct 10-13 and a site visit the following week, so if these look good to both of you, I would be scheduling this early next week and getting the PeP's going. There is also some extra time cooked in this. The PDT is now supposed to be responding quicker than a month, and Estimating is supposed to be 4 weeks, not 6. However, I am planning for the worst on those until I see differently.

Best Case:

10/10 - 10/12 Re-kickoff meeting

10/17 - 10/19	Site Visit
10/20 - 12/15	Team Scope
12/17 - 1/12	Finalize CDD
1/14 - 2/9	PDT Presentation / Decision
2/11 - 2/23	CCDT Determination / Design Notification
2/25 - 3/23	Estimate
3/25 - 4/6	Estimate Review
4/8 - 4/20	SG3 Review
4/22 - 4/27	PfMT Review
4/29 - 5/4	Prepared for Execution

Worst Case starts the same but extends the Team Scope period by 4 weeks, ending 1/12 instead of 12/15. This then pushes everything back 4 weeks with a Prepared for Execution date of June 1st. If we tell the customer the end of scoping will be July 1st, I can't see any way we aren't beating that date which should make them happy.

Rasha, would both of these potential schedules work for you?

Thanks,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Thursday, September 21, 2017 12:32 PM

To: Roberts,Ken (BPA) - TELP-CSB-2; Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: RE: CHECKLIST Agreement No. 16TX-11044

Just as a clarification Ken .. you will need to have the scoping done at least 3 months ahead of the July deadline so we can get through SG3 on time

Kind Regards,

Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration

Flux Resources, LLC | A David Evans Enterprises Company
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)

Office: (360) 619-6918 Cell: (b) (6)
Email: rmkroonen@bpa.gov

From: Roberts, Ken (BPA) - TELP-CSB-2
Sent: Wednesday, September 20, 2017 2:47 PM
To: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Kroonen, Rasha (CONTR) - TEP-TPP-1
Subject: RE: CHECKLIST Agreement No. 16TX-11044

I was supposed to meet with Rasha and go over the schedule after my vacation and I got swamped with other stuff. I actually was just reminded of it when I saw Rasha as I was headed into a meeting.

I don't see any reason I couldn't have the scoping done by July '18 if that leaves enough time for Rasha but I didn't get a formal schedule proposed for her to look at. I'll get a schedule drawn up tomorrow based on that date and if Rasha doesn't think that is soon enough I can see what I can do to adjust it based on her needs.

Best Regards,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration
bpa.gov | P 360.418.8111

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4
Sent: Wednesday, September 20, 2017 2:41 PM
To: Kroonen,Rasha (CONTR) - TEP-TPP-1
Cc: Roberts,Ken (BPA) - TELP-CSB-2
Subject: FW: CHECKLIST Agreement No. 16TX-11044

Hi Rasha and Ken,

On G0345 – Lotus Summit Ridge Wind project – could you confirm if a target of July 2018 will be sufficient for the new date for scoping completion? And by scoping completion, I mean SG3. Do I need to push it out even further? By the way, Lotus Energy just sold the project to Pattern Energy. So maybe I should start calling this the Patten Summit Ridge Wind project. I have a new primary contact, so it would be likely they will want to meet sometime soon.

Thanks,

Cherilyn

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4
Sent: Thursday, September 14, 2017 10:45 AM
To: Cosola,Anna M (BPA) - TPCC-TPP-4
Subject: RE: CHECKLIST Agreement No. 16TX-11044

I'll get the confirmation email for you.

From: Cosola,Anna M (BPA) - TPCC-TPP-4
Sent: Thursday, September 14, 2017 7:56 AM
To: Randall,Cherilyn C (BPA) - TPCV-TPP-4
Subject: CHECKLIST Agreement No. 16TX-11044

Hey Cherilyn,

I'm about to start this up in CCM review and I want to make sure that I have everything. I'm not sure if I need a new Funding Allocation and Schedule Confirmation, but I did attach a new checklist. I basically copied all the information over from the Amendment 1 checklist so let me know if that works.

I didn't even think about this stuff since we were originally going to request money via email.

Anyway, let me know!

Thanks,

Anna

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4
Sent: Wednesday, September 13, 2017 10:11 AM
To: Cosola,Anna M (BPA) - TPCC-TPP-4; Taylor,Eric K (BPA) - TSE-TPP-2

Subject: RE: Agreement No. 16TX-11044: Request for Additional Funds

We are targeting July 2018 now for completion.

From: Cosola,Anna M (BPA) - TPCC-TPP-4
Sent: Wednesday, September 13, 2017 6:39 AM
To: Taylor,Eric K (BPA) - TSE-TPP-2; Randall,Cherilyn C (BPA) - TPCV-TPP-4
Subject: RE: Agreement No. 16TX-11044: Request for Additional Funds

I will try after I receive a new completion date. The original completion date was February 2017.

From: Taylor,Eric K (BPA) - TSE-TPP-2
Sent: Tuesday, September 12, 2017 3:49 PM
To: Cosola,Anna M (BPA) - TPCC-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4
Subject: RE: Agreement No. 16TX-11044: Request for Additional Funds

Thanks Anna. Are you putting this thru a quick QA?

From: Cosola,Anna M (BPA) - TPCC-TPP-4
Sent: Friday, September 08, 2017 9:21 AM
To: Taylor,Eric K (BPA) - TSE-TPP-2; Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: Agreement No. 16TX-11044: Request for Additional Funds

Attached is a draft of Amendment No. 2, requesting additional funds. We will also need a projected completion date since Amendment No. 1 noted a new completion date of February 2017.

From: Taylor, Eric K (BPA) - TSE-TPP-2

Sent: Tuesday, September 05, 2017 3:20 PM

To: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Cosola, Anna M (BPA) - TPCC-TPP-4; Sauer, Dena J (BPA) - TPCC-TPP-4

Subject: RE: [EXTERNAL] RE: Agreement No. 16TX-11044: Request for Additional Funds

Thanks for working this one out!

From: Randall, Cherilyn C (BPA) - TPCV-TPP-4

Sent: Tuesday, September 05, 2017 11:03 AM

To: Taylor, Eric K (BPA) - TSE-TPP-2; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Cosola, Anna M (BPA) - TPCC-TPP-4; Sauer, Dena J (BPA) - TPCC-TPP-4

Subject: RE: [EXTERNAL] RE: Agreement No. 16TX-11044: Request for Additional Funds

I don't think we've ever removed that option. The email does work for a lot of our customers, and it doesn't delay the process like the formal amendment of the agreement does. But of course, we will do what the customer

needs. Anna, I'm thinking we can save a lot of time on this one by carbon-copying the first amendment, then I can adjust the dates and amounts.

Thanks,

Cherilyn

From: Taylor, Eric K (BPA) - TSE-TPP-2
Sent: Tuesday, September 05, 2017 9:36 AM
To: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Cosola, Anna M (BPA) - TPCC-TPP-4; Sauer, Dena J (BPA) - TPCC-TPP-4
Subject: FW: [EXTERNAL] RE: Agreement No. 16TX-11044: Request for Additional Funds

FYI – we may want to think about requesting additional funds via email, or at least give customer the option of a contract revision if the email is inadequate justification for them to release funds.

From: Steve Ostrowski [<mailto:SOstrowski@energysi.org>]
Sent: Tuesday, September 05, 2017 9:30 AM
To: Taylor, Eric K (BPA) - TSE-TPP-2; Steven Ostrowski
Cc: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Kroonen, Rasha (CONTR) - TEP-TPP-1; Cosola, Anna M (BPA) - TPCC-TPP-4
Subject: [EXTERNAL] RE: Agreement No. 16TX-11044: Request for Additional Funds

Good morning Eric,

Given that the two previous requests for funds(original and amendment) were requested and documented formally by BPA, the expectation has pretty much been set that future requests for funds need to be documented similarly. Further I don't think the accounting firm performing our audits will like the fact that we release (b) (4) because we receive an email. That is just too informal.

If the BPA can send us a simple one page document, similar to the last request, we should be good to go.

Thanks,

Steve

From: Taylor, Eric K (BPA) - TSE-TPP-2 [<mailto:ektaylor@bpa.gov>]

Sent: Tuesday, September 05, 2017 9:15 AM

To: 'Steven Ostrowski'; Steven Ostrowski

Cc: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Kroonen, Rasha (CONTR) - TEP-TPP-1; Cosola, Anna M (BPA) - TPCC-TPP-4

Subject: RE: Agreement No. 16TX-11044: Request for Additional Funds

Hi Steve,

BPA has started requesting additional funds to existing agreements via email requests. I haven't heard any issues with this approach yet, but I can see how more might be needed in certain cases. Can you please let me know what additional documentation you need to justify this expenditure? Thank you.

Eric

From: Steven Ostrowski [<mailto:SOstrowski@LearningSI.com>]

Sent: Friday, September 01, 2017 3:10 PM

To: Taylor, Eric K (BPA) - TSE-TPP-2; Steven Ostrowski

Cc: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Kroonen, Rasha (CONTR) - TEP-TPP-1; Cosola, Anna M (BPA) - TPCC-TPP-4

Subject: [EXTERNAL] RE: Agreement No. 16TX-11044: Request for Additional Funds

Hi Eric,

Are we going to receive an amendment to the existing agreement for the (b) (4)? We need something more than an email to justify the expenditure.

Thanks,

Steve

From: Taylor, Eric K (BPA) - TSE-TPP-2 [<mailto:ektaylor@bpa.gov>]

Sent: Friday, August 11, 2017 10:33 AM

To: Steven Ostrowski; Steven Ostrowski

Cc: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Kroonen, Rasha (CONTR) - TEP-TPP-1; Cosola, Anna M (BPA) - TPCC-TPP-4

Subject: Agreement No. 16TX-11044: Request for Additional Funds

Hi Steve,

Please see the notice below regarding a request for additional funds. There are some additional costs being incurred due to change in the location of the interconnection substation. Please let me know if you have any questions, thank you.

Eric

Per the terms of the Financial Terms and Conditions of Agreement 16TP-11044, BPA is hereby informing Summit Ridge Wind Holdings, LLC of the need for additional funds to complete the preliminary engineering for G0345 Summit Ridge Wind Project. Because a new site has been selected for BPA's interconnection substation, an additional (b) (4) is being requested to perform preliminary analysis of the access road layout, transmission line loop-in, and substation layout at the new site. Please remit payment to BPA within 30 days of this email, using the payment instructions that were included in the Agreement. BPA expects the preliminary engineering to be completed by the end of the calendar year.

TPC AGREEMENT CHECKLIST

A complete and accurate checklist is required to provide assurance to the approving TPC Delegate and TSE Account Executive that all necessary coordination has taken place. Providing a complete and accurate checklist to your Contract Specialist when requesting to finalize an Agreement will also help reduce processing time.

Request No. & Project Description: G0345 Summit Ridge Wind Project Scoping Agreement_Amendment 3				Project Type:
CSE:	TPC CS:	PM: Rasha Koonen	BPA Signer:	AS
STEP 1 – TPC COORDINATION MATRIX (TO BE USED AS A REFERENCE GUIDE FOR CSE'S WHEN DEVELOPING AN AGREEMENT: http://project.bpa.gov/TPPWA/Templates/Forms/V.aspx)				
THE FOLLOWING STANDARD ITEMS MUST BE CONSIDERED FOR INCLUSION WHEN DRAFTING AN AGREEMENT				
STEP 2 – CONTRACTUAL REQUIREMENTS (*items 1-6 need to be clearly defined in the Agreement)	STEP 2.a CSE REVIEW		STEP 2.b TPC CS REVIEW	***COMMENTS / NOTES
	√	N/A	√	
1. Describe work to be performed	[X]	[]	[X]	
2. Describe why work is being performed	[X]	[]	[X]	
3. Who is performing the work	[X]	[]	[X]	
4. Who is financially responsible	[X]	[]	[X]	
5. Estimated project cost	[X]	[]	[X]	
6. Federal Agency funding source	[]	[X]	[]	
STANDARD CONTRACTUAL PROVISIONS/CLAUSES (items 7-14 are standard clauses for consideration in the Agreement & DR Standard Agreement)				
7. Ownership, Operation and Maintenance	[]	[X]	[]	
8. Access	[]	[X]	[]	
9. Related Agreements	[]	[X]	[]	
10. Environmental Compliance	[]	[X]	[]	
11. Project Schedule	[X]	[]	[X]	October 1, 2019
12. Termination	[X]	[]	[]	
13. Financial Terms and Conditions (FTC)	[X]	[]	[]	additional (b) (4) 1 requested
14. Other Provisions Y [] N []	[]	[X]	[X]	
STEP 3 – COORDINATION & SUPPORTING DOCUMENTATION (note: CSE/TPCC CS to save email confirmation to the applicable folder)				
15. Project Requirements Diagram (PRD) #	[X]	[]	[X]	285137
16. Estimate Numbers	[X]	[]	[X]	SB-35033-4, AB-35033-0, LB-35087-2, LB-35088-2, CB-415-4-0, CB-415-3-0, CB-415-1-0, CB-415-5-0, CB-415-2-0, CB-415-6-0, CB-415-7-0, OB-36825-1, OB-36826-1

TPC AGREEMENT CHECKLIST

17. Network Memo	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
18. Business Case Number	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
19. Capital Approval	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
20. Customer Election Email	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
21. List Asset Plan Items (API's, if applicable, one per WO)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
22. Funding Allocation and Schedule Confirmation Email	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
23. Environmental Compliance Confirmation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
24. FTC Deviation (FTT & KSC approval)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
25. Long-Term Agreement	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	If yes, CS to alert M&O team of Long-Term Contract action.
26. NERC/WECC Compliance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
27. Internal Stakeholder Review (ISR)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
28. Meter Diagram Needed (New or Updated)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	If yes, include target completion date:
29. SPP / Loss Equation Needed	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	If yes, include target completion date:

TPC AGREEMENT CHECKLIST

This page is to be used by the CSE's when coordinating the "draft" Agreement. Please use the Coordination Matrix as a reference guide and then complete the section below, including the "Name(s)" of which you've coordinated with.

CUSTOMER SERVICE ENGINEER COORDINATION (CSE to retain confirmation (via email) to the applicable PWA folder)		
DEPARTMENT	PURPOSE OF REVIEW	NAME OF REVIEWER(S)
Environmental, Planning & Analysis (ECT)	Environmental impacts	
Pollution, Prevention & Abatement (EP)	Environmental/pollution impacts	
General Accounting (FRG)	Financial impacts/deviations from standard clauses	
Metering Services (KSM)	New meter coordination, as needed	
Engineering & Technical Services (TE orgs not listed below)	Engineering & technical issues	
Transmission Engineering (TEL)	Line terminations	
Transmission Project Management (TEP)	Project management	Rasha Koonen
Real Property Services (TER/TERR)	Real property services review & land issues	
Laboratory & Field Services (TEST)	Lab services & testing coordination	
Test & Energization (TETC/TETD)	Test and energization (T&E) resource coordination	
District Manager (TFx)	Courtesy Notification	
District Personnel (TFxx) -SPC/PSC, TLM, Sub Mtc Foreman, Electricians	Technical Coordination	
Transmission, Internal Operations (TFB)	O&M billing coordination	
Work Planning & Evaluation (TFBW)	District workload coordination/resources	
Technical Operations (TOOC/TOOP)	System operations issues and outage coordination	
Customer Service Engineering (TPC)	Project team lead review	
Customer Service Engineering (TPC/TPCC/TPCF/TPCV)	CSE Supervisor review/technical coordination	
Customer Service Reliability Program (TPCR)	Reliability/Standards and Issues (TxRp)	
Communications & Grid Modeling (TPM)	Notification of BPA and customer changes that may affect the WECC base-case	
Communications & Control Planning (TPMC)	Main grid & regional impacts	
Transmission Planning (TPP)	Main grid & regional impacts	

TPC AGREEMENT CHECKLIST

Attribute VB_Name = "ThisDocument"Attribute VB_Base = "1Normal.ThisDocument"Attribute VB_GlobalNameSpace =
FalseAttribute VB_Creatable = FalseAttribute VB_PredeclaredId = TrueAttribute VB_Exposed = TrueAttribute
VB_TemplateDerived = TrueAttribute VB_Customizable = TruePrivate Sub ListBox1_Click()TonyaEnd Sub

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Tue May 22 12:04:57 2018

To: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Hagensen, Matt L (BPA) - TPWP-TPP-4

Cc: Kroonen, Rasha (CONTR) - TEP-TPP-1

Subject: RE: BC Review - G0345 Boyd Ridge 5-22-18 2

Importance: Normal

There was some fiber optic cutout equipment that Rob wanted installed in the old racks, but like you said, if these are being replaced with the latest standards then I would also guess that the only thing needed are the appropriate setting changes. I just wasn't sure what was enough work to trigger a need to be on the BC. Other than that, I thought the summary looked good. My changes are all complete.

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Randall, Cherilyn C (BPA) - TPCV-TPP-4

Sent: Tuesday, May 22, 2018 11:32 AM

To: Roberts, Ken (BPA) - TELP-CSB-2; Hagensen, Matt L (BPA) - TPWP-TPP-4

Cc: Kroonen, Rasha (CONTR) - TEP-TPP-1

Subject: RE: BC Review - G0345 Boyd Ridge

If the relays are SEL 421's, they have been upgraded since the PRD was originally done. Whether it's 411's or 421's, I think the only thing we need to worry about with Boyd Ridge is making sure those relays get looked at for setting changes.

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Tuesday, May 22, 2018 11:23 AM

To: Hagensen, Matt L (BPA) - TPWP-TPP-4

Cc: Randall, Cheryl C (BPA) - TPCV-TPP-4; Kroonen, Rasha (CONTR) - TEP-TPP-1

Subject: FW: BC Review - G0345 Boyd Ridge

There are already 2 existing SEL 421's (although I'm not sure if these are being or were upgraded to 411's in the Maupin upgrade) in place that can be used, one for the new TT. That being said, there is some minor work that the CDD projects will need to be done at Maupin in existing rack space. The matter is complicated by the Maupin upgrade because I'm not exactly sure what will be in the rack that Rob Ackerman had the equipment change out being done on. I guess what I am asking is, what level of work constitutes a need for a site to be mentioned in the business case? If there is *anything* being done should it be mentioned? Even something as small as settings changes?

Thanks,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Tuesday, May 22, 2018 9:03 AM

To: Hagensen, Matt L (BPA) - TPWP-TPP-4

Cc: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Kroonen, Rasha (CONTR) - TEP-TPP-1

Subject: RE: BC Review - G0345 Boyd Ridge

Matt, I made the changes which were referencing a 20 acre purchase, which is now 16. Also it discussed the location of the substation as still being on the right of way corridor at structure 11/3. I changed this and added in the half mile of double circuit line with structures that will now connect at structure 11/2.

While looking back over the PRD's for what work was being done at Big Eddy and Redmond, I saw something that I hadn't noticed before which didn't look right to me, it was a TT install between Redmond and Maupin. My understanding of the project is that the TT should be at the two control points for the line, which is Big Eddy and Redmond. I don't remember any work being called for at Maupin. I called the planner who wasn't positive that it needed to be on the sheet so I have a question in with Rob Ackerman and he is looking into it. If it truly supposed to be on the sheet then there is a little work that will need to be added at Maupin sub to install a single TT unit.

I will let everyone know as soon as I hear something.

Thanks,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Hagensen, Matt L (BPA) - TPWP-TPP-4

Sent: Monday, May 21, 2018 3:04 PM

To: Roberts, Ken (BPA) - TELP-CSB-2

Subject: RE: BC Review - G0345 Boyd Ridge

Go ahead and make any changes. There were changes to the FRP site, so it got delayed a week. Just make sure any changes are in by COB Wednesday!

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Monday, May 21, 2018 10:28 AM

To: Hagensen, Matt L (BPA) - TPWP-TPP-4

Subject: FW: BC Review - G0345 Boyd Ridge

Matt,

I'm sorry I was out of the office late last week and am just looking at this BC now. Is it too late to make suggested changes? I see some stuff at first glance that looks like it was taken from the first round of scoping that wasn't updated yet (total acreage needed, tie in structure location, etc). I won't make any changes until I hear from you that it is okay.

Thanks,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Sent: Wednesday, May 16, 2018 3:53 PM

To: Hagensen,Matt L (BPA) - TPWP-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Jusupovic,Jana D (BPA) - TPCV-TPP-4

Subject: RE: BC Review - G0345 Boyd Ridge

Reviewed. The BC did not reflect current ownership (Lotus Group USA sold to Pattern Energy), so I read through the whole thing and fixed that everywhere the reference was incorrect.

Thanks,

Cherilyn

From: Hagensen, Matt L (BPA) - TPWP-TPP-4

Sent: Monday, May 14, 2018 4:00 PM

To: Kroonen, Rasha (CONTR) - TEP-TPP-1; Roberts, Ken (BPA) - TELP-CSB-2; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Jusupovic, Jana D (BPA) - TPCV-TPP-4

Subject: BC Review - G0345 Boyd Ridge

Hi everyone,

I have a draft of the G0345 BC ready for you to review. Feel free to make any changes directly in the BC – just make sure to save and close when you are not editing it!

If you could have any changes in by noon on Thursday (5/17), it would be much appreciated!

Thanks,

Matt



From: Belanger Jr,John E (BPA) - TFHQ-TPP-3

Sent: Mon Jun 11 08:55:32 2018

To: Taylor,Eric K (BPA) - TSE-TPP-2; Roberts,Ken (BPA) - TELP-CSB-2; Kroonen,Rasha (CONTR) - TEP-TPP-1; Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Legare,Jonathan L (CONTR) - TERR-3; Clark,James L (BPA) - TERR-CHEMAWA; Liebhaber,Dustin F (BPA) - TELP-TPP-3

Subject: RE: Boyd Ridge - Meeting with the land owners 6-11-18 1

Importance: Normal

Attachments: bydrpp1.pdf; bydrultippA_15_acres.pdf; image001.jpg; image002.jpg; image003.jpg; image004.jpg; image005.jpg; image006.jpg

Yes the substation can be fit into a smaller footprint.

- The original design of the substation requires approximately 8.5 acres of land. (see bydrpp1.pdf)
- When we lay out a new substation, particularly for a distributed generation interconnect, we like to add “future” space for reactive support (CLRs/Caps) in case they are needed later. (see bydrultippA_15acres.pdf)
- We also try to accommodate for “some” additional bays if the site will require expansion in the future.
- The original parcel of land being considered for purchase was 20 acres - this is what substation design based the preliminary layout on.

The challenged here will be that if the site orientation or location changes à the transmission line could change à the substation layout could change.

John Belanger

Bonneville Power Administration

Office: 360-619-6270

Mobile: (b)(6)

From: Taylor, Eric K (BPA) - TSE-TPP-2

Sent: Friday, June 08, 2018 10:35 AM

To: Roberts, Ken (BPA) - TELP-CSB-2; Kroonen, Rasha (CONTR) - TEP-TPP-1; Randall, Cherilyn C (BPA) - TPCV-TPP-4

Cc: Belanger Jr, John E (BPA) - TFHQ-TPP-3; Legare, Jonathan L (CONTR) - TERR-3; Clark, James L (BPA) - TERR-CHEMAWA; Liebhaber, Dustin F (BPA) - TELP-TPP-3

Subject: RE: Boyd Ridge - Meeting with the land owners

Can we fit a fully built out substation in a smaller footprint? If not, Cherilyn mentioned that this may not qualify as a Network Facility, which could then jeopardize transmission credits for the developer. This could be problematic for Pattern.

From: Roberts,Ken (BPA) - TELP-CSB-2

Sent: Friday, June 08, 2018 9:04 AM

To: Kroonen,Rasha (CONTR) - TEP-TPP-1; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (BPA) - TSE-TPP-2

Cc: Belanger Jr,John E (BPA) - TFHQ-TPP-3; Legare,Jonathan L (CONTR) - TERR-3; Clark,James L (BPA) - TERR-CHEMAWA; Liebhaber,Dustin F (BPA) - TELP-TPP-3

Subject: RE: Boyd Ridge - Meeting with the land owners

Yes, this is an excellent synopsis of our meeting with the landowner.

My goal is to make the current site work if at all possible and salvage this second scope. I am concerned if we move to option two it would trigger another rescope because Dustin would have quite a bit of rework on the line and the work Mike O'Connell will have done with the APE will not be usable. Option 3 would be my last preference even though the landowner seemed less concerned about the 16 acres. This would trigger a much larger rescope, adding at least another mile of line and wider area of environmental impact.

I believe we can still make the original site work if we can reduce the footprint and utilize the area with the Mima mounds to reduce farmland impact. I will be talking with John Belanger next week to give him more details about what we are hoping to do so hopefully we can have enough information to make some decisions at the meeting a week from Monday.

-Ken

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Thursday, June 07, 2018 5:13 PM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (BPA) - TSE-TPP-2

Cc: Roberts,Ken (BPA) - TELP-CSB-2; Belanger Jr,John E (BPA) - TFHQ-TPP-3; Legare,Jonathan L (CONTR) - TERR-3; Clark,James L (BPA) - TERR-CHEMAWA; Liebhaber,Dustin F (BPA) - TELP-TPP-3

Subject: Boyd Ridge - Meeting with the land owners

Good Afternoon Cherilyn,

As I mentioned yesterday, we had a meeting with the land owners at Boyd Ridge and received the following feedback regarding land acquisition for the project:

Current proposed site:

- Land owners were very unhappy with the location and suggested few modifications
 - o Partially shift the site footprint onto the (b) (6) (uncultivated area) about 400 feet west from where shown on the preliminary map- provided.
 - o Minimize the acreage take in the cultivated fields by revisiting the site layout and area needed for future expansion. We did not get a firm number but it sounded they would be willing to go with 8 or 10 acers.
 - o Provide 130 feet of clearance on the perimeter of the site footprint to allow access to the fields. Additional

clearance on the south side of the site could be obtained by filling in the non-cultivated gully with conserved topsoil.

- During the meeting Scott Wood (civil) indicated that the direct gully route is most likely not feasible.
- Depending on the ultimate size of the land needed staying with this option would be the optimum choice to keep the scoping documentation valid.

Option 2:

-

- site in the field at the top of the access road appears to be a better site for fitting our substation area needs as well as the landowners concerns.
- Attached is a map (provided by Kerry Cook) that shows rough boundaries for these two options for discussion purposes only. Final dimensions would depend on site layout and area required.

Option 3:

- The land owners also suggested moving the entire substation approximately a mile back from the current scoped location (see alternate site- as drawn by land owner)
- I believe they indicated that 16 acers in this area might be ok (***Ken and team correct me if I am wrong***)
- Access to this site is viable

- Obviously this would require a re- scope and cause additional delay in the schedule

Next Steps:

- Ken set up a meeting with the team to study the feasibility of the options and to see if anything could be done to salvage existing scope.
- We would like to know if there is a possibility to only acquire the needed land (8 or 10 acers) for the project and not the full 16 acers.
- After coming up with a couple of alternatives we would like to check with Pattern to see what their take on this is and what can be done from their perspective.
- We promised the land owners to come back with alternatives in 2 weeks.

Please contact me with any questions

Kind Regards,
Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration | Flux
Transmission Project Management | TEP-TPP-1

Civil/Environmental Engineer- M.Sc. (Eng)

Office: (360) 619-6918 Cell: (b)(6)

Email: rmkroonen@bpa.gov

Facebook-Icon_31x31_v3Flickr-Icon_31x31Instagram-Icon_31x31LinkedIn-Icon_31x31[Twitter_31x31](#)YouTube_
31x31

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Wed Jun 27 13:31:57 2018

To: Kroonen, Rasha (CONTR) - TEP-TPP-1; Cook, Kerry B (BPA) - TELF-TPP-3; Wood, Scott E (CONTR) - TELF-TPP-3; Randall, Cheryl C (BPA) - TPCV-TPP-4; Clark, James L (BPA) - TERR-CHEMAWA; Legare, Jonathan L (CONTR) - TERR-3; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Kelly, James C (BPA) - TESD-CSB-2

Cc: Belanger Jr, John E (BPA) - TFHQ-TPP-3

Subject: RE: Boyd Ridge - New map and yard layout 6-27-18 1

Importance: Normal

Attachments: Boyd Ridge 8.25 Acre 6-27-18.pdf

Team,

After letting eGIS sit for a few hours is allowed me to make a pdf map similar to the one I sent before. This one is pulled out a little more and shows the new road going all the way to Steuber Rd.

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Wednesday, June 27, 2018 11:16 AM

To: Kroonen, Rasha (CONTR) - TEP-TPP-1; Cook, Kerry B (BPA) - TELF-TPP-3; Wood, Scott E (CONTR) - TELF-TPP-3; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Clark, James L (BPA) - TERR-CHEMAWA; Legare, Jonathan L (CONTR) - TERR-3; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Kelly, James C (BPA) - TESD-CSB-2

Cc: Belanger Jr, John E (BPA) - TFHQ-TPP-3

Subject: Boyd Ridge - New map and yard layout

Team,

I was able to get a new yard drawing with the control house moved and a parking lot included. We can save space by having the parking lot in the 100' buffer zone between the property line and the yard fence. The total acreage for a substation with a potential future build out to 4 bays breaker and a half is down to 8.25 acres. I have included the layout in this email.

I have drawn a new map using this data along with Kerry Cook's information regarding how far west we can shift the site and Scott Wood's road information. I took the extra footage saved by the latest yard layout and split the footage to the north and south. eGIS chose this particular moment to malfunction every time I try to create a printable map, telling me to contact my administrator. I took a screen grab of it to salvage my work.

Please note I did the best I could with the tools in eGIS. The site is as close as I could get to accurate with the map resolution. The road I sized as close to 30' as I could. **This is a rough map, not drawn our mapping group**, made for conversational purposes. That said, it should be pretty close in accuracy to what is required.

Final specs:

Property: Roughly 535' x 671' = ~8.24 acres total. Fenced: 335' x 471' = ~3.62 acres

Entrance Road: 20' with 5' cleared on *both* sides. Total: 30' Wide

Farm vehicle Clearance North: 260' from N property line to BPA land boundary. 360' from N property line to BPA yard fence.

Farm vehicle Clearance South: With fill zone completed, 317' to the SE BPA land boundary.

Road design was Scott's first suggestion. It will be crossable by farm equipment. Input from land owner is welcome.

Please send any comments by "reply all" so that everyone can see them and comment if needed, and/or bring them to this afternoon's meeting.

Thanks,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Cook, Kerry B (BPA) - TELF-TPP-3

Sent: Tue Jul 03 08:10:39 2018

To: Roberts, Ken (BPA) - TELP-CSB-2; Kroonen, Rasha (CONTR) - TEP-TPP-1; Wood, Scott E (CONTR) - TELF-TPP-3; Randall, Cheryl
C (BPA) - TPCV-TPP-4; Clark, James L (BPA) - TERR-CHEMAWA; Legare, Jonathan L (CONTR) - TERR-3; Liebhaber, Dustin F (BPA) -
TELP-TPP-3; Kelly, James C (BPA) - TESD-CSB-2

Cc: Belanger Jr, John E (BPA) - TFHQ-TPP-3

Subject: RE: Boyd Ridge - New map and yard layout 7-3-18 1

Importance: Normal

It looks like the proposed location is as far west as possible without breaking over the change in slope to the west. It could be moved to the south, with the south edge of the developed yard along the border of the (b) (6) (b) (6). The tradeoff with this move south would mean the grading (fill slope) would extend into the field.

Before the land agreement is finalized, we should consider developing a grading plan that shows the limits of the cut and fill slopes that may require a construction easement beyond the perimeter buffer zone. Cut slopes could be near vertical where rock is encountered (unknown depth at this time); fill slopes of 2H:1V covered with conserved topsoil would allow for continued cultivation. Oregon DOGMI has LiDAR data that may be useful for preliminary grading design.

Kerry Cook
BPA Geotechnical Engineer
360 619-6565

From: Roberts,Ken (BPA) - TELP-CSB-2
Sent: Wednesday, June 27, 2018 1:32 PM
To: Kroonen,Rasha (CONTR) - TEP-TPP-1; Cook,Kerry B (BPA) - TELF-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Clark,James L (BPA) - TERR-CHEMAWA; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3; Kelly,James C (BPA) - TESD-CSB-2
Cc: Belanger Jr,John E (BPA) - TFHQ-TPP-3
Subject: RE: Boyd Ridge - New map and yard layout

Team,

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Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Roberts,Ken (BPA) - TELP-CSB-2

Sent: Wednesday, June 27, 2018 11:16 AM

To: Kroonen,Rasha (CONTR) - TEP-TPP-1; Cook,Kerry B (BPA) - TELF-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Clark,James L (BPA) - TERR-CHEMAWA; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3; Kelly,James C (BPA) - TESD-CSB-2

Cc: Belanger Jr,John E (BPA) - TFHQ-TPP-3

Subject: Boyd Ridge - New map and yard layout

Team,

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Road design was Scott's first suggestion. It will be crossable by farm equipment. Input from land owner is welcome.

Please send any comments by "reply all" so that everyone can see them and comment if needed, and/or bring them to this afternoon's meeting.

Thanks,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration
bpa.gov | P 360.418.8111

From: Hagensen, Matt L (BPA) - TPWP-TPP-4

Sent: Tue Oct 23 09:46:58 2018

To: Kroonen, Rasha (CONTR) - TEP-TPP-1; Randall, Cherilyn C (BPA) - TPCV-TPP-4

Cc: Roberts, Ken (BPA) - TELP-CSB-2; Cosola, Anna M (BPA) - TPCC-TPP-4

Subject: RE: Boyd Ridge Line Impairment - WO Needed 10-23-18 1

Importance: Normal

Attachments: L3-1170-3-0.pdf

So, I found the estimate (attached).

There may be a slight wrinkle to this. Usually, the ground removal/attachment point remediations are expense, since the line is not being updated, while the prop structures are capital. So we will likely need 2 WOs, but I am confirming with FRP.

Cherilyn, should the customer pay for all of the impairments? If yes, will they get credits on the capital ones?

From: Kroonen, Rasha (CONTR) - TEP-TPP-1

Sent: Monday, October 22, 2018 3:37 PM

To: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Hagensen, Matt L (BPA) - TPWP-TPP-4

Cc: Roberts, Ken (BPA) - TELP-CSB-2; Cosola, Anna M (BPA) - TPCC-TPP-4

Subject: RE: Boyd Ridge Line Impairment - WO Needed

Answering the question below

Kind Regards,
Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration

Flux Resources, LLC | A David Evans Enterprises Company
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b)(6)
Email: rmkroonen@bpa.gov

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4
Sent: Monday, October 22, 2018 10:59 AM
To: Hagensen,Matt L (BPA) - TPWP-TPP-4
Cc: Roberts,Ken (BPA) - TELP-CSB-2; Kroonen,Rasha (CONTR) - TEP-TPP-1; Cosola,Anna M (BPA) - TPCC-TPP-4
Subject: RE: Boyd Ridge Line Impairment - WO Needed

Matt,

We are missing one work order. I think the line estimate lagged the others, so we missed it in the original work order request from my group to you. Rasha says that the line design is estimated at (b) (direct), which is within our contingency. So please, open a TC work order - Rasha, what description do you want?

[BPA- Rasha Kroonen] BIGE-RDMD-1 Impairments and access roads

– so Rasha can finish selecting a design contractor. Then, I need to add an incremental increase request to our approved business case. The incremental design is within contingency, but the full construction cost is going to require an update. Please expedite the work order for design. It is holding up the final contracting action.

Thanks,

Cherilyn

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Wednesday, August 29, 2018 11:52 AM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Hagensen,Matt L (BPA) - TPWP-TPP-4; Jusupovic,Jana D (BPA) - TPCV-TPP-4

Cc: Liebhaber,Dustin F (BPA) - TELP-TPP-3; Roberts,Ken (BPA) - TELP-CSB-2; Ortega,Ricardo C (BPA) - TED-TPP-2

Subject: Boyd Ridge Line Impairment - WO Needed

Importance: High

Good Morning,

I was doing some housekeeping and discovered that we never received a WO for the line impairments work.

We are out for bid on the design contract so I would like tis WO to be cut soon

Please with sugar on top J

Kind Regards,
Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration

Flux Resources, LLC | A David Evans Enterprises Company
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b)(6)
Email: rmkroonen@bpa.gov



Boyd Ridge Substation Scoping - G0345 Wind Farm Team Meeting Notes

❖ Meeting Information

- Date: 1/16/18
- Time: 1300 - 1400
- Room: TPP 125

- ❖ Call in number: (b) (2)
- PASSCODE: (b) (2)

❖ Invitees

Ackerman,Robert	X Loop,Laura	X Hoang,Anthony	Randall,Cherilyn
Amrine,Liz	Lunde,Rod	Hollenbeck,Justin	Sager,Andrew
Barton-Smith,Julie	X Lynch,William	Jacobsen,Nancy	Schmidt,Patrick
Brady,Brian	Mifsud,Frank	X Jusupovic,Jana	X Tabata,Mason
X Brockway,Jenny	Moe,Chance	Kintz,Jourdan	Thurston,Jamie
Burn,Beverley	X O'Connell,Michael	Konency,Thomas	X Wahrgren,Robert
Capiral,Rebekah	O'Donnchadha,Brian	X Kroonen,Rasha	Williams,Scott
Christianson,Corey	X Owen,Kenneth	Lee,Christina	Wong,Christopher
Gilroy,Michael	Patterson,Shawn	X Legare,Jonathan	Wood,Scott
Hagensen,Matt	Platt,Travis	X Liebhaber,Dustin	X Bebee, Joe

❖ Introductions and purpose of the meeting – Ken Roberts

❖ New CDD Due Date / TEL Meeting

- o Line folks had a meeting earlier in the day. Discussed the PDT decision and the work to be done. Agreed that a new CDD due date of 2/9/18 would be achievable.
- o Ken is working on revising the proposed Stage Gate 3 schedule and will present it to Rasha/Cherilyn and Jana as soon as possible.
- o Kerry Cook suggested we go ahead and move the 16 acre proposed plot to the flattest/best location which would move it a little to the east. This would prevent us from being on the slope. With the current proposed plot plan, we would be building in the steepest portion of the plot of land first, requiring significant shoring. This can be avoided if we move the proposed plot. Looking at the farmed land, this would not inconvenience the land owner other than they would lose some farmable land. The better location is at the end of an area that is currently farmed so it would not cut off extra farmable land in any way. Laura Loop felt the land owner would likely be okay with this. (Ken note: I talked to Scott Wood later about this and he agreed as well it would be the best solution to shoot for).

❖ Q/A

- o Jenny Brockway: Need comments for updated PRD. Ken to follow up.



Boyd Ridge Substation Scoping - G0345 Wind Farm

Team Meeting Notes

- o Mike O'Connell: Would like to talk with the customer to inquire about their permitting / environmental work. Rasha to forward invitation to Mike to the 1/25/18 check in meeting we are having with the customer.
- o Ken: I was informed this week that Laura Loop has (b) (6) [REDACTED] and 1/19/18 will be her last day at BPA. Laura has completed her portion of the CDD but TER will be assigning us a replacement to be announced later.

❖ **Team input for CDD Due: ~~1/19/18~~ 2/9/18**

❖ **Project information**

- PRD: [285137](#)
- WO: 00421854 - G0345. SUMMIT RIDGE WIND
- Project Workspace:

(b) (2) [REDACTED]

- CDD Direct Link:

(b) (2) [REDACTED]



(b) (4)



From: Wood,Scott E (CONTR) - TELF-TPP-3

Sent: Fri Jul 27 10:38:47 2018

To: Roberts, Ken (BPA) - TELP-CSB-2; Cook, Kerry B (BPA) - TELF-TPP-3; Belanger Jr, John E (BPA) - TFHQ-TPP-3; Randall, Cheryl C (BPA) - TPCV-TPP-4; Kroonen, Rasha (CONTR) - TEP-TPP-1; Legare, Jonathan L (CONTR) - TERR-3; Clark, James L (BPA) - TERR-CHEMAWA; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Kelly, James C (BPA) - TESD-CSB-2

Subject: RE: Boyd Ridge Rough Map for Scott to Add Road 7-27-18 2

Importance: Normal

Attachments: BoydRidge-entrance-road.pdf

Hi everyone,

Here is my first cut at moving the substation to the south and adding the entrance road. I also shifted the gate to the east side and changed a few colors so it would show up better. Let me know if you have any comments or would like anything changed.

Thanks

Scott Wood

Contractor-ACS Professional Staffing

Civil Design, TELF-TPP3

Bonneville Power Administration

Office 360-619-6387

Cell (b)(6)

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Friday, July 27, 2018 9:33 AM

To: Wood, Scott E (CONTR) - TELF-TPP-3; Cook, Kerry B (BPA) - TELF-TPP-3; Belanger Jr, John E (BPA) - TFHQ-TPP-3; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Kroonen, Rasha (CONTR) - TEP-TPP-1; Legare, Jonathan L (CONTR) - TERR-3; Clark, James L (BPA) - TERR-CHEMAWA; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Kelly, James C (BPA) - TESD-CSB-2

Subject: Boyd Ridge Rough Map for Scott to Add Road

Scott, here is the new map with the plot adjusted further to the south. I don't have the dgn files for the plot plan, I only have pdf's but it sounds like John has them.

Team,

I have adjusted the location to where I am imagining the land owner would prefer it based on comments. I had previously tried to lay the plot in the N/S direction to give equal access to the NW and SW lobes of farm land. In this case the fenced footprint of the yard is on a maximum amount of (b)(6), but this gives more limited access to the SW lobe. This shouldn't be an issue, regardless of what our restrictions are for driving on BPA

owned property, the landowner should have a minimum of 190' to get farm equipment by after the fill area is completed. If there are no restrictions for them driving on unfenced BPA land, they will have around 300'. If the road ends up going up the gully closest to this new location, we will want to make sure that the road is crossable by farm equipment at this SE corner.

I will let Scott work his magic at this point and land some road on this map.

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Tue Oct 23 15:56:48 2018

To: Lewis,Jason C (BPA) - NSSV-4400-2; Berg,Michael A (BPA) - TED-TPP-2; Roberts,Ken (BPA) - TELP-CSB-2; Liebhaber,Dustin F (BPA) - TELP-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3; Frye,Dean J (CONTR) - TELF-TPP-3; Ackerman,Robert (BPA) - TECC-CSB-2; O'Connell,Michael J (BPA) - ECT-4; Bebee,Joseph Ray (BPA) - TESH-CSB-2; Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Pagano,Laura E (CONTR) - NSSV-4400-2; Ortega,Ricardo C (BPA) - TED-TPP-2

Subject: RE: Boyd Ridge second round of questions 10-23-18 1

Importance: Normal

Attachments: Boyd Ridge SOW - REV7 10 23 2018.doc; RFO 4368 Boyd Ridge Round 2 QA.xlsx; image001.jpg; image002.jpg; image003.jpg; image004.jpg; image005.jpg; image006.jpg

Good Afternoon,

Attached is the Q&A along with the updated SOW as per the answers.

Thank you team for all of your help with this

Have a great afternoon

Kind Regards,
Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration

Flux Resources, LLC | A David Evans Enterprises Company
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b)(6)
Email: rmkroonen@bpa.gov

From: Lewis, Jason C (BPA) - NSSV-4400-2
Sent: Monday, October 22, 2018 9:51 AM
To: Kroonen, Rasha (CONTR) - TEP-TPP-1; Berg, Michael A (BPA) - TED-TPP-2; Roberts, Ken (BPA) - TELP-CSB-2; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Wood, Scott E (CONTR) - TELF-TPP-3; Frye, Dean J (CONTR) - TELF-TPP-3; Ackerman, Robert (BPA) - TECC-CSB-2; Goldman, Rebekah S (BPA) - TECD-CSB-1; O'Connell, Michael J (BPA) - ECT-4; Bebee, Joseph Ray (BPA) - TESF-CSB-2; Randall, Cherilyn C (BPA) - TPCV-TPP-4
Cc: Pagano, Laura E (CONTR) - NSSV-4400-2; Ortega, Ricardo C (BPA) - TED-TPP-2
Subject: RE: Boyd Ridge second round of questions

Rasha,

Boyd Ridge Design Amendment 02 for the Round 02 Q&A is due back to our contractors today. How are we doing with the items specified below?

Thanks,

Jay

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Friday, October 19, 2018 8:46 AM

To: Berg,Michael A (BPA) - TED-TPP-2; Roberts,Ken (BPA) - TELP-CSB-2; Liebhaber,Dustin F (BPA) - TELP-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3; Frye,Dean J (CONTR) - TELF-TPP-3; Ackerman,Robert (BPA) - TECC-CSB-2; Goldman,Rebekah S (BPA) - TECD-CSB-1; O'Connell,Michael J (BPA) - ECT-4; Bebee,Joseph Ray (BPA) - TESH-CSB-2; Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Lewis,Jason C (BPA) - NSSV-4400-2; Pagano,Laura E (CONTR) - NSSV-4400-2; Ortega,Ricardo C (BPA) - TED-TPP-2

Subject: Boyd Ridge second round of questions

Importance: High

Good Morning Team,

First, I want thank you all for your effort and help with this task, your help is greatly appreciated

I have compiled the answers you provided for Boyd Ridge second round of questions and updated the SOW to reflect those answers:

- Questions yet to be answered:
 - o Joe Bebee is working architectural and mechanical questions.
 - o Michael O'Connell is working the environmental questions.
 - o Dustin is working the transmission line questions
 - o Ken is reaching to Rob and Rebekah on data and relay questions.

Please Note: a lot of the questions we answered so far were design questions that has no bearing on design bids, if you find that to be the case please do not be afraid to say so. We only need to provide information to help AE bid (nothing more).

- Actions still needed:
 - o Dustin, Dean and Scott to determine how to update the SOW to account for the access road

deliverables- Dustin SOW is attached for editing

- o Rasha and Cherilyn are working on getting a WO for the line impairment. CO to update the SOP to include a place holder for this WO
- o Dustin discovered that the Line Drawings” provided in the “Boyd Ridge Drawings.zip” within the Technical Exhibits folder of the Boyd Ridge RFO ProjectWise folder were provided in error. Laura please delete the zip file. This needs to be noted in the amendment cover sheet.

I am out of the office starting at 10AM today

Have a wonderful weekend

Kind Regards,

Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration | Flux
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b)(6)
Email: rmkroonen@bpa.gov

Facebook-Icon_31x31_v3Flickr-Icon_31x31Instagram-Icon_31x31LinkedIn-Icon_31x31[Twitter_31x31](#)YouTube_31x31

From: Tabata,Mason I (BPA) - TECT-CSB-1

Sent: Tue Jun 19 17:20:27 2018

To: Roberts,Ken (BPA) - TELP-CSB-2; Ortega,Ricardo C (BPA) - TED-TPP-2

Cc: Ackerman,Robert (BPA) - TECC-CSB-2; Amrine,Liz (CONTR) - TERG-3; Bebee,Joseph Ray (BPA) - TESF-CSB-2; Brady,Brian P (CONTR) - TERS-3; Brockway,Jenny (BPA) - TPPC-OPP-3; Burn,Beverley D (CONTR) - NWM-1; Christianson,Corey C (BPA) - TFDE-THE DALLEES; Clark,James L (BPA) - TERR-CHEMAWA; Gilroy,Michael J (CONTR) - TERM-TPP-4; Goldman,Rebekah S (BPA) - TECD-CSB-1; Hagensen,Matt L (BPA) - TPWP-TPP-4; Hoang,Anthony D (CONTR) - TEPO-TPP-1; Hollenbeck,Justin M (CONTR) - TERM-TPP-4; Jacobsen,Nancy L (BPA) - TFDB-THE DALLEES; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Kintz,Jourdan C (BPA) - TELC-TPP-3; Konency,Thomas J (BPA) - TERS-3; Kroonen,Rasha (CONTR) - TEP-TPP-1; Lee,Christina A (BPA) - TPPA-OPP-3; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3; Lunde,Rod T (BPA) - TECR-CSB-1; Lynch,William C (BPA) - TERM-TPP-4; Mifsud,Frank D (BPA) - TERM-TPP-4; Moe,Chance C (BPA) - TFDD-THE DALLEES; O'Connell,Michael J (BPA) - ECT-4; O'Donnchadha,Brian M (BPA) - ECC-4; Owen,Kenneth E (CONTR) - TPMC-OPP-3; Patterson,Shawn M (BPA) - TFDC-THE DALLEES; Platt,Travis J (BPA) - TERG-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Sager,Andrew (CONTR) - TERM-TPP-4; Schmidt,Patrick L (BPA) - TTCT-AMPN-1; Thurston,Jamie S (CONTR) - TERM-TPP-4; Wahrgren,Robert O (CONTR) - TELD-TPP-3; Williams,Scott M (BPA) - TFD-DF-THE DALLEES; Wong,Christopher M (CONTR) - TELC-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3

Subject: RE: Boyd Ridge SOW.doc 6-19-18 2

Importance: Normal

Attachments: Boyd Ridge SOW mit comments 6-19-18.doc

Ken and Ric,

I added a few comments regarding the fiber.

Regards,

Mason Tabata

Electronics Engineer | Telecom Engineering

Bonneville Power Administration

bpa.gov | P 360-619-6205 | C (b)(6)

Please consider the environment before printing this email.

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Tuesday, June 19, 2018 1:18 PM

To: Ackerman, Robert (BPA) - TECC-CSB-2; Amrine, Liz (CONTR) - TERG-3; Bebee, Joseph Ray (BPA) - TESH-CSB-2; Brady, Brian P (CONTR) - TERS-3; Brockway, Jenny (BPA) - TPPC-OPP-3; Burn, Beverley D (CONTR) - NWM-1; Christianson, Corey C (BPA) - TFDE-THE DALLES; Clark, James L (BPA) - TERR-CHEMAWA; Gilroy, Michael J (CONTR) - TERM-TPP-4; Goldman, Rebekah S (BPA) - TECD-CSB-1; Hagensen, Matt L (BPA) - TPWP-TPP-4; Hoang, Anthony D (CONTR) - TERS-3; Hollenbeck, Justin M (CONTR) - TERM-TPP-4; Jacobsen, Nancy L (BPA) - TFDB-THE DALLES; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Kintz, Jourdan C (BPA) - TELC-TPP-3; Konency, Thomas J (BPA) - TERS-3; Kroonen, Rasha (CONTR) - TEP-TPP-1; Lee, Christina A (BPA) - TPPA-OPP-3; Legare, Jonathan L (CONTR) - TERR-3; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Lunde, Rod T (BPA) - TECD-CSB-1; Lynch, William C (BPA) - TERM-TPP-4; Mifsud, Frank D (BPA) - TERM-TPP-4; Moe, Chance C (BPA) - TFDD-THE DALLES; O'Connell, Michael J (BPA) - ECT-4; O'Donnchadha, Brian M (BPA) - ECC-4; Owen, Kenneth E (CONTR) - TPMC-OPP-3; Patterson, Shawn M (BPA) - TFDC-THE DALLES; Platt, Travis J (BPA)

- TERG-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Sager,Andrew (CONTR) - TERM-TPP-4;
Schmidt,Patrick L (BPA) - TTCT-AMPN-1; Tabata,Mason I (BPA) - TECT-CSB-1; Thurston,Jamie S (CONTR) -
TERM-TPP-4; Wahrgren,Robert O (CONTR) - TELD-TPP-3; Williams,Scott M (BPA) - TFDF-THE DALLES;
Wong,Christopher M (CONTR) - TELC-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3
Cc: Ortega,Ricardo C (BPA) - TED-TPP-2
Subject: FW: Boyd Ridge SOW.doc

Team,

A draft of the SOW for Boyd Ridge has been created. Can you please review the document and submit comments back to Ric and myself within the next couple of days if at all possible? The schedule on this is getting tight.

Thank you,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Ortega,Ricardo C (BPA) - TED-TPP-2

Sent: Tuesday, June 19, 2018 1:07 PM

To: Roberts, Ken (BPA) - TELP-CSB-2
Cc: Kroonen, Rasha (CONTR) - TEP-TPP-1
Subject: Boyd Ridge SOW.doc

Ken,

I've completed another draft of the Boyd Ridge SOW please pass it along to the appropriate SME's for comments.

From: Williams,Scott M (BPA) - TDFD-THE DALLES

Sent: Wed Jun 20 08:04:44 2018

To: Clark,James L (BPA) - TERR-CHEMAWA; Roberts,Ken (BPA) - TELP-CSB-2; Ackerman,Robert (BPA) - TECC-CSB-2; Amrine,Liz (CONTR) - TERG-3; Bebee,Joseph Ray (BPA) - TESH-CSB-2; Brady,Brian P (CONTR) - TERS-3; Brockway,Jenny (BPA) - TPPC-OPP-3; Burn,Beverley D (CONTR) - NWM-1; Christianson,Corey C (BPA) - TDFD-THE DALLES; Gilroy,Michael J (CONTR) - TERM-TPP-4; Goldman,Rebekah S (BPA) - TECD-CSB-1; Hagensen,Matt L (BPA) - TPWP-TPP-4; Hoang,Anthony D (CONTR) - TEPO-TPP-1; Hollenbeck,Justin M (CONTR) - TERM-TPP-4; Jacobsen,Nancy L (BPA) - TDFD-THE DALLES; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Kintz,Jourdan C (BPA) - TELC-TPP-3; Konency,Thomas J (BPA) - TERS-3; Kroonen,Rasha (CONTR) - TEP-TPP-1; Lee,Christina A (BPA) - TPPA-OPP-3; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3; Lunde,Rod T (BPA) - TECR-CSB-1; Lynch,William C (BPA) - TERM-TPP-4; Mifsud,Frank D (BPA) - TERM-TPP-4; Moe,Chance C (BPA) - TDFD-THE DALLES; O'Connell,Michael J (BPA) - ECT-4; O'Donnchadha,Brian M (BPA) - ECC-4; Owen,Kenneth E (CONTR) - TPMC-OPP-3; Patterson,Shawn M (BPA) - TDFD-THE DALLES; Platt,Travis J (BPA) - TERG-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Sager,Andrew (CONTR) - TERM-TPP-4; Schmidt,Patrick L (BPA) - TTCT-AMPN-1; Tabata,Mason I (BPA) - TECT-CSB-1; Thurston,Jamie S (CONTR) - TERM-TPP-4; Wahrgren,Robert O (CONTR) - TELD-TPP-3; Wong,Christopher M (CONTR) - TELC-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3

Cc: Ortega,Ricardo C (BPA) - TED-TPP-2; Aaby,Darrell K (BPA) - TFRF-REDMOND

Subject: RE: Boyd Ridge SOW.doc 6-20-18 1

Importance: Normal

Morning-

One question, has the team looked at reducing insulators on the majority of the impairments where possible. This would save 10's of thousands of dollars from design to completion in the possible 13 spans I've highlight below..

List of impairments and preliminary fixes shown below:

- o 1/1, impairment to BGED-SUTI-1 of 0.697 feet @ 0"-6-60°F Fn, adjust attachment points
- o 2/1, impairment to structure/tower of 5.37 feet @ 0"-0-158°F Fn, prop structure
- o 2/1, impairment to shield wire of 1.98 feet @ 0"-0-158°F Fn, adjust attachment points
- o 15/1, impairment to ground of 2.19 feet @ 0"-0-158°F Fn, add prop structure
- o 18/3, impairment to ground of 0.04 feet @ 0"-0-158°F Fn, remove ground
- o 18/4, impairment to ground of 0.05 feet @ 0"-0-158°F Fn, remove ground
- o 20/4, impairment to ground of 0.63 feet @ 0"-0-158°F Fn, remove ground
- o 21/1, impairment to ground of 0.90 feet @ 0"-0-158°F Fn, remove ground
- o 21/3, impairment to ground of 4.47 feet @ 0"-0-158°F Fn, add prop structure
- o 21/5, impairment to ground of 1.24 feet @ 0"-0-158°F Fn, add prop structure
- o 24/2, impairment to ground of 3.08 feet @ 0"-0-158°F Fn, add prop structure
- o 25/3, impairment to ground of 3.51 feet @ 0"-0-158°F Fn, add prop structure
- o 25/5, impairment to ground of 0.56 feet @ 0"-0-158°F Fn, remove ground
- o 27/4, impairment to ground of 0.95 feet @ 0"-0-158°F Fn, remove ground
- o 30/3, impairment to ground of 0.75 feet @ 0"-0-158°F Fn, remove ground

- o 33/2, impairment to ground of 0.61 feet @ 0"-4-60°F Fn, add prop structure
- o 35/5, impairment to ground of 2.95 feet @ 0"-0-176°F Fn, add prop structure
- o 41/6, impairment to ground of 0.91 feet @ 0"-0-176°F Fn, remove ground
- o 50/6, impairment to ground of 0.10 feet @ 0"-0-176°F Fn, remove ground
- o 50/6, impairment to road of 0.06 feet @ 0"-6-60° Fn, add prop structure
- o 59/4, impairment to ground of 0.60 feet @ 0"-6-60° Fn, remove ground
- o 59/4, impairment to ground of 0.34 feet @ 0"-6-60° Fn, remove ground
- o 60/1, impairment to ground of 3.81 feet @ 0"-6-60° Fn, add prop structure
- o 62/1, impairment to CELO-SYLM-1 of 2.59 feet @ 0"-6-60° Fn, add prop structure
- o 72/5, impairment to structure/tower of 1.69 feet @ 0"-6-60° Fn, adjust attachment points
- o 82/2, impairment to ground of 0.02 feet @ 0"-0-158°F Fn, remove ground

From: Clark,James L (BPA) - TERR-CHEMAWA

Sent: Wednesday, June 20, 2018 6:26 AM

To: Roberts,Ken (BPA) - TELP-CSB-2; Ackerman,Robert (BPA) - TECC-CSB-2; Amrine,Liz (CONTR) - TERG-3; Bebee,Joseph Ray (BPA) - TESH-CSB-2; Brady,Brian P (CONTR) - TERS-3; Brockway,Jenny (BPA) - TPPC-OPP-3; Burn,Beverley D (CONTR) - NWM-1; Christianson,Corey C (BPA) - TFDE-THE DALLES; Gilroy,Michael J (CONTR) - TERM-TPP-4; Goldman,Rebekah S (BPA) - TECD-CSB-1; Hagensen,Matt L (BPA) - TPWP-TPP-4; Hoang,Anthony D (CONTR) - TEPO-TPP-1; Hollenbeck,Justin M (CONTR) - TERM-TPP-4; Jacobsen,Nancy L (BPA) - TFDB-THE DALLES; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Kintz,Jourdan C (BPA) - TELC-TPP-3;

Konency, Thomas J (BPA) - TERS-3; Kroonen, Rasha (CONTR) - TEP-TPP-1; Lee, Christina A (BPA) - TPPA-OPP-3; Legare, Jonathan L (CONTR) - TERR-3; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Lunde, Rod T (BPA) - TECR-CSB-1; Lynch, William C (BPA) - TERM-TPP-4; Mifsud, Frank D (BPA) - TERM-TPP-4; Moe, Chance C (BPA) - TFDD-THE DALLES; O'Connell, Michael J (BPA) - ECT-4; O'Donnchadha, Brian M (BPA) - ECC-4; Owen, Kenneth E (CONTR) - TPMC-OPP-3; Patterson, Shawn M (BPA) - TFDC-THE DALLES; Platt, Travis J (BPA) - TERG-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Sager, Andrew (CONTR) - TERM-TPP-4; Schmidt, Patrick L (BPA) - TTCT-AMPN-1; Tabata, Mason I (BPA) - TECT-CSB-1; Thurston, Jamie S (CONTR) - TERM-TPP-4; Wahrgren, Robert O (CONTR) - TELD-TPP-3; Williams, Scott M (BPA) - TFDf-THE DALLES; Wong, Christopher M (CONTR) - TELC-TPP-3; Wood, Scott E (CONTR) - TELF-TPP-3
Cc: Ortega, Ricardo C (BPA) - TED-TPP-2
Subject: RE: Boyd Ridge SOW.doc

Hi Ken,

I commented on the number of acres at the Boyd Ridge Substation site.

Thank you,

Jim Clark

Realty Specialist|Real Property Field Services|TERR-Chemawa

Bonneville Power Administration|Department of Energy

503-304-5906 Salem Office (b)(6) Mobile | E-mail: jclark@bpa.gov

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Tuesday, June 19, 2018 1:18 PM

To: Ackerman, Robert (BPA) - TECC-CSB-2; Amrine, Liz (CONTR) - TERG-3; Bebee, Joseph Ray (BPA) - TESF-CSB-2; Brady, Brian P (CONTR) - TERS-3; Brockway, Jenny (BPA) - TPPC-OPP-3; Burn, Beverley D (CONTR) - NWM-1; Christianson, Corey C (BPA) - TFDE-THE DALLES; Clark, James L (BPA) - TERR-CHEMAWA; Gilroy, Michael J (CONTR) - TERM-TPP-4; Goldman, Rebekah S (BPA) - TECD-CSB-1; Hagensen, Matt L (BPA) - TPWP-TPP-4; Hoang, Anthony D (CONTR) - TERS-3; Hollenbeck, Justin M (CONTR) - TERM-TPP-4; Jacobsen, Nancy L (BPA) - TFDB-THE DALLES; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Kintz, Jourdan C (BPA) - TELC-TPP-3; Konency, Thomas J (BPA) - TERS-3; Kroonen, Rasha (CONTR) - TEP-TPP-1; Lee, Christina A (BPA) - TPPA-OPP-3; Legare, Jonathan L (CONTR) - TERR-3; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Lunde, Rod T (BPA) - TECR-CSB-1; Lynch, William C (BPA) - TERM-TPP-4; Mifsud, Frank D (BPA) - TERM-TPP-4; Moe, Chance C (BPA) - TFDD-THE DALLES; O'Connell, Michael J (BPA) - ECT-4; O'Donnchadha, Brian M (BPA) - ECC-4; Owen, Kenneth E (CONTR) - TPMC-OPP-3; Patterson, Shawn M (BPA) - TFDC-THE DALLES; Platt, Travis J (BPA) - TERG-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Sager, Andrew (CONTR) - TERM-TPP-4; Schmidt, Patrick L (BPA) - TTCT-AMPN-1; Tabata, Mason I (BPA) - TECT-CSB-1; Thurston, Jamie S (CONTR) - TERM-TPP-4; Wahrgren, Robert O (CONTR) - TELD-TPP-3; Williams, Scott M (BPA) - TFDF-THE DALLES; Wong, Christopher M (CONTR) - TELC-TPP-3; Wood, Scott E (CONTR) - TELF-TPP-3

Cc: Ortega, Ricardo C (BPA) - TED-TPP-2

Subject: FW: Boyd Ridge SOW.doc

Team,

A draft of the SOW for Boyd Ridge has been created. Can you please review the document and submit comments back to Ric and myself within the next couple of days if at all possible? The schedule on this is getting tight.

Thank you,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Ortega,Ricardo C (BPA) - TED-TPP-2

Sent: Tuesday, June 19, 2018 1:07 PM

To: Roberts,Ken (BPA) - TELP-CSB-2

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1

Subject: Boyd Ridge SOW.doc

Ken,

I've completed another draft of the Boyd Ridge SOW please pass it along to the appropriate SME's for comments.

From: Jacobsen,Nancy L (BPA) - TFDB-THE DALLES

Sent: Wed Jun 20 08:51:01 2018

To: Roberts,Ken (BPA) - TELP-CSB-2; Ackerman,Robert (BPA) - TECC-CSB-2; Amrine,Liz (CONTR) - TERG-3; Bebee,Joseph Ray (BPA) - TESF-CSB-2; Brady,Brian P (CONTR) - TERS-3; Brockway,Jenny (BPA) - TPPC-OPP-3; Burn,Beverley D (CONTR) - NWM-1; Christianson,Corey C (BPA) - TFDE-THE DALLES; Clark,James L (BPA) - TERR-CHEMAWA; Gilroy,Michael J (CONTR) - TERM-TPP-4; Goldman,Rebekah S (BPA) - TECD-CSB-1; Hagensen,Matt L (BPA) - TPWP-TPP-4; Hoang,Anthony D (CONTR) - TEPO-TPP-1; Hollenbeck,Justin M (CONTR) - TERM-TPP-4; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Kintz,Jourdan C (BPA) - TELC-TPP-3; Konency,Thomas J (BPA) - TERS-3; Kroonen,Rasha (CONTR) - TEP-TPP-1; Lee,Christina A (BPA) - TPPA-OPP-3; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3; Lunde,Rod T (BPA) - TECR-CSB-1; Lynch,William C (BPA) - TERM-TPP-4; Mifsud,Frank D (BPA) - TERM-TPP-4; Moe,Chance C (BPA) - TFDD-THE DALLES; O'Connell,Michael J (BPA) - ECT-4; O'Donnchadha,Brian M (BPA) - ECC-4; Owen,Kenneth E (CONTR) - TPMC-OPP-3; Patterson,Shawn M (BPA) - TFDC-THE DALLES; Platt,Travis J (BPA) - TERG-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Sager,Andrew (CONTR) - TERM-TPP-4; Schmidt,Patrick L (BPA) - TTCT-AMPN-1; Tabata,Mason I (BPA) - TECT-CSB-1; Thurston,Jamie S (CONTR) - TERM-TPP-4; Wahrgren,Robert O (CONTR) - TELD-TPP-3; Williams,Scott M (BPA) - TFDF-THE DALLES; Wong,Christopher M (CONTR) - TELC-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3

Cc: Ortega,Ricardo C (BPA) - TED-TPP-2; Koski,Dave (BPA) - TFD-CELILO

Subject: RE: Boyd Ridge SOW.doc 6-20-18 3

Importance: Normal

Attachments: Boyd Ridge SOW.DOC; image001.png

I had a note on the restroom. I think it's a lot cheaper now and in the long run to have tanks for water and sewage rather than a well and pump. I've had nothing but trouble with the well pumps we have and there is no way of knowing how deep the well might have to be. For design assistance they could look at Knight and/or Bakeoven prints. (I'm sorry Ken. I know we had several conversations about this and I think you had a solid reason for a well

and drain field but I can't remember so I'm back to putting my two cents in for tanks). J

My FMW has found that pad mount units for HVAC function better and are more reliable than BARD units. Here are his comments:

From: Hardisty, Scott L (BPA) - TFDV-THE DALLES
Sent: Tuesday, June 19, 2018 4:49 PM
To: Jacobsen, Nancy L (BPA) - TFDB-THE DALLES
Subject: RE: Boyd Ridge SOW.doc

Nancy

There is not a lot of info on the building or the HVAC. It looks like they may be planning two Bard units mounted on the south side, maybe? That would not be my first choice. A 2000 square foot building I would like to see a pair of pad mounted units. Like what was installed at Bake Oven, Rock Creek, Spring Creek etc. but for once with redundancy.

Scott

From: Roberts, Ken (BPA) - TELP-CSB-2
Sent: Tuesday, June 19, 2018 1:18 PM

To: Ackerman,Robert (BPA) - TECC-CSB-2; Amrine,Liz (CONTR) - TERG-3; Bebee,Joseph Ray (BPA) - TESF-CSB-2; Brady,Brian P (CONTR) - TERS-3; Brockway,Jenny (BPA) - TPPC-OPP-3; Burn,Beverley D (CONTR) - NWM-1; Christianson,Corey C (BPA) - TFDE-THE DALLES; Clark,James L (BPA) - TERR-CHEMAWA; Gilroy,Michael J (CONTR) - TERM-TPP-4; Goldman,Rebekah S (BPA) - TECD-CSB-1; Hagensen,Matt L (BPA) - TPWP-TPP-4; Hoang,Anthony D (CONTR) - TERS-3; Hollenbeck,Justin M (CONTR) - TERM-TPP-4; Jacobsen,Nancy L (BPA) - TFDB-THE DALLES; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Kintz,Jourdan C (BPA) - TELC-TPP-3; Konency,Thomas J (BPA) - TERS-3; Kroonen,Rasha (CONTR) - TEP-TPP-1; Lee,Christina A (BPA) - TPPA-OPP-3; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3; Lunde,Rod T (BPA) - TECR-CSB-1; Lynch,William C (BPA) - TERM-TPP-4; Mifsud,Frank D (BPA) - TERM-TPP-4; Moe,Chance C (BPA) - TFDD-THE DALLES; O'Connell,Michael J (BPA) - ECT-4; O'Donnchadha,Brian M (BPA) - ECC-4; Owen,Kenneth E (CONTR) - TPMC-OPP-3; Patterson,Shawn M (BPA) - TFDC-THE DALLES; Platt,Travis J (BPA) - TERG-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Sager,Andrew (CONTR) - TERM-TPP-4; Schmidt,Patrick L (BPA) - TTCT-AMPN-1; Tabata,Mason I (BPA) - TECT-CSB-1; Thurston,Jamie S (CONTR) - TERM-TPP-4; Wahrgren,Robert O (CONTR) - TELD-TPP-3; Williams,Scott M (BPA) - TFDF-THE DALLES; Wong,Christopher M (CONTR) - TELC-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3
Cc: Ortega,Ricardo C (BPA) - TED-TPP-2
Subject: FW: Boyd Ridge SOW.doc

Team,

A draft of the SOW for Boyd Ridge has been created. Can you please review the document and submit comments back to Ric and myself within the next couple of days if at all possible? The schedule on this is getting tight.

Thank you,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Ortega,Ricardo C (BPA) - TED-TPP-2

Sent: Tuesday, June 19, 2018 1:07 PM

To: Roberts,Ken (BPA) - TELP-CSB-2

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1

Subject: Boyd Ridge SOW.doc

Ken,

I've completed another draft of the Boyd Ridge SOW please pass it along to the appropriate SME's for comments.

From: Legare,Jonathan L (CONTR) - TERR-3

Sent: Mon Jun 25 11:34:43 2018

To: Roberts,Ken (BPA) - TELP-CSB-2; Ackerman,Robert (BPA) - TECC-CSB-2; Amrine,Liz (CONTR) - TERG-3; Bebee,Joseph Ray (BPA) - TESF-CSB-2; Brady,Brian P (CONTR) - TERS-3; Brockway,Jenny (BPA) - TPPC-OPP-3; Burn,Beverley D (CONTR) - NWM-1; Christianson,Corey C (BPA) - TFDE-THE DALLES; Clark,James L (BPA) - TERR-CHEMAWA; Gilroy,Michael J (CONTR) - TERM-TPP-4; Goldman,Rebekah S (BPA) - TECD-CSB-1; Hagensen,Matt L (BPA) - TPWP-TPP-4; Hoang,Anthony D (CONTR) - TEPO-TPP-1; Hollenbeck,Justin M (CONTR) - TERM-TPP-4; Jacobsen,Nancy L (BPA) - TFDB-THE DALLES; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Kintz,Jourdan C (BPA) - TELC-TPP-3; Konency,Thomas J (BPA) - TERS-3; Kroonen,Rasha (CONTR) - TEP-TPP-1; Lee,Christina A (BPA) - TPPA-OPP-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3; Lunde,Rod T (BPA) - TECR-CSB-1; Lynch,William C (BPA) - TERM-TPP-4; Mifsud,Frank D (BPA) - TERM-TPP-4; Moe,Chance C (BPA) - TFDD-THE DALLES; O'Connell,Michael J (BPA) - ECT-4; O'Donnchadha,Brian M (BPA) - ECC-4; Owen,Kenneth E (CONTR) - TPMC-OPP-3; Patterson,Shawn M (BPA) - TFDC-THE DALLES; Platt,Travis J (BPA) - TERG-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Sager,Andrew (CONTR) - TERM-TPP-4; Schmidt,Patrick L (BPA) - TTCT-AMPN-1; Tabata,Mason I (BPA) - TECT-CSB-1; Thurston,Jamie S (CONTR) - TERM-TPP-4; Wahrgren,Robert O (CONTR) - TELD-TPP-3; Williams,Scott M (BPA) - TFDF-THE DALLES; Wong,Christopher M (CONTR) - TELC-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3

Cc: Ortega,Ricardo C (BPA) - TED-TPP-2; Legare,Jonathan L (CONTR) - TERR-3

Subject: RE: Boyd Ridge SOW.doc 6-25-18 1

Importance: Normal

Attachments: 16-0235 Boyd Ridge SOW (2) JL Comments.doc

Good Morning Ken,

Following up on our earlier discussion, as instructed I've attached a copy of the draft SOW with comments. Also regarding the CDD, if it is determined that adjustments should be made at this juncture beyond the county road change from 'Shotgun Hollow Road' to Steuber Road, details in the Summary Of Proposed Work, etc., will need to be brought into accord with the SOW as well. Thank you.

Regards,

Jonathan Legare

(ContR) CorSource Technology Group, Inc.

Real Property Project Coordinator | TERR-3

Bonneville Power Administration

bpa.gov | P 503-230-5873 | C (b)(6)

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Tuesday, June 19, 2018 1:18 PM

To: Ackerman,Robert (BPA) - TECC-CSB-2; Amrine,Liz (CONTR) - TERG-3; Bebee,Joseph Ray (BPA) - TESF-CSB-2; Brady,Brian P (CONTR) - TERS-3; Brockway,Jenny (BPA) - TPPC-OPP-3; Burn,Beverley D (CONTR) - NWM-1; Christianson,Corey C (BPA) - TFDE-THE DALLES; Clark,James L (BPA) - TERR-CHEMAWA; Gilroy,Michael J (CONTR) - TERM-TPP-4; Goldman,Rebekah S (BPA) - TECD-CSB-1; Hagensen,Matt L (BPA) - TPWP-TPP-4; Hoang,Anthony D (CONTR) - TERS-3; Hollenbeck,Justin M (CONTR) - TERM-TPP-4; Jacobsen,Nancy L (BPA) - TFDB-THE DALLES; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Kintz,Jourdan C (BPA) - TELC-TPP-3; Konency,Thomas J (BPA) - TERS-3; Kroonen,Rasha (CONTR) - TEP-TPP-1; Lee,Christina A (BPA) - TPPA-OPP-3; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3; Lunde,Rod T (BPA) - TECR-CSB-1; Lynch,William C (BPA) - TERM-TPP-4; Mifsud,Frank D (BPA) - TERM-TPP-4; Moe,Chance C (BPA) - TFDD-THE DALLES; O'Connell,Michael J (BPA) - ECT-4; O'Donnchadha,Brian M (BPA) - ECC-4; Owen,Kenneth E (CONTR) - TPMC-OPP-3; Patterson,Shawn M (BPA) - TFDC-THE DALLES; Platt,Travis J (BPA) - TERG-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Sager,Andrew (CONTR) - TERM-TPP-4; Schmidt,Patrick L (BPA) - TTCT-AMPN-1; Tabata,Mason I (BPA) - TECT-CSB-1; Thurston,Jamie S (CONTR) - TERM-TPP-4; Wahrgren,Robert O (CONTR) - TELD-TPP-3; Williams,Scott M (BPA) - TFDF-THE DALLES; Wong,Christopher M (CONTR) - TELC-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3
Cc: Ortega,Ricardo C (BPA) - TED-TPP-2
Subject: FW: Boyd Ridge SOW.doc

Team,

A draft of the SOW for Boyd Ridge has been created. Can you please review the document and submit comments back to Ric and myself within the next couple of days if at all possible? The schedule on this is getting tight.

Thank you,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Ortega,Ricardo C (BPA) - TED-TPP-2

Sent: Tuesday, June 19, 2018 1:07 PM

To: Roberts,Ken (BPA) - TELP-CSB-2

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1

Subject: Boyd Ridge SOW.doc

Ken,

I've completed another draft of the Boyd Ridge SOW please pass it along to the appropriate SME's for comments.

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Fri Jun 29 07:54:57 2018

To: Ortega,Ricardo C (BPA) - TED-TPP-2; Legare,Jonathan L (CONTR) - TERR-3; Roberts,Ken (BPA) - TELP-CSB-2; Ackerman,Robert (BPA) - TECC-CSB-2; Amrine,Liz (CONTR) - TERG-3; Bebee,Joseph Ray (BPA) - TESH-CSB-2; Brady,Brian P (CONTR) - TERS-3; Brockway,Jenny (BPA) - TPPC-OPP-3; Burn,Beverley D (CONTR) - NWM-1; Christianson,Corey C (BPA) - TFDE-THE DALLES; Clark,James L (BPA) - TERR-CHEMAWA; Gilroy,Michael J (CONTR) - TERM-TPP-4; Goldman,Rebekah S (BPA) - TECD-CSB-1; Hagensen,Matt L (BPA) - TPWP-TPP-4; Hoang,Anthony D (CONTR) - TEPO-TPP-1; Hollenbeck,Justin M (CONTR) - TERM-TPP-4; Jacobsen,Nancy L (BPA) - TFDB-THE DALLES; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Kintz,Jourdan C (BPA) - TELC-TPP-3; Konency,Thomas J (BPA) - TERS-3; Lee,Christina A (BPA) - TPPA-OPP-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3; Lunde,Rod T (BPA) - TECD-CSB-1; Lynch,William C (BPA) - TERM-TPP-4; Mifsud,Frank D (BPA) - TERM-TPP-4; Moe,Chance C (BPA) - TFDD-THE DALLES; O'Connell,Michael J (BPA) - ECT-4; O'Donnchadha,Brian M (BPA) - ECC-4; Owen,Kenneth E (CONTR) - TPMC-OPP-3; Patterson,Shawn M (BPA) - TFDC-THE DALLES; Platt,Travis J (BPA) - TERG-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Sager,Andrew (CONTR) - TERM-TPP-4; Schmidt,Patrick L (BPA) - TTCT-AMPN-1; Tabata,Mason I (BPA) - TECT-CSB-1; Thurston,Jamie S (CONTR) - TERM-TPP-4; Wahrgren,Robert O (CONTR) - TELD-TPP-3; Williams,Scott M (BPA) - TFDL-THE DALLES; Wood,Scott E (CONTR) - TELF-TPP-3

Subject: RE: Boyd Ridge SOW.doc 6-29-18 1

Importance: Normal

Attachments: image001.jpg; image003.jpg; image005.jpg; image007.jpg; image009.jpg; image011.jpg; image013.jpg; image014.jpg; image015.jpg; image016.jpg; image017.jpg; image018.jpg

See my answers below

Kind Regards,

Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration | Flux
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b)(6)
Email: rmkroonen@bpa.gov

Facebook-Icon_31x31_v3Flickr-Icon_31x31Instagram-Icon_31x31LinkedIn-Icon_31x31Twitter_31x31YouTube_31x31

From: Ortega,Ricardo C (BPA) - TED-TPP-2

Sent: Friday, June 29, 2018 6:28 AM

To: Legare,Jonathan L (CONTR) - TERR-3; Roberts,Ken (BPA) - TELP-CSB-2; Ackerman,Robert (BPA) - TECC-CSB-2; Amrine,Liz (CONTR) - TERG-3; Bebee,Joseph Ray (BPA) - TESH-CSB-2; Brady,Brian P (CONTR) - TERS-3; Brockway,Jenny (BPA) - TPPC-OPP-3; Burn,Beverley D (CONTR) - NWM-1; Christianson,Corey C (BPA) - TFDE-THE DALLES; Clark,James L (BPA) - TERR-CHEMAWA; Gilroy,Michael J (CONTR) - TERM-TPP-4; Goldman,Rebekah S (BPA) - TECD-CSB-1; Hagensen,Matt L (BPA) - TPWP-TPP-4; Hoang,Anthony D (CONTR) - TEPO-TPP-1; Hollenbeck,Justin M (CONTR) - TERM-TPP-4; Jacobsen,Nancy L (BPA) - TFDB-THE DALLES; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Kintz,Jourdan C (BPA) - TELC-TPP-3; Konency,Thomas J (BPA) - TERS-3; Kroonen,Rasha (CONTR) - TEP-TPP-1; Lee,Christina A (BPA) - TPPA-OPP-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3; Lunde,Rod T (BPA) - TECD-CSB-1; Lynch,William C (BPA) - TERM-TPP-4; Mifsud,Frank D (BPA) - TERM-TPP-4; Moe,Chance C (BPA) - TFDD-THE DALLES; O'Connell,Michael J (BPA) - ECT-4; O'Donnchadha,Brian M (BPA) - ECC-4; Owen,Kenneth E (CONTR) - TPMC-OPP-3; Patterson,Shawn M (BPA) - TFDC-THE DALLES; Platt,Travis J (BPA) - TERG-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Sager,Andrew (CONTR) - TERM-TPP-4; Schmidt,Patrick L (BPA) - TTCT-AMPN-1; Tabata,Mason I (BPA) - TECT-CSB-1; Thurston,Jamie S (CONTR) - TERM-TPP-4; Wahrgren,Robert O (CONTR) - TELD-TPP-3; Williams,Scott M (BPA) - TFDF-THE DALLES; Wood,Scott E (CONTR) - TELF-TPP-3

Subject: RE: Boyd Ridge SOW.doc

Rasha

Rasha please help me answer Jonathon's questions.

Jonathon,

Regarding your comments on the SOW:

1. Please ensure TER/TERR involvement; clarify if impairments remediation will be part of scope for this Project or occur as a parallel project.

· Rasha can confirm, but I was informed that the **impairment remediation is required** as a part of this scope.

[Kroonen,Rasha (CONTR) - TEP-TPP-1] Yes, the line impairments will need to be part of this project. environmental clearance and any needed land will be identified as we get into design since we do not have a clear idea of what will be done for these.

1. Please clarify temporary access rights for construction vs permanent AR easement rights or decision to incur crop damage when future tower access is needed.

· Rasha will have to answer this one. I don't know.

[Kroonen,Rasha (CONTR) - TEP-TPP-1] in this case the temporary access to the substation will be the same as the permanent access. As for the new line we will need to establish the structures locations through design and then proceed with acquiring the access

2. Please clarify, this text was copied from the CDD. Is 'tap line' still correct to use vs interconnect, being that this project will split the Big Eddy-Redmond No. 1 into x2 transmission lines?

· Thanks for pointing that out, you are correct to question the term. It is NOT a tap line, it is a looped in line section. In the future we will refer to it as two separate and distinct lines that share the same corridor for a small section. But for now, since it has yet to happen we are referring to looping in the Big Eddy – Redmond #1 line. I will change all references to “tap line” to looped-in line section. I will look for other inconsistencies in the terminology as well and make it more consistent.

3. To be confirmed by Realty Specialist Jim Clark. Comment section shown at bottom of email in red font.

· This item was more of a statement than a question but it raised a question for me. Correct me if I'm wrong but BPA takes care of all its required permitting and rights. Is that correct?

o If that is correct is there any need to mention permitting in the SOW except maybe just for the A&E's information. Perhaps I just need to make it clear that BPA is responsible because presently it seems a little vague to me who is responsible.

o Otherwise I need someone to explain what permits the A&E is responsible for acquiring.

PERSONAL NOTE/REQUEST TO ALL: It would be most helpful if the comments submitted for inclusion in the CDD would make it clear what is expected to be contracted out and what is BPA's responsibility. I know I get confused and have unintentionally included items in this SOW that do not pertain to the contractor. I apologize for that, but I'm learning. Thank you everyone for your help and patience.

BPA has completed a line ratings analysis on the BIGE-RDMD-1 and has identified 26 impairments [A1] that shall require remediation before Big Eddy – Boyd Ridge and Boyd Ridge – Redmond can be rated for operation. Remediation for each impairment location shall be determined during the design phase of the project.

This interconnect is entirely new line which should require the acquisition of a standard width ROW. A proposed alignment is included as an exhibit within this scoping document. The alignment shall be finalized during the design phase of the project.

Each tower along the interconnect from BIGE-RDMD-1 to Boyd Ridge Substation will require new access roads with applicable rights of use. [A2]

- Access to the tap line would be needed [A3] .

A crossing permit would be needed to allow a transmission line to cross over Steuber Road.

A crossing permit would be needed to allow a transmission line to cross over a Wasco Electric Cooperative distribution line, that is presently running along the east site of Steuber Road.[\[A4\]](#)

Ricardo “Ric” Ortega

Electrical Engineer - COR | TED-TPP-2

Bonneville Power Administration

bpa.gov | P 360-418-2602 | C(b)(6)

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From: Legare,Jonathan L (CONTR) - TERR-3

Sent: Monday, June 25, 2018 11:35 AM

To: Roberts, Ken (BPA) - TELP-CSB-2; Ackerman, Robert (BPA) - TECC-CSB-2; Amrine, Liz (CONTR) - TERG-3; Bebee, Joseph Ray (BPA) - TESH-CSB-2; Brady, Brian P (CONTR) - TERS-3; Brockway, Jenny (BPA) - TPPC-OPP-3; Burn, Beverley D (CONTR) - NWM-1; Christianson, Corey C (BPA) - TFDE-THE DALLES; Clark, James L (BPA) - TERR-CHEMAWA; Gilroy, Michael J (CONTR) - TERM-TPP-4; Goldman, Rebekah S (BPA) - TECD-CSB-1; Hagensen, Matt L (BPA) - TPWP-TPP-4; Hoang, Anthony D (CONTR) - TEPO-TPP-1; Hollenbeck, Justin M

(CONTR) - TERM-TPP-4; Jacobsen, Nancy L (BPA) - TFDB-THE DALLES; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Kintz, Jourdan C (BPA) - TELC-TPP-3; Konency, Thomas J (BPA) - TERS-3; Kroonen, Rasha (CONTR) - TEP-TPP-1; Lee, Christina A (BPA) - TPPA-OPP-3; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Lunde, Rod T (BPA) - TECR-CSB-1; Lynch, William C (BPA) - TERM-TPP-4; Mifsud, Frank D (BPA) - TERM-TPP-4; Moe, Chance C (BPA) - TFDD-THE DALLES; O'Connell, Michael J (BPA) - ECT-4; O'Donnchadha, Brian M (BPA) - ECC-4; Owen, Kenneth E (CONTR) - TPMC-OPP-3; Patterson, Shawn M (BPA) - TFDC-THE DALLES; Platt, Travis J (BPA) - TERG-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Sager, Andrew (CONTR) - TERM-TPP-4; Schmidt, Patrick L (BPA) - TTCT-AMPN-1; Tabata, Mason I (BPA) - TECT-CSB-1; Thurston, Jamie S (CONTR) - TERM-TPP-4; Wahrgren, Robert O (CONTR) - TELD-TPP-3; Williams, Scott M (BPA) - TFDF-THE DALLES; Wong, Christopher M (CONTR) - TELC-TPP-3; Wood, Scott E (CONTR) - TELF-TPP-3
Cc: Ortega, Ricardo C (BPA) - TED-TPP-2; Legare, Jonathan L (CONTR) - TERR-3
Subject: RE: Boyd Ridge SOW.doc

Good Morning Ken,

Following up on our earlier discussion, as instructed I've attached a copy of the draft SOW with comments. Also regarding the CDD, if it is determined that adjustments should be made at this juncture beyond the county road change from 'Shotgun Hollow Road' to Steuber Road, details in the Summary Of Proposed Work, etc., will need to be brought into accord with the SOW as well. Thank you.

Regards,

Jonathan Legare
(Contr) CorSource Technology Group, Inc.

Real Property Project Coordinator | TERR-3

Bonneville Power Administration
bpa.gov | P 503-230-5873 | C (b)(6)

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Tuesday, June 19, 2018 1:18 PM

To: Ackerman, Robert (BPA) - TECC-CSB-2; Amrine, Liz (CONTR) - TERG-3; Bebee, Joseph Ray (BPA) - TESF-CSB-2; Brady, Brian P (CONTR) - TERS-3; Brockway, Jenny (BPA) - TPPC-OPP-3; Burn, Beverley D (CONTR) - NWM-1; Christianson, Corey C (BPA) - TFDE-THE DALLES; Clark, James L (BPA) - TERR-CHEMAWA; Gilroy, Michael J (CONTR) - TERM-TPP-4; Goldman, Rebekah S (BPA) - TECD-CSB-1; Hagensen, Matt L (BPA) - TPWP-TPP-4; Hoang, Anthony D (CONTR) - TERS-3; Hollenbeck, Justin M (CONTR) - TERM-TPP-4; Jacobsen, Nancy L (BPA) - TFDB-THE DALLES; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Kintz, Jourdan C (BPA) - TELC-TPP-3; Konency, Thomas J (BPA) - TERS-3; Kroonen, Rasha (CONTR) - TEP-TPP-1; Lee, Christina A (BPA) - TPPA-OPP-3; Legare, Jonathan L (CONTR) - TERR-3; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Lunde, Rod T (BPA) - TECR-CSB-1; Lynch, William C (BPA) - TERM-TPP-4; Mifsud, Frank D (BPA) - TERM-TPP-4; Moe, Chance C (BPA) - TFDD-THE DALLES; O'Connell, Michael J (BPA) - ECT-4; O'Donnchadha, Brian M (BPA) - ECC-4; Owen, Kenneth E (CONTR) - TPMC-OPP-3; Patterson, Shawn M (BPA) - TFDC-THE DALLES; Platt, Travis J (BPA) - TERG-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4; Sager, Andrew (CONTR) - TERM-TPP-4; Schmidt, Patrick L (BPA) - TTCT-AMPN-1; Tabata, Mason I (BPA) - TECT-CSB-1; Thurston, Jamie S (CONTR) - TERM-TPP-4; Wahrgren, Robert O (CONTR) - TELD-TPP-3; Williams, Scott M (BPA) - TDFD-THE DALLES;

Wong, Christopher M (CONTR) - TELC-TPP-3; Wood, Scott E (CONTR) - TELF-TPP-3
Cc: Ortega, Ricardo C (BPA) - TED-TPP-2
Subject: FW: Boyd Ridge SOW.doc

Team,

A draft of the SOW for Boyd Ridge has been created. Can you please review the document and submit comments back to Ric and myself within the next couple of days if at all possible? The schedule on this is getting tight.

Thank you,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Ortega, Ricardo C (BPA) - TED-TPP-2
Sent: Tuesday, June 19, 2018 1:07 PM
To: Roberts, Ken (BPA) - TELP-CSB-2
Cc: Kroonen, Rasha (CONTR) - TEP-TPP-1
Subject: Boyd Ridge SOW.doc

Ken,

I've completed another draft of the Boyd Ridge SOW please pass it along to the appropriate SME's for comments.

Please ensure TER/TERR involvement; clarify if impairments remediation will be part of scope for this Project or occur as a parallel project.

Please clarify temporary access rights for construction vs permanent AR easement rights or decision to incur crop damage when future tower access is needed.

Please clarify, this text was copied from the CDD. Is 'tap line' still correct to use vs interconnect, being that this project will split the Big Eddy-Redmond No. 1 into x2 transmission lines?

To be confirmed by Realty Specialist Jim Clark.

From: Simmons, Jessica K (BPA) - TPWP-TPP-4

Sent: Fri Apr 27 11:24:17 2018

To: Jusupovic, Jana D (BPA) - TPCV-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4

Cc: Kroonen, Rasha (CONTR) - TEP-TPP-1

Subject: RE: DRAFT - Boyd Ridge Risk Analysis 4-27-18 1

Importance: Normal

Ok, I drafted BC 667:

(b) (2)
[Redacted content]

I chose not to include construction in the title, because I believe the intent was to use this authorization to update the full project authorization, including design.

Please populate the business case as much as you can, let me know if you need help and when you are ready for me to review the contents!

From: Jusupovic, Jana D (BPA) - TPCV-TPP-4
Sent: Friday, April 27, 2018 10:48 AM
To: Simmons, Jessica K (BPA) - TPWP-TPP-4
Cc: Kroonen, Rasha (CONTR) - TEP-TPP-1
Subject: RE: DRAFT - Boyd Ridge Risk Analysis

“G0345 Summit Ridge Wind”

Not sure if you want to add construction to the title, your call J

From: Simmons, Jessica K (BPA) - TPWP-TPP-4
Sent: Friday, April 27, 2018 10:30 AM
To: Jusupovic, Jana D (BPA) - TPCV-TPP-4
Cc: Kroonen, Rasha (CONTR) - TEP-TPP-1
Subject: RE: DRAFT - Boyd Ridge Risk Analysis

Sounds great. What is the desired title?

From: Jusupovic, Jana D (BPA) - TPCV-TPP-4
Sent: Friday, April 27, 2018 10:26 AM
To: Simmons, Jessica K (BPA) - TPWP-TPP-4
Cc: Kroonen, Rasha (CONTR) - TEP-TPP-1
Subject: RE: DRAFT - Boyd Ridge Risk Analysis

I see.

Cherilyn and I can help you populate the BC.

Rasha of course needs to provide the schedule and risks for the project.

TPC is here to serve J

From: Simmons, Jessica K (BPA) - TPWP-TPP-4
Sent: Friday, April 27, 2018 10:23 AM
To: Jusupovic, Jana D (BPA) - TPCV-TPP-4
Cc: Kroonen, Rasha (CONTR) - TEP-TPP-1
Subject: RE: DRAFT - Boyd Ridge Risk Analysis

I can create the template, but who can help me populate it? I'm looking at the calendar and we don't have too much time in order to make the May 22 TAMEC. We will need to submit for the PfMT agenda by May 10 in order to make the May 16 PfMT which means we have to be done with the BC (including FRP determination) by May 10.

From: Jusupovic, Jana D (BPA) - TPCV-TPP-4
Sent: Friday, April 27, 2018 10:20 AM
To: Simmons, Jessica K (BPA) - TPWP-TPP-4
Cc: Kroonen, Rasha (CONTR) - TEP-TPP-1
Subject: RE: DRAFT - Boyd Ridge Risk Analysis

Sadly it looks like Matt never drafted one yet... :/

From: Simmons, Jessica K (BPA) - TPWP-TPP-4
Sent: Friday, April 27, 2018 10:14 AM
To: Jusupovic, Jana D (BPA) - TPCV-TPP-4
Cc: Kroonen, Rasha (CONTR) - TEP-TPP-1
Subject: RE: DRAFT - Boyd Ridge Risk Analysis

Has a new business case template been initiated for the construction business case? I don't think there has been, but wanted to confirm.

From: Jusupovic, Jana D (BPA) - TPCV-TPP-4
Sent: Friday, April 27, 2018 10:12 AM
To: Simmons, Jessica K (BPA) - TPWP-TPP-4
Cc: Kroonen, Rasha (CONTR) - TEP-TPP-1
Subject: RE: DRAFT - Boyd Ridge Risk Analysis

Yes, per the attached email on May 22nd J

From: Simmons, Jessica K (BPA) - TPWP-TPP-4
Sent: Friday, April 27, 2018 10:11 AM

To: Jusupovic,Jana D (BPA) - TPCV-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1
Subject: RE: DRAFT - Boyd Ridge Risk Analysis

Has a TAMEC already been scheduled to support that?

From: Jusupovic,Jana D (BPA) - TPCV-TPP-4
Sent: Friday, April 27, 2018 10:10 AM
To: Simmons,Jessica K (BPA) - TPWP-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1
Subject: RE: DRAFT - Boyd Ridge Risk Analysis

Correct, I believe we were going to delete the design only business case and we were planning to go forward with the construction BC that would include the updated scope, schedule and stage gate 3 estimates.

There was no point to the design BC, since we had the PfMT already bless it under the old BC.

I think we definitely need to keep the project moving forward, I believe Matt was thinking of hitting up the July FC meeting for the construction BC.

From: Simmons,Jessica K (BPA) - TPWP-TPP-4
Sent: Wednesday, April 25, 2018 4:38 PM
To: Jusupovic,Jana D (BPA) - TPCV-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1
Subject: RE: DRAFT - Boyd Ridge Risk Analysis

The design work orders were issued, but under the original 2011 business case, not the design only business case. The design only business case is still in draft.

Are we wanting to proceed with the construction BC based on scoping info only, or do we want to wait a little bit and include some of the information to be learned in design?

From: Jusupovic, Jana D (BPA) - TPCV-TPP-4

Sent: Wednesday, April 25, 2018 4:23 PM

To: Simmons, Jessica K (BPA) - TPWP-TPP-4; Kroonen, Rasha (CONTR) - TEP-TPP-1

Subject: RE: DRAFT - Boyd Ridge Risk Analysis

This one's quite confusing Jessica, don't blame you for being confused.

The original BC was indeed fully approved, but a while ago and then the customer changed the POD and we had rescope it.

Fast forward to now, when we got the CDD approved we tendered the E&P agreement to the customer, got them to sign and provide funds because we needed the WO stat to have any chance at meeting the customers aggressive schedule!

We didn't have time to get the BC approved again for both design and construction and tender a LGIA. So Matt

and the team thought, just get the design funding approved now, in order to put the bundle in "design" status and issue WO's.

Have the design WO's been issued?

Next step is getting the new BC approved with the results of the CDD and the stage gate 3 estimates. It'll have to go back to the FC.

I hope that made sense, it's a little difficult typing on the phone:./

Sent from my Verizon 4G LTE smartphone

----- Original message -----

From: "Simmons, Jessica K (BPA) - TPWP-TPP-4" <jkhamilton@bpa.gov>

Date: 4/25/18 11:44 AM (GMT-08:00)

To: "Kroonen, Rasha (CONTR) - TEP-TPP-1" <rmkroonen@bpa.gov>, "Jusupovic, Jana D (BPA) - TPCV-TPP-4" <jdjusupovic@bpa.gov>

Subject: FW: DRAFT - Boyd Ridge Risk Analysis

Matt had mentioned to me that the construction business case for Boyd Ridge may be ready to go if the Monte Carlo gets done. I am trying to sort through documentation on this and am slightly confused.

It looks like the level 6 node is below. I approved several work orders yesterday totaling (b) (4) for design activities. They are linked to BC 339, which was then under the title G0345 Lotus Group USA's Summit Ridge Wind Project, for (b) (4).

0006377 - APPROVED

G0345 SUMMIT RIDGE WIND

Separately, I see a design only BC in the BC library for G0345, Summit Ridge Wind- Design. It's in draft status, and I'm not sure what the plan for that business case is/was, especially since design only work orders were approved yesterday (Matt had requested them before he left, so I just approved them as he requested).

So my question for you both....What next steps do you need now to support this project?

I originally assumed design work orders had been written long ago and that a construction business case was drafted and sitting ready to go, waiting for the Monte Carlo. Then, when I got several design only work orders submitted to me for my approval yesterday under an old business case, I was slightly confused. Then, when I dug into it today and saw the draft design only business case, I was a bit more confused. And- I want you to have the support you need for the project and not drop the ball, but I am a little unsure what support that might be.

Any help is greatly appreciated.

From: Davis,Michael A (BPA) - TPWE-TPP-4
Sent: Tuesday, April 24, 2018 11:16 AM
To: Kroonen,Rasha (CONTR) - TEP-TPP-1
Cc: Hagensen,Matt L (BPA) - TPWP-TPP-4; Roberts,Ken (BPA) - TELP-CSB-2; Simmons,Jessica K (BPA) - TPWP-TPP-4
Subject: RE: DRAFT - Boyd Ridge Risk Analysis

Hi Rasha

Here is the update. Let you know if this works or if you see any issues.

Thanks

Mike Davis

Supervisor | Estimating - TPWE

Bonneville Power Administration

madavis@bpa.gov | P 360-619-6072 | C (b)(6)

[TPWE SharePoint Site](#)

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Monday, April 23, 2018 10:24 AM

To: Davis,Michael A (BPA) - TPWE-TPP-4

Cc: Hagensen,Matt L (BPA) - TPWP-TPP-4; Roberts,Ken (BPA) - TELP-CSB-2; Simmons,Jessica K (BPA) - TPWP-TPP-4

Subject: RE: DRAFT - Boyd Ridge Risk Analysis

Good Morning Mike,

Please find my feedback below:

Construction delays due to RAS resource constraints: Please reduce the value to about half (both most likely and maximum)

Construction Contract Bid Environment & Construction schedule/outage constraints: please change the percentages to (3% most likely, and 10% max)

Everything else looks great

I hope this helps

Kind Regards,

Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration

Flux Resources, LLC | A David Evans Enterprises Company
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b)(6)
Email: rmkroonen@bpa.gov

From: Davis,Michael A (BPA) - TPWE-TPP-4
Sent: Monday, April 23, 2018 9:33 AM
To: Kroonen,Rasha (CONTR) - TEP-TPP-1
Cc: Hagensen,Matt L (BPA) - TPWP-TPP-4; Roberts,Ken (BPA) - TELP-CSB-2
Subject: DRAFT - Boyd Ridge Risk Analysis

Hi Rasha

Attached is my draft of the Boyd Ridge Monte Carlo report. I included the additional estimate for line access road work. Although it may not be necessary to build an access road for the line loop-in, you may want to keep that in to cover the cost of farm land reparation at the end of the construction (it's only (b)(4)). It's up to you so if you would like me to take it back out, just let me know.

Take a look at the cost input for the risks. The calculated contingency is a little high (21%), so it may be worth adjusting some of the input values.

Let me know what adjustments you would like to make and I will update and get it back to you.

Thanks

Mike Davis

Supervisor | Estimating - TPWE

Bonneville Power Administration

madavis@bpa.gov | P 360-619-6072 | C (b)(6)

[TPWE SharePoint Site](#)

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Fri Mar 16 08:42:10 2018

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: RE: FUNDING ALLOCATION/SCHEDULE CONFIRMATION FOR TPC AGREEMENTS 3-16-18 1

Importance: Normal

Attachments: 16TP-11044_AA03_Word.docx

See attached.

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Sent: Thursday, March 15, 2018 4:14 PM

To: Cosola,Anna M (BPA) - TPCC-TPP-4

Subject: RE: FUNDING ALLOCATION/SCHEDULE CONFIRMATION FOR TPC AGREEMENTS

The (b) (4) above everything we've currently asked for. Don't back out the other payments.

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Thursday, March 15, 2018 12:48 PM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: RE: FUNDING ALLOCATION/SCHEDULE CONFIRMATION FOR TPC AGREEMENTS

Hi Cherilyn,

Please take a quick peek at this and tell me if this is correct.

Thanks,

Anna

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Sent: Thursday, March 15, 2018 10:01 AM

To: Cosola,Anna M (BPA) - TPCC-TPP-4

Subject: RE: FUNDING ALLOCATION/SCHEDULE CONFIRMATION FOR TPC AGREEMENTS

I forgot to add the contingency. We should be asking for (b) (4). That's (b) (4) plus (b) (4)

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Wednesday, March 14, 2018 2:32 PM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: RE: FUNDING ALLOCATION/SCHEDULE CONFIRMATION FOR TPC AGREEMENTS

I want to make sure we have the deposit amount correct in the agreement. We were asking for an additional (b) (4) but the funding allocation below shows differently. Should it be changed from (b) (4) to (b) (4). The total we are collecting under this agreement is (b) (4) which includes three previous

deposits received.

Anyway, I just wanted to make sure we were getting it right before I send it through CCM.

Thanks!

Anna

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4
Sent: Wednesday, March 14, 2018 9:05 AM
To: Kroonen,Rasha (CONTR) - TEP-TPP-1
Cc: Cosola,Anna M (BPA) - TPCC-TPP-4
Subject: FUNDING ALLOCATION/SCHEDULE CONFIRMATION FOR TPC AGREEMENTS

The CSE is to describe funding allocation (Item 1 below) and coordinate with the PM to obtain schedule confirmation and work order requirements (Item 2 below). The CSE will provide this information, via email, to the TPCC contract specialist with the final draft agreement.

This information will be included in the final agreement package that is submitted to the TPC Delegate⁽¹⁾ for approval in CCM, and will be stored in the PWA project folder. This information is also used by TPCC when submitting a work order request to TPWP for your project.

1. Funding allocation (CSE provides this information):

(a) Total project cost: (b) (4) (design and land only, no overhead or contingency); (b) (4) (with contingency and overhead)

Total capital amount: (b) (4)

Total expense amount: \$0

(b) Amount of total project cost to be funded by the customer: (b) (4)

Total capital amount: (b) (4)

Total expense amount: \$0

(c) Amount of total project cost to be financed by the customer (always capital): (b) (4)

2. Written confirmation from the PM that clearly states:

(a) Bookend schedule has been confirmed for work being committed to in this agreement.

(b) Work order requirements.

(1) List any work orders already issued for work described in this agreement:

(2) If new/additional work orders are needed for work described in this agreement, provide the following:

(A) Type(s) of work order(s) needed:

Include funding break-out if multiple work orders are needed.

(B) Date new/additional work orders are needed to meet the project completion schedule (work start date).

Note that the schedule must factor in a minimum of 60 days from when the schedule is confirmed by the PM to the date work orders are needed to allow for agreement processing/execution and work order creation.

(B) Projected Energization Date.^[2]

(C) Projected In-Service Date (for expense projects only).^[3]

Note that this date should never be the same as the Projected Energization Date (always should be after).

- (D) Affected workgroups based on expected or typical design/construction assignments.^[4]

- (E) District or Districts in which work will be performed.^[5]

1 TPC Delegate is the TPC manager, TPCF/TPCV/TPCC supervisors, or interconnection leads.

2 Energization Date is the date the project is expected to be turned over to operations. This date will be listed in the “Project Schedule” section of the agreement.

3 In-Service Date is used for financial purposes including asset depreciation, and is required when requesting an expense work order (not required for capital because ISD is already provided in the WOR ID). This is the date the work order(s) should be ready to be sent to the “WO Completion” mailbox.

4 Group(s) performing the work (e.g. design/construction: BPA/BPA, BPA/CMO, CMO/BPA, CMO/CMO).

5 Asset Suite district where the facility is located (e.g. Eugene, Covington, Dittmer Control Center, Idaho Falls, Kalispell, Longview, Olympia, Redmond, Salem, Snohomish, Spokane, The Dalles, Tri-Cities, Wenatchee, Ross Complex, Munro Control Center, and Miscellaneous (used for laboratory services).

[1] TPC Delegate is the TPC manager, TPCF/TPCV/TPCC supervisors, or interconnection leads.

[2] Energization Date is the date the project is expected to be turned over to operations. This date will be listed in the "Project Schedule" section of the agreement.

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[4] Group(s) performing the work (e.g. design/construction: BPA/BPA, BPA/CMO, CMO/BPA, CMO/CMO).

[5] Asset Suite district where the facility is located (e.g. Eugene, Covington, Dittmer Control Center, Idaho Falls, Kalispell, Longview, Olympia, Redmond, Salem, Snohomish, Spokane, The Dalles, Tri-Cities, Wenatchee, Ross Complex, Munro Control Center, and Miscellaneous (used for laboratory services).

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Fri Mar 16 09:23:59 2018

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Cosola,Anna M (BPA) - TPCC-TPP-4

Subject: RE: FUNDING ALLOCATION/SCHEDULE CONFIRMATION FOR TPC AGREEMENTS G0345 3-16-18 1

Importance: Normal

Good Morning,

Please find my feedback below

Let me know if any additional information is needed

Kind Regards,

Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration

Flux Resources, LLC | A David Evans Enterprises Company
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b)(6)

Email: rmkroonen@bpa.gov

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4
Sent: Wednesday, March 14, 2018 9:05 AM
To: Kroonen,Rasha (CONTR) - TEP-TPP-1
Cc: Cosola,Anna M (BPA) - TPCC-TPP-4
Subject: FUNDING ALLOCATION/SCHEDULE CONFIRMATION FOR TPC AGREEMENTS

The CSE is to describe funding allocation (Item 1 below) and coordinate with the PM to obtain schedule confirmation and work order requirements (Item 2 below). The CSE will provide this information, via email, to the TPCC contract specialist with the final draft agreement.

This information will be included in the final agreement package that is submitted to the TPC Delegate^[1] for approval in CCM, and will be stored in the PWA project folder. This information is also used by TPCC when submitting a work order request to TPWP for your project.

1. Funding allocation (CSE provides this information):

(a) Total project cost: (b) (4) (design and land only, no overhead or contingency); (b) (4) (with contingency and overhead)

Total capital amount: \$(b) (4)

Total expense amount: \$0

(b) Amount of total project cost to be funded by the customer: \$(b) (4)

Total capital amount: (b) (4)

Total expense amount: \$0

(c) Amount of total project cost to be financed by the customer (always capital): (b) (4)

2. Written confirmation from the PM that clearly states:

(a) Bookend schedule has been confirmed for work being committed to in this agreement.

[BPA- Rasha Kroonen] –Bookend Schedule

- i. Design: August 2018~August 2019
- ii. Construction: October 2019 ~ October 2021

(b) Work order requirements.

- (1) List any work orders already issued for work described in this agreement:

- (2) If new/additional work orders are needed for work described in this agreement, provide the following:
 - (A) Type(s) of work order(s) needed:

Include funding break-out if multiple work orders are needed.

- (B) Date new/additional work orders are needed to meet the project completion schedule (work start date).

Note that the schedule must factor in a minimum of 60 days from when the schedule is confirmed by the PM to the date work orders are needed to allow for agreement processing/execution and work order creation.

- (B) Projected Energization Date.^[2]

[BPA- Rasha Kroonen] October 20121

(C) Projected In-Service Date (for expense projects only).^[3]

Note that this date should never be the same as the Projected Energization Date (always should be after).

(D) Affected workgroups based on expected or typical design/construction assignments.^[4]

[BPA- Rasha Kroonen] Contract Design and contract construction

(E) District or Districts in which work will be performed.^[5]

[BPA- Rasha Kroonen] Dalles District

1 TPC Delegate is the TPC manager, TPCF/TPCV/TPCC supervisors, or interconnection leads.

2 Energization Date is the date the project is expected to be turned over to operations. This date will be listed in the "Project Schedule" section of the agreement.

3 In-Service Date is used for financial purposes including asset depreciation, and is required when requesting an expense work order (not required for capital because ISD is already provided in the WOR ID). This is the date the work order(s) should be ready to be sent to the "WO Completion" mailbox.

4 Group(s) performing the work (e.g. design/construction: BPA/BPA, BPA/CMO, CMO/BPA, CMO/CMO).

5 Asset Suite district where the facility is located (e.g. Eugene, Covington, Dittmer Control Center, Idaho Falls, Kalispell, Longview, Olympia, Redmond, Salem, Snohomish, Spokane, The Dalles, Tri-Cities, Wenatchee, Ross Complex, Munro Control Center, and Miscellaneous (used for laboratory services).

[1] TPC Delegate is the TPC manager, TPCF/TPCV/TPCC supervisors, or interconnection leads.

[2] Energization Date is the date the project is expected to be turned over to operations. This date will be listed in the "Project Schedule" section of the agreement.

[3] In-Service Date is used for financial purposes including asset depreciation, and is required when requesting an expense work order (not required for capital because ISD is already provided in the WOR ID). This is the date the work order(s) should be ready to be sent to the "WO Completion" mailbox.

[4] Group(s) performing the work (e.g. design/construction: BPA/BPA, BPA/CMO, CMO/BPA, CMO/CMO).

[5] Asset Suite district where the facility is located (e.g. Eugene, Covington, Dittmer Control Center, Idaho Falls, Kalispell, Longview, Olympia, Redmond, Salem, Snohomish, Spokane, The Dalles, Tri-Cities, Wenatchee, Ross Complex, Munro Control Center, and Miscellaneous (used for laboratory services).

From: Jacobsen,Nancy L (BPA) - TFDB-THE DALLES

Sent: Tue Oct 09 08:11:58 2018

To: Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; O'Connell,Michael J (BPA) - ECT-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; O'Donnchadha,Brian M (BPA) - ECC-4; Clark,James L (BPA) - TERR-CHEMAWA; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3

Cc: ADL_TFDD_ALL; ADL_TFDB_ALL; ADL_TFDC_ALL

Subject: RE: G0345: Boyd Ridge Update 10-9-18 1

Importance: Normal

Good morning.

Can we flip this drawing somehow and have the control house closest to the gate? Can we please also add a pedestrian gate? We don't want to deal with the hassle of the drive thru gate every time we go to the station. Unless we have heavy test equipment to carry in or, in the case of sub maintenance, need our work trucks, we walk in most of the time.

Which brings up one more thing. Can we please have a small turnaround/parking area by the gate?

Thank you,

Nancy

Nancy L. Jacobsen
Chief Operator III
The Dalles District
email:nljacobsen@bpa.gov
541-296-5114, ext. 134
DATS: 955-134
Cell: (b)(6)

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Wednesday, September 12, 2018 2:54 PM

To: Jacobsen,Nancy L (BPA) - TFDB-THE DALLEES; Roberts,Ken (BPA) - TELP-CSB-2; O'Connell,Michael J (BPA) - ECT-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; O'Donnchadha,Brian M (BPA) - ECC-4; Clark,James L (BPA) - TERR-CHEMAWA; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3

Subject: G0345: Boyd Ridge Update

Importance: High

Good Afternoon Team,

Nancy requested an update on the project so I thought I would take the opportunity to provide everyone with the latest update on the Boyd Ridge Project

Customer Coordinating:

A regular customer coordination meeting will be set up starting October 2018.

Environmental update:

- Preliminary environmental surveys are complete, possible construction time restrictions for nesting birds.
- Archology : Brian is initiating consultation with the tribes and once that has been done and the 30-day comment period has expired I will have the ground surveyed.

Real Property

- The property owners have agreed to the latest substation location – see attached

Contracting schedule

Design contract is moving forward, see schedule below:

Task

Date

Status

Issue RFO

08/24/2018

Complete

Last Day for RFO Clarification Questions – Rd. 1

09/21/2018

BPA's Clarification Questions Response Due – Rd. 1

10/05/2018

Last Day for RFO Clarification Questions – Rd. 2

10/12/2018

BPA's Clarification Questions Response Due – Rd. 2

10/19/2018

Offers Due

11/05/2019

Evaluation of Offers

11/12/2018 – 11/16/2018

Award Contract

12/03/2018

Please let me know if any additional information is needed

Kind Regards,

Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration

Flux Resources, LLC | A David Evans Enterprises Company
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b)(6)
Email: rmkroonen@bpa.gov

From: Knight,Ellyn A (BPA) - TEPO-TPP-1

Sent: Thu Jan 03 14:05:26 2019

To: Kroonen,Rasha (CONTR) - TEP-TPP-1

Cc: Gutierrez,Lindsey A (CONTR) - TEPO-TPP-1; McNutt,Aaron P (CONTR) - TEP-TPP-1; Marleau,Michael L (BPA) - TEP-TPP-1; Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: RE: G0345 BOYD RIDGE SUBSTATION- E&P cancellation 1-3-19 1

Importance: Normal

Attachments: image001.jpg; image002.jpg; image003.jpg; image004.jpg; image005.jpg; image006.jpg

Good Afternoon,

All costs have been requested to be transferred to the RE work order and the TC/CF/LC work orders have been requested to be canceled.

I will be making adjustments to move the advance payments.

Rasha, please reply back with your request to complete the RE work order and I will complete it after the transfers have processed.

Once all actions completed the project will be put into the queue for final accounting and you will have a request for approval of all costs.

The customer will be notified in approximately 30-45 days of the refund amount and expected time.

Let me know if you have any questions.

Thank you.

Ellyn Knight

Program Analyst | TEPO-TPP-1

Bonneville Power Administration

bpa.gov | P 360-619-6734

Facebook-Icon_31x31_v3Flickr-Icon_31x31Instagram-Icon_31x31LinkedIn-Icon_31x31[Twitter](#) 31x31YouTube_31x31

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Monday, December 17, 2018 3:41 PM

To: Gutierrez,Lindsey A (CONTR) - TEPO-TPP-1; Knight,Ellyn A (BPA) - TEPO-TPP-1

Cc: McNutt,Aaron P (CONTR) - TEP-TPP-1; Marleau,Michael L (BPA) - TEP-TPP-1
Subject: G0345 BOYD RIDGE SUBSTATION- E&P cancellation

Good Afternoon,

Per the developer's request E&P contract # (16TP-110044) is being canceled, please proceed with transferring expenditures from the TC,CF and LC WOs to RE WOs then closing all TC/CF WOs.

Please let me know if any additional information is needed

Bundle ID

Bundle ID Description

Work Order

WO Description

Type

In Service

Total Estimate

Total Actuals

% Spent

P00627

G0345 BOYD RIDGE SUBSTATION

00482897

BIGE-RDMD-1: EXPENSE REMEDIATION FOR IMPAIRMENTS - G0345

RE

6/30/2019

(b) (4)

\$0

0.00%

P00627

G0345 BOYD RIDGE SUBSTATION

00469816

BIGE-RDMD-1: LAND RIGHTS REVIEW/ACQ FOR LOOP

LC

6/30/2021

(b) (4)

(b)

0.56%

P00627

G0345 BOYD RIDGE SUBSTATION

00470225

BIGE-RDMD-1: NEW LINE LOOP IN (DESIGN) - G0345

CF

6/30/2021

(b) (4)

(b)

0.09%

P00627

G0345 BOYD RIDGE SUBSTATION

00482894

BIGE-RDMD-1: NEW STRUCTURES FOR IMPAIRMENTS - G0345

TC

6/30/2021

(b) (4)

\$0

0.00%

P00627

G0345 BOYD RIDGE SUBSTATION

00469803

BOYD: LAND ACQUISITION FOR BOYD RIDGE SUBSTATION

LC

6/30/2021

(b) (4)

(b) (4)

2.44%

P00627

G0345 BOYD RIDGE SUBSTATION

00469896

BOYD: NEW 230KV BOYD RIDGE SUBSTATION - G0345

TC

6/30/2021

(b) (4)

(b) (4)

3.70%

P00627

G0345 BOYD RIDGE SUBSTATION

00470224

MOPN: INSTALL TT/COMM (DESIGN) - G0345

CF

6/30/2021

(b) (4)

(b)

0.14%

P00627

G0345 BOYD RIDGE SUBSTATION

00470222

RDMD: INSTALL TT/COMM (DESIGN) - G0345

CF

6/30/2021

(b) (4)

(b)

0.07%

P00627

G0345 BOYD RIDGE SUBSTATION

00469817

SUMT: COLLECTOR COMM/CTRL - G0345 DESIGN

TC

6/30/2021

(b) (4)

(b)

0.02%

P00627

G0345 BOYD RIDGE SUBSTATION

-

(b) (4)

(b) (4)

1.76%

Kind Regards,

Rasha Kroonen, PMP | Senior Project Manager

Bonneville Power Administration | Flux

Transmission Project Management | TEP-TPP-1

Civil/Environmental Engineer- M.Sc. (Eng)

Office: (360) 619-6918 Cell: (b)(6)

Email: rmkroonen@bpa.gov

Facebook-Icon_31x31_v3Flickr-Icon_31x31Instagram-Icon_31x31LinkedIn-Icon_31x31[Twitter_31x31](#)YouTube_31x31

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Wed Feb 13 07:28:57 2019

To: Lunde, Rod T (BPA) - TECR-CSB-1; Owen, Kenneth E (CONTR) - TPMC-OPP-3; Randall, Cherilyn C (BPA) - TPCV-TPP-4

Cc: Adolf, MayMay (BPA) - TECR-CSB-1; Archer, Robert J (BPA) - TECR-CSB-1; Bliss, Nigel L (BPA) - TECR-CSB-1; Byun, Robin H (BPA) - TECR-CSB-1; Harrison, Yolanda (BPA) - TECR-CSB-1; Hashi, Mursal A (BPA) - TECR-CSB-1; McDonald, Andy (BPA) - TECR-CSB-1; Thomas, Carldez J (BPA) - TECR-CSB-1; Zhang, Ziyuan (BPA) - TECR-CSB-1

Subject: RE: G0345 Summit Ridge / Boyd Ridge 2-13-19 1

Importance: Normal

Attachments: RE: Is G0345 Boyd Ridge Substation canceled? image001.png

Hi Rod,

Per Cherilyn Randall's last communication with me (shown below), G0345 Boyd Ridge has been put on hold, not officially cancelled. We need to plan and proceed as if it will still be going in, until they officially cancel it. I appreciate that this may present some challenges for some groups. We are also dealing with it in regards to the thermal upgrading of the line which was what instigated the conversation shown below.

I'm adding Cherilyn to the conversation to keep her apprised of your groups involvement.

Best Regards,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Lunde,Rod T (BPA) - TECR-CSB-1

Sent: Tuesday, February 12, 2019 1:37 PM

To: Owen,Kenneth E (CONTR) - TPMC-OPP-3; Roberts,Ken (BPA) - TELP-CSB-2

Cc: Adolf,MayMay (BPA) - TECR-CSB-1; Archer,Robert J (BPA) - TECR-CSB-1; Bliss,Nigel L (BPA) - TECR-CSB-1; Byun,Robin H (BPA) - TECR-CSB-1; Harrison,Yolanda (BPA) - TECR-CSB-1; Hashi,Mursal A (BPA) - TECR-CSB-1; Lunde,Rod T (BPA) - TECR-CSB-1; McDonald,Andy (BPA) - TECR-CSB-1; Thomas,Carldez J (BPA) - TECR-CSB-1; Zhang,Ziyuan (BPA) - TECR-CSB-1

Subject: RE: G0345 Summit Ridge / Boyd Ridge

Hi Ken,

The last information I have, is an email from Rasha Kroonen dated 12/17/2018, where she states the G0345 Boyd Ridge project is cancelled and all work shall stop.

The more recent project, G0367 Maupin Bakeoven, PRD 338400 shows equipment being installed as an addition to the previously completed G0345 hardware. But this assumption is not correct if G0345 is cancelled.

The scoping is due for G0367, but the PRD is not accurate if G0345 is cancelled.

Any assistance to sorting out this situation?

Thanks,

Rod

From: Owen, Kenneth E (CONTR) - TPMC-OPP-3
Sent: Monday, February 11, 2019 7:31 AM
To: Lunde, Rod T (BPA) - TECR-CSB-1
Subject: G0345 Summit Ridge / Boyd Ridge

Hi Rod,

This project is still ongoing. It seems there's been some details to work out with the landowner regarding the exact location of the Boyd Ridge substation and I found an Oct 2019 date for engineering complete.

Regards,

Ken Owen

ACS Professional Staffing

Electronics Engineer | TPMC OPP-3 Communications & Control Planning

Bonneville Power Administration

bpa.gov | P 360-619-6739 | C (b)(6)

Please consider the environment before printing this email.

FCC ID: W7KEO

AFMARS: AFA0KO



- Legend**
- All Substations
 - BPA Substation
 - BPA Maintenance HQ
 - Non-BPA Substation
 - BPA Transmission Towers
 - Lattice Tower
 - Pole Structure
 - Substation Dead End Bays
 - Unknown Tower Type
 - BPA Transmission Lines
 - BPA Transmission Lines (Spar)
 - BPA Right-of-way Corridors
 - Transportation System Assets
 - Other Road Features
 - Approach
 - Bridge
 - Cattle Guard
 - Culvert
 - Ford
 - Gate
 - Landing
 - Pinout
 - Turn Around
 - Transportation System Roads
 - Capital Project - Transportation Plan
 - Tract Roads - Rights Reserved, Green
 - Legacy AFMS Roads - Access not
 - Supplemental Digitized Roads - Acl
 - World Boundaries and Places
 - World Imagery
 - Low Resolution 15m Imagery
 - High Resolution 60cm Imagery
 - High Resolution 30cm Imagery
 - Citations

1: 8,437



Notes

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Fri Mar 16 08:55:46 2018

To: Cosola,Anna M (BPA) - TPCC-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Roberts,Ken (BPA) - TELP-CSB-2

Subject: RE: G0345 Summit Ridge Wind_PM Confirmation 3-16-18 1

Importance: Normal

Good Morning Team,

October 2019 for design completion should be sufficient.

Please let me know if any additional information is needed

Kind Regards,

Rasha Kroonen, PMP | Senior Project Manager

Bonneville Power Administration

Flux Resources, LLC | A David Evans Enterprises Company

Transmission Project Management | TEP-TPP-1

Civil/Environmental Engineer- M.Sc. (Eng)

Office: (360) 619-6918 Cell: (b)(6)

Email: rmkroonen@bpa.gov

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Wednesday, March 14, 2018 7:13 AM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2

Subject: G0345 Summit Ridge Wind_PM Confirmation

The customer notified us that they are ready to sign/fund the amendment No. 3. I will need confirmation from the PM that the new October 2019 completion date is acceptable.

Thank you,
Anna

From: O'Connell,Michael J (BPA) - ECT-4
Sent: Thursday, January 25, 2018 12:13 PM
To: Cosola,Anna M (BPA) - TPCC-TPP-4
Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1
Subject: RE: G0345 Summit Ridge Wind_Project Status Update

I'll be calling in- thanks

-----Original Appointment-----

From: Cosola,Anna M (BPA) - TPCC-TPP-4
Sent: Tuesday, January 16, 2018 2:08 PM
To: Cosola,Anna M (BPA) - TPCC-TPP-4; O'Connell,Michael J (BPA) - ECT-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; Kevin Wetzel (Kevin.Wetzel@patternenergy.com) (Kevin.Wetzel@patternenergy.com)
Subject: FW: G0345 Summit Ridge Wind_Project Status Update
When: Thursday, January 25, 2018 1:00 PM-2:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: 293/TPP

-----Original Appointment-----

From: Cosola,Anna M (BPA) - TPCC-TPP-4
Sent: Friday, January 12, 2018 9:10 AM
To: Cosola,Anna M (BPA) - TPCC-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA)

- TELP-CSB-2; Taylor, Eric K (BPA) - TSE-TPP-2; Kevin Wetzel (Kevin.Wetzel@patternenergy.com) (Kevin.Wetzel@patternenergy.com)

Subject: G0345 Summit Ridge Wind_Project Status Update

When: Thursday, January 25, 2018 1:00 PM-2:00 PM (UTC-08:00) Pacific Time (US & Canada).

Where: 293/TPP

Telephone Bridge

(b)(2)

From: Taylor, Eric K (BPA) - TSE-TPP-2

Sent: Thu Jan 25 15:00:32 2018

To: Randall, Cherilyn C (BPA) - TPCV-TPP-4

Subject: RE: G0345 Summit Ridge Wind_Project Status Update 1-25-18 1

Importance: Normal

Attachments: image001.png

Is that only after the LGIA is signed?

From: Randall, Cherilyn C (BPA) - TPCV-TPP-4

Sent: Thursday, January 25, 2018 2:58 PM

To: Kevin Wetzel

Cc: Kroonen, Rasha (CONTR) - TEP-TPP-1; Roberts, Ken (BPA) - TELP-CSB-2; Taylor, Eric K (BPA) - TSE-TPP-2; O'Connell, Michael J (BPA) - ECT-4

Subject: RE: G0345 Summit Ridge Wind_Project Status Update

You may use the three-year suspension clause in the tariff if you need to delay after project execution has started. If you don't get the project started again before the three years runs out, then you are removed from the queue.

From: Kevin Wetzel [<mailto:Kevin.Wetzel@patternenergy.com>]

Sent: Thursday, January 25, 2018 2:52 PM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; O'Connell,Michael J (BPA) - ECT-4

Subject: [EXTERNAL] RE: G0345 Summit Ridge Wind_Project Status Update

Thanks Cherilyn – one thing I forgot to ask was if we make the payment in March and later decide we would like to stop work and be refunded the funds not yet spent, would that result in a complete removal from the queue, or just a pause in the process with corresponding delay in the in-service expectation? Thanks.

Kevin Wetzel

Manager, Project Development

main +1 415-283-4000

direct +1 (b) (6)

mobile +(b)(6)

Kevin.Wetzel@patternenergy.com

Pier 1, Bay 3

San Francisco, CA 94111

patterndev.com

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This email message may contain information that is confidential and proprietary. If you are not the intended recipient, please contact the sender and destroy the original and any copies of the original message. We take measures to protect the content of our communications. However, we cannot guarantee that email messages will not be intercepted by third parties or that email messages will be free of errors or viruses.

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4 [<mailto:ccrandall@bpa.gov>]

Sent: Thursday, January 25, 2018 1:52 PM

To: Kevin Wetzel; Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; O'Connell,Michael J (BPA) - ECT-4

Subject: RE: G0345 Summit Ridge Wind_Project Status Update

Adding Mike O'Connell to the email so you have his contact info.

Sent from my Verizon 4G LTE smartphone

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Mon Dec 17 09:57:31 2018

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; O'Connell,Michael J (BPA) - ECT-4

Cc: McNutt,Aaron P (CONTR) - TEP-TPP-1

Subject: RE: G0345 Update 12-17-18 1

Importance: Normal

Attachments: image001.jpg; image002.jpg; image003.jpg; image004.jpg; image005.jpg; image006.jpg

Good Morning Cherilyn,

Here is the answer to the customer's question in detail:

- With the need for EA for the project there is no set percentage of design for a full NEPA clearance – the best data we have at this point is approximately 60% of the design.
- The early stages of design tend to be more expensive because it involves a lot of the project surveys, investigations, coordination and decision making
- Below is a summary of the estimated cost
 - o BPA will pay the AE \$(b) (4).00 for the 50% submittal package for all disciplines.

- o BPA review time and coordination is another \$(b) (4)
- o So this effort will approximately cost \$(b)
- o The overhead will need to applied to the amount above
- With BPA's new approach of conceptual scoping – the CDD has a shelf life of 3 years so there is a risk that we have to complete a new scoping effort when the project comes back.
- The design contract award is not signed yet so we can still modify the contract to limit the scope as needed

Please note I am supposed to have kick off meeting tomorrow, so I will need a decision by the end of the day

Thank you so much

Kind Regards,
Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration | Flux
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b) (6)
Email: rmkroonen@bpa.gov

Facebook-Icon_31x31_v3Flickr-Icon_31x31Instagram-Icon_31x31LinkedIn-Icon_31x31[Twitter_31x31](#)YouTube_31x31

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4
Sent: Thursday, December 13, 2018 3:13 PM
To: Kroonen,Rasha (CONTR) - TEP-TPP-1; O'Connell,Michael J (BPA) - ECT-4
Subject: G0345 Update

Pattern Energy wants to terminate their E&P and stop design. They don't want to lose the queue position though, so they want us to finish NEPA, and tender an LGIA so they can trigger the three-year suspension clause. Only problem is we usually need some design in order to finish NEPA. Michael, how much more information do you need in order to be able complete an EA? Do we have a good enough APE out of scoping? I am trying to get a feel for if we would need a lot of design or just a bit so that I can give Pattern Energy a reasonable estimate of how much effort and money it will take to get to a completed EA. I'd like to get this sorted quickly before Rasha kicks of the design in earnest.

Thanks,

Cherilyn

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Thu Dec 13 14:38:14 2018

To: McNutt,Aaron P (CONTR) - TEP-TPP-1; Lewis,Jason C (BPA) - NSSV-4400-2; Berg,Michael A (BPA) - TED-TPP-2; Ortega,Ricardo C (BPA) - TED-TPP-2; Liebhaber,Dustin F (BPA) - TELP-TPP-3; Roberts,Ken (BPA) - TELP-CSB-2; Moak, Garrett J. (GARRETT.J.MOAK@leidos.com); Francois, Joachim (Joe); MICHEAL.R.SWAN@leidos.com; Bitzer, Jonathan P.; O'Connell,Michael J (BPA) - ECT-4; O'Donnchadha,Brian M (BPA) - ECC-4; Clark,James L (BPA) - TERR-CHEMAWA; Legare,Jonathan L (CONTR) - TERR-3; Niziolek,Richard J (CONTR) - TERM-TPP-4

Cc: Valentine,Meredith F (CONTR) - NSSV-4400-2; Pagano,Laura E (CONTR) - NSSV-4400-2; Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: RE: Kickoff Meeting -- Design for Boyd Ridge Substation (Contract 74567 release 011) 12-13-18 1

Importance: Normal

Attachments: Boyd Ridge Meting Agenda 12 18 18.doc; image001.jpg; image002.jpg; image003.jpg; image004.jpg; image005.jpg; image006.jpg

Good Afternoon,

Attached is the agenda for our kick off meeting on Dec 18, 2018.

Thank you so much

Kind Regards,

Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration | Flux
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b)(6)
Email: rmkroonen@bpa.gov

-----Original Appointment-----

From: McNutt, Aaron P (CONTR) - TEP-TPP-1

Sent: Tuesday, December 04, 2018 6:24 PM

To: McNutt, Aaron P (CONTR) - TEP-TPP-1; Kroonen, Rasha (CONTR) - TEP-TPP-1; Lewis, Jason C (BPA) - NSSV-4400-2; Berg, Michael A (BPA) - TED-TPP-2; Ortega, Ricardo C (BPA) - TED-TPP-2; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Roberts, Ken (BPA) - TELP-CSB-2; Moak, Garrett J. (GARRETT.J.MOAK@leidos.com); Francois, Joachim (Joe); MICHEAL.R.SWAN@leidos.com; Bitzer, Jonathan P.; O'Connell, Michael J (BPA) - ECT-4; O'Donnchadha, Brian M (BPA) - ECC-4; Clark, James L (BPA) - TERR-CHEMAWA; Legare, Jonathan L (CONTR) - TERR-3; Niziolek, Richard J (CONTR) - TERM-TPP-4

Cc: Valentine, Meredith F (CONTR) - NSSV-4400-2; Pagano, Laura E (CONTR) - NSSV-4400-2; Randall, Cherilyn C (BPA) - TPCV-TPP-4

Subject: Kickoff Meeting -- Design for Boyd Ridge Substation (Contract 74567 release 011)

When: Tuesday, December 18, 2018 11:00 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).

Where: TPP 228 -- Phone: (b)(2)

Join us for a Kickoff Meeting to discuss the Design for Boyd Ridge Substation.

-

DIALING INSTRUCTIONS:

Call in number: (b)(2)

AGENDA:

1. Introduce Project Team Members
2. Discuss Project Schedule
3. Scheduling of Site Visit
4. Environmental, Realty & Permits Discussion
5. Additional Items TBD

Feel free to contact [RASHA KROONEN](#) or myself if you have any questions.

Thanks,

Aaron McNutt

(CONTR) David Evans Enterprises, Inc. | **FLUX**

Project Manager I | TEP-TPP-1

Transmission Project Management Analysis & Scheduling

Bonneville Power Administration

apmcnutt@bpa.gov | P (360) 619-6912

WORK ORDER SUMMARY:

Bundle ID

Bundle Description

Work Order

WO Description

Project Manager

P00627

G0345 BOYD RIDGE SUBSTATION

00469803

BOYD: LAND ACQUISITION FOR BOYD RIDGE SUBSTATION

Rasha Kroonen

00469816

BIGE-RDMD-1: LAND RIGHTS REVIEW/ACQ FOR LOOP

00469817

SUMT: COLLECTOR COMM/CTRL - G0345 DESIGN

00469896

BOYD: NEW 230KV BOYD RIDGE SUBSTATION - G0345

00470222

RDMD: INSTALL TT/COMM (DESIGN) - G0345

00470224

MOPN: INSTALL TT/COMM (DESIGN) - G0345

00470225

BIGE-RDMD-1: NEW LINE LOOP IN (DESIGN) - G0345

TBD

BIGE-RDMD-1: LINE IMPAIRMENTS

From: Jaramillo, Emmanuel (BPA) - TEP-TPP-1

Sent: Mon Jan 22 13:50:59 2018

To: Roberts, Ken (BPA) - TELP-CSB-2; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Randall, Cherilyn C (BPA) - TPCV-TPP-4

Cc: Liebhaber, Dustin F (BPA) - TELP-TPP-3; Kroonen, Rasha (CONTR) - TEP-TPP-1

Subject: RE: P00627 -G0345 Boyd Ridge PDT Discussion from 1-8-18

Importance: Normal

Thank you for the reminder!

Per our discussion during the PDT 1/8/18 meeting, the team has voted to move forward with Stage Gate 3 approval for P00627 (G0345 Boyd Ridge). Please make the necessary changes to the existing CDD to reflect the new location of the substation and other new information.

Thanks,

Emmanuel Jaramillo
BONNEVILLE POWER ADMINISTRATION
Electrical Engineer
Project Manager-TEP

Email: ejaramillo@bpa.gov

Phone: 360-619-6116 | Cell Number (b)(6) | Fax Number 360-619-6934

From: Roberts, Ken (BPA) - TELP-CSB-2
Sent: Monday, January 22, 2018 1:35 PM
To: Jaramillo, Emmanuel (BPA) - TEP-TPP-1
Cc: Liebhaber, Dustin F (BPA) - TELP-TPP-3
Subject: P00627 -G0345 Boyd Ridge PDT Discussion from 1-8-18

Hi Emmanuel,

At the PDT meeting on the 8th, Dustin and I were under the impression that we would get an email from you summarizing the PDT findings for Boyd Ridge, namely that Dustin could continue the line design with the information that he currently has on hand in an effort to meet the customers aggressive timeline, and that as Erich Orth had stated previously, since the majority of the project is not changing we would not need to come back to the PDT for another decision and we could move forward with the original PDT decision and proceed to Stage Gate 3.

I know you are extremely busy and I just wanted to get a confirmation from you to make sure that we are all on the same page.

Best Regards,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Cook,Kerry B (BPA) - TELF-TPP-3

Sent: Tue Jun 19 13:03:59 2018

To: Roberts,Ken (BPA) - TELP-CSB-2; Belanger Jr,John E (BPA) - TFHQ-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3; Kroonen,Rasha (CONTR) - TEP-TPP-1; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Clark,James L (BPA) - TERR-CHEMAWA; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3

Cc: O'Connell,Michael J (BPA) - ECT-4; O'Donnchadha,Brian M (BPA) - ECC-4

Subject: RE: Rough Map for Boyd Ridge 6-19-18 2

Importance: Normal

Attachments: Boyd Ridge Rough 10 acre.pdf

Hi Ken,

I think you could shift it over to the west a bit more to further reduce the field take. See line in attachment.

Kerry

From: Roberts,Ken (BPA) - TELP-CSB-2

Sent: Tuesday, June 19, 2018 10:43 AM

To: Cook,Kerry B (BPA) - TELF-TPP-3; Belanger Jr,John E (BPA) - TFHQ-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3; Kroonen,Rasha (CONTR) - TEP-TPP-1; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Clark,James L (BPA) - TERR-CHEMAWA; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3

Cc: O'Connell,Michael J (BPA) - ECT-4; O'Donnchadha,Brian M (BPA) - ECC-4

Subject: Rough Map for Boyd Ridge

Team,

Here is a map I have drawn up given our conversation yesterday. I kept the plot the same width but elongated the acreage to 10 acres to account for a potential need to stretch further south to accommodate for the control house move/yard reconfiguration. The mapping tools on eGIS are far from great and this was as close as I could get it.

- The overall land purchase size was meant to be 550ft x 800 ft which equals 10.10 acres.
- The interior area that is shaded in would be the maximum fenced in area and lies 100 feet inside the border on each side to give us the appropriate distance from the yard fence to the BPA land boundary. This will work out to roughly 4.82 acres (350 ft x 600 ft). This map shows 4.74 acres, it was as close as I could get it.
- There is roughly 190 ft from the prospective BPA property boundary and 290 ft from the prospective BPA fence boundary to the property owners northern property line. This should leave plenty of space to drive farming equipment regardless of what agreement is made regarding the use or movement between the BPA fence and BPA property line.
- With the fill area filled for farming like Kerry was talking about, there is roughly 200 ft between the prospective BPA property line and the dam-like formation and over 300 ft to the prospective BPA fence line. Again, this should leave plenty of area for farming equipment to drive around.
- This follows the outdoor design (still being revised for the control house move) that would allow for future expansion to 4 bays total breaker and a half. This should allow the customer to still qualify for transmission credits.

Scott Wood was going to add a potential road route to it for the land owner to give feedback on. Please don't distribute this beyond our group yet. Let me know if you have any comments please.

Thank you,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

#	Assigned	Discipline
47		Security
54		Civil
55		Civil
56		Civil
57		Civil
58		Civil
59		Civil
60		Civil
61		Civil
62	Jay	Civil (Line)
63		Civil (line)
64		Civil: Sub
65		Construction
66		Construction
67		Data
68		Data
69		Environment
70		Environment
71		Environment
72		Fire Protection

Question

It is our assumption that coordination with the security design contractor is not in the AE's scope and that design will be performed by others after the AE submits the IFC for the substation design. Please confirm if this is a correct assumption.

SOW REV1 states to assume use of a well for the water source. The Q&A notes to assume a water storage tank. Please clarify intent.

Per responses to question 7 on pg 21 of the CDD and in the civil section on pg 26 of the SOW Rev 5, will the topographic information be obtained through multiple sources including BPA's surveys and outside sources?

Responses to questions 1 & 2 on pg 19 of CDD state retaining walls and access roads/bridges will not be required. However, pp. 32 & 33 of SOW Rev requests recommendations for retaining walls and bridges. Will this provide detailed scope expectations for retaining walls and bridges, if required?

Is parking wanted outside of the substation? If so, how many stalls?

What is the minimum size and what are the grade limitations for the farm crossing that will be used by large tractors?

Should we include a retaining wall design? Is there a preference on style or type if required?

Water/grey water storage to be inside, below or outside and will it require secure road access.

For the substation access road is wetland delineation required? If so, who is responsible for the work to complete this?

Exhibit "J" Item 4 - Supplemental Schedule for Inviting by work order milestone" should the BGC-RDMO-1 "Line Remediation" Item be cost included in the work order for the new force in design "WO: 470125 BGC-RDMO-1-NEW LINE (DOOR IN [DESIGN]) - G0345" ---- appears one is a new farm easement and the other is an existing facility expense

For the BGC-RDMO #1 line is the A/E required to provide post correction as-built surveys (36) of the sections modified to resolve the impairments (wire-wire, wire-ground, wire-structure)?

The revised RIG instructs the AE to design assuming a well and septic disposal system, not using storage tanks for water and sewer disposal. The answer to Question 14 states the AE should assume a water storage tank and septic "tank". The revised RIG answers conflict with each other. Please confirm one of the options listed, A. Well and septic disposal system including drain field for wastewater. B. Storage tank for water and septic disposal system including drain field for wastewater. C. Storage tank for water and storage tank for wastewater.

Per response to question 10 on pg 74 of the CDD, which parts of this design will be Force Account?

Per response to question 12 on pg 74 of the CDD, will the A/E be required to assist during the courtesy walk with local Fire-Master?

Who will be providing GPS/RTK signal at G0345? Will BPA require their own GPS clock installation?

Control house shows 4 data systems racks while Data Systems CDD only has 2, please confirm no more than 2 needed.

Per response to question 5 on pg 27 of the CDD, will BPA initiate the conversation with the tribes?

Per responses to question 6 on pg 27 and 9 on pg 29 of the CDD, will bird flight diverters be required even though approximately 20 species of migratory birds have been identified?

Per response to question 5 on pg 27 of the CDD, has the special permitting been identified?

Does EPA have any Fire Protection/Hazmat/Life Safety requirements that exceed the involved building and fire codes?

<p>Answer</p> <p>The assumption is correct.</p>
<p>Assure a water storage tank</p> <p>If a waterline or well are not options, then a water storage tank should be provided. A functional potable system must be designed to ensure water remains potable, with clear signage, instructions for operations and maintenance to maintain the system.</p>
<p>BPA comment/observation: Water storage tanks have not been able to provide potable water due to the need for continuous chemical additions and monitoring, therefore the eyewash and handwashing necessities compromised and need to be addressed as part of the overall system or designed as independent systems.</p>
<p>BPA will provide the survey for the project.</p>
<p>Retaining walls and bridge requirements needs to be determined by the consultant during design.</p>
<p>Design details will be tackled during the design phase; this is irrelevant during the bidding process. Design details will be tackled during the design phase; this is irrelevant during the bidding process. Retaining walls and bridge requirements needs to be determined by the consultant during design.</p>
<p>Outside the fence</p>
<p>BPA will provide any necessary wetland delineation.</p>
<p>BPA Comment/observation: The wetland delineation was provided to the contractor.</p>
<p>BPA Survey is required to perform the as-built data collection to update BPA plan and profile drawings.</p>
<p>B: Storage tank for water and septic disposal system including drain field for wastewater.</p>
<p>None, the construction is contracted.</p>
<p>Yes</p>
<p>BPA will be providing their own GPS/RTK signal. BPA will require a GPS clock installation at GG245 Boyd Ridge Sub for Protection and Data Systems.</p>
<p>The Bettas Road control house drawing provided is a reference document given to demonstrate the approximate size that the Boyd Ridge Control House should be. It is not to be a copy and paste for Boyd Ridge construction as our standards have changed since Bettas Road was built. As stated in the CED, Data Systems only needs 2 racks.</p>
<p>Yes</p>
<p>No diversers will be required</p>
<p>AE should know about county or local-level building permits.</p>
<p>Yes. Design per BPA SOW and BPA Fire Alarm Standard STD DS.000008.</p>

73		Fire Protection
74	Jay	General
75		Geotechnical
76		Geotechnical
77		Geotechnical
78		Geotechnical
79		Indoor
80		Indoor
81		Indoor
82		Indoor
83		Indoor
84		Indoor
85		Mechanical
86		Mechanical
87		Outdoor
88		Realty
89		Relay
90		Relay
91		Relay
92		Relay
93		Relay
94		Structural
95		Telecomm

Does BPA have an insurance carrier that has Fire Protection/Alarm requirements that exceed the indicated building and fire codes?

For construction support period, should A&E assume 2 site visits and 12 monthly site meetings?

Please confirm that transmission line borings are required to go 60 feet into rock or very dense soils, and 100 feet into soft soils. Can soft soils be defined (relative density/consistency threshold)?

Confirm that the test oil protocol for each tower is one test pit at each leg if rock is encountered?

Does BPA have existing geotechnical information to support line reconnection design or are supplemental geotechnical investigations required?

The Transmission Line Section, Task 4 – Deliverables, Item 8 states that a separate report for the "river crossing explorations" is needed. Are there the towers that span Steuber flood?

Big Eddy Relay: Electromechanical line relays to be left in place. For MB11 communication aux relays and SEL-2506/SEL-2894 relays are to be used. This is a unique design. Are there any past projects where this has been implemented to use as a go-by?

Boyd Ridge Telecom/SCADA – Limit wind generation points to those a standard by for these or will they be provided by Summit Ridge generation?

125V Chargers are shown. Are all needed?

Royal Ridge Relay: Where is NER/JCP security panel located. Do not see on RFD markers.

Boyd Ridge Relay: Synchronizing rack in RTO markers but not in SOW. Is this needed?

Boyd Ridge Telecom: SONET and DMET routers are called for at both Boyd Ridge and Summit Ridge. I believe these are two versions of fiber communication which use different types of routers. Would BPA be able to specify which stations/sites should use each interface?

Question 53 and Question 84 answers state that for the line we should assume water storage tank as the water source and a septic tank for wastewater. The revised SOW states we should use a well as the water source and a septic disposal system with drain field for the wastewater tank. Which should the design assume?

SOW Substation Design – Architectural Section questions/comments: Paragraph 4 indicates we need to design to conformance with the 2015 CC family of codes. Oregon has their own enforced building codes. Do we need to take those (and any amendments) into consideration or disregard for this project?

Please confirm whether entry into house will contain vault or riser system to termination frame.

Please confirm contractor responsibility for approach permit.

Will CAD drawings be provided of reay CDD? Specifically the One line files?

Please clarify what is the intention with split trip bus. Traditionally split DC systems imply T1 circuit, T2 (from secondary source) circuit and close circuit for each breaker. Is this the intention with BPA or simply splitting relay sets to feed from two different sources?

Please clarify what is the "SEL Programmable Automation Controller Interface Pack".

Please clarify if 6400s are to be used or standard OPS + SEL-3400 for big distribution.

CDD does not mention Arc Flash detection on DC distribution, while statement of work does mention it's need, please clarify.

Will a risk assessment service structure be required?

Will BPA or A&E Contractor be responsible for coordination with Collector Site Customer for BPA Security requirements and rack locations at non-BPA substation sites. QA&Mentions A&E not to do collector site design.

No.
<p>Transmission line borings are only required for structures that will be supported by drilled shaft foundations. Most structures with standard grillage or pile foundations can be explored with test pits. Soft soils are not anticipated at this project.</p>
<p>That is not correct, please reread the SOW. If rock is encountered, all legs require test pits to determine depth to rock.</p>
<p>There is no existing geotechnical information.</p>
<p>This is a generic SOW that includes river crossing towers if they are included in the design. We have no river crossing towers in this project; however, if drilled shaft foundations are anticipated for the Steuber Road span structures, the geotech report should include drilled shaft design recommendations (not necessarily in a separate report).</p>
<p>Yes. This is not a typical design but we have used it several times before successfully.</p>
<p>BPA to coordinate. AE is responsible for attending coordination meetings and provide information as needed.</p> <p>Per the standard only 2 are required.</p> <p>Design details will be tackled during the design phase; this is irrelevant during the bidding process.</p> <p>Yes that is needed. SOW adjusted.</p>
<p>DMET should be used to transport FIN, NMS, DPMU, and IT. The rest of the circuits should use SONEP transport.</p>
<p>Storage tank for water and septic disposal system including drain field for wastewater, SWU corrected.</p> <p>BPA Environmental Office "EO" has said BPA must comply with local Health Division regulations of septic systems. State regulations allow septic holding tanks only if a septic drainfield is not viable. A septic drainfield is viable at Boyer Ridge.</p> <p>Yes, take into consideration. Design per 7015 IIC family of codes, comply with state codes where applicable. Notify EPA if there is a conflict or conflict with EPA SOW or BPA Standards.</p>
<p>Design details will be tackled during the design phase; this is irrelevant during the bidding process.</p> <p>BPA really team will obtain the approach permit. AE is responsible for providing any necessary design information and exhibits.</p> <p>No, CAD drawing will not be provided.</p> <p>We are looking to simply split the relay sets to feed from two different sources. This is in preparation for expected future changes in our design standards.</p>
<p>This is SEL-2411/2440 to combine the alarms to the ONIOW SER/ SCDA unit.</p> <p>Those are two different things, both are needed per the SOW.</p> <p>CDD Page 44. Mentions the DC Arc Flash.</p> <p>Note that the CDD is reference document, the statement of work is the contract.</p> <p>To be determined during design, examples will be provided if custom SS structure and footing is needed.</p>
<p>EPA to coordinate. AE is responsible for attending coordination meetings and provide information as needed.</p>

96		Telecomm
97		Telecomm
98		Telecomm
99		Telecomm
100		Telecomm
101		Telecomm
102		Transmission
103		Transmission
104		Transmission
105		Transmission
106		Transmission
107		Transmission

Please confirm that BPA IT will be providing the IT rack design, and A&E firm will provide space and coordinate connections to telecom transport equipment.

Will outages for the Ross-Mulin fiber system between Big Eddy and Buckley be coordinated by A&E firm, BPA, or Construction Contractor?

Please confirm SONE1 nodes to be Cisco 15454, or will they be JMXK?

Are the cellular network extensions mentioned as part of the telecom scope part of the metering standards? If not, please provide standard to go by for this requirement.

Will 48 VDC Batteries at Summit Ridge need to be in a separate room?

At Buckley and Big Eddy, will the optic card evaluation due to shorter range be A&E scope to evaluate or just design if BPA determines new optic cards are required.

Should A&E complete FAA determination request and filing with FAA?

Should A&E's bid include marker hall design?

Should A&E's bid include a design for new lattice steel towers at 11/2 and 11/3 per drawing "Phasing & Interconnect Sketch" provided by BPA?

Should A&E bid a total of 0 dead-end and 3 suspension lattice steel towers for the "Isoped in line section"?

For impairment remediation, what deliverables are expected for a "remove ground" fix?

What factors should A&E consider for the evaluation if the OHGW is required beyond structure 11/2 at the "Isoped in line section"? Outside of the 1/2 mile OHGW requirement from the substation is BPA looking for an electrical study and/or structural considerations?

<p>Per JS - IT and Security rack design will be handled by current security vendor. A&E to ensure space and coordinate connections to telecom transport equipment</p>	
<p>AE is responsible for developing a comprehensive construction sequencing plan that includes all necessary outages to complete the project construction, this includes the fiber outages. BPA PM will lead the coordination effort to finalize the stop plan and request the outages.</p>	
<p>The SONET nodes for this project should be Cisco 15454.</p>	
<p>No, cellular network extenders is not part of the standard. Examples will be provided during design if necessary.</p>	
<p>125 and 48VDC batteries are to be stored in a separate room per BPA standards. There is a minimum distance required between them.</p>	
<p>Yes, fiber optic link analysis is part of AE scope.</p>	
<p>No, BPA will perform that task, A&E need to provide information on design structures' location and height at 50% submittal</p>	
<p>No, BPA will perform that task, A&E need to provide information on design structures' location and height</p>	
<p>No new tower designs are needed. Analysis of standard tower designs for the specific wire configurations will need to be checked to ensure it is within the limits of the standard tower design criteria.</p> <p>The Line Drawings provided in the "Boyd Ridge Drawings.zip" within the Technical Exhibits folder of the Boyd Ridge BFO ProjectWise folder were provided in error and will be removed from the folder.</p>	
<p>The SOW describes 3 suspension and 3 DE structures as the preliminary design.</p>	
<p>A&E is responsible for providing the following:</p> <ul style="list-style-type: none"> - Plan and profile (pdf) and cross sections (pdf) of one of the conductors - this will be used for Survey staking purposes. - An aerial map of the cut and fill boundaries (for Ehoire.) - Provide a .csv file for Survey staking that will utilize a provided template (from the plan/profile pdf). - Attached are examples that details the required deliverables. <p>Please note that BPA Survey is required to perform the as-built data collection to update BPA plan and profile drawings.</p>	
<p>This requirement was described incorrectly in the SOW. Extending the OHGW beyond 11/2 is not required.</p>	

From: Taylor, Eric K (TFE)(BPA) - TSE-TPP-2

Sent: Thu Dec 13 14:58:35 2018

To: Randall, Cherilyn C (BPA) - TPCV-TPP-4

Cc: Gilliland, Kimberly D (TFE)(BPA) - TSE-TPP-2

Subject: RE: Summit Ridge Queue Position Discussion 12-13-18 1

Importance: Normal

Attachments: image001.jpg

Hey Cherilyn,

Steve reached out to me again today inquiring about the cost of design. Have we been able to confirm the design cost with the PM? Steve indicated that (b) (4) will walk if they are required to fund the \$(b) requested under the E&P. If they only have to fund \$(b) (4) under a modified NEPA agreement, that may have potential of working. Thanks.

ET

From: Randall, Cherilyn C (BPA) - TPCV-TPP-4

Sent: Tuesday, December 11, 2018 10:24 AM

To: Taylor, Eric K (TFE)(BPA) - TSE-TPP-2; Perkins, Matthew W (BPA) - LT-7; Green, Ava W (BPA) - LT-7

Cc: Gilliland, Kimberly D (TFE)(BPA) - TSE-TPP-2
Subject: RE: Summit Ridge Queue Position Discussion

I'll double check with our PM and our NEPA person. I'm pretty sure it would still be the \$(b) I had told Steve a while back. That's is only 2% of the total project estimate. So it's not an unreasonable amount. I just don't think either (b) (4) or Lotus actually want to put any money into the project right now. They want to put it on hold prior to getting an LGIA which is what I am trying to prevent.

From: Taylor, Eric K (TFE)(BPA) - TSE-TPP-2
Sent: Tuesday, December 11, 2018 10:20 AM
To: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Perkins, Matthew W (BPA) - LT-7; Green, Ava W (BPA) - LT-7
Cc: Gilliland, Kimberly D (TFE)(BPA) - TSE-TPP-2
Subject: RE: Summit Ridge Queue Position Discussion

Thanks Cherilyn. How much additional \$ would we need to request under the NEPA to get enough of the design work done to complete the EA?

From: Randall, Cherilyn C (BPA) - TPCV-TPP-4
Sent: Tuesday, December 11, 2018 10:18 AM
To: Taylor, Eric K (TFE)(BPA) - TSE-TPP-2; Perkins, Matthew W (BPA) - LT-7; Green, Ava W (BPA) - LT-7
Cc: Gilliland, Kimberly D (TFE)(BPA) - TSE-TPP-2
Subject: RE: Summit Ridge Queue Position Discussion

I already responded. Based on our current policy, we are ok with terminating the E&P, but that design payment will be collected under the NEPA agreement instead. Per Steve's email, he does expect BPA to complete the EA for his project. I agree. I simply told him that we will collect enough funds to cover enough design to get that done. We are in agreement, actually. But he still has to come up with a payment to keep the NEPA process rolling.

From: Taylor, Eric K (TFE)(BPA) - TSE-TPP-2

Sent: Monday, December 10, 2018 3:15 PM

To: Perkins, Matthew W (BPA) - LT-7; Green, Ava W (BPA) - LT-7; Randall, Cheryl C (BPA) - TPCV-TPP-4

Cc: Gilliland, Kimberly D (TFE)(BPA) - TSE-TPP-2

Subject: FW: Summit Ridge Queue Position Discussion

Hi All,

Please see the email below from Summit Ridge. Cheryl and I had a conversation with Steve last week, and it was mentioned that (b) (4) might be interested in acquiring the Summit Ridge project from the current owner, Pattern Energy. That said, Pattern Energy currently has an E&P agreement in place with BPA to initiate design, but (b) (4) would like to terminate the E&P and not pursue design at this time. Instead, (b) (4) wants to complete NEPA and then have BPA tender them an LGIA.

During our call, it was indicated to Steve that terminating the E&P would result in loss of GI queue position. In response, Steve sent the note below. How should BPA respond? To me, the dilemma seems to be that completing NEPA depends on some level of design being completed, but completing design depends on having an E&P in place (Cheryl can certainly provide more insight into this)... Bottom line is that I'm trying to see if there is a way of working thru the issue below without Summit Ridge losing queue position, thanks.

ET

From: Steven Ostrowski [<mailto:SOstrowski@energysi.org>]
Sent: Monday, December 10, 2018 2:59 PM
To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: [EXTERNAL] Summit Ridge Queue Position Discussion

Good afternoon Eric/Cherilyn,

The purpose of this email is to follow-up on our conversation of last week regarding Summit Ridge maintaining its current queue position while terminating the existing E&P agreement.

We are in discussions with a potential buyer of the Summit Ridge Wind project. It is our understanding of the BPA tariff that the interconnection process follows a set of sequential steps: Feasibility Study, System Impact Study, Facility Study, NEPA review, LGIA and finally customer funding of the interconnection according to an agreed upon energization and operations schedule. There is nothing in the BPA LGIP that obligates a customer to execute an E&P or that states that terminating an E&P results in being withdrawn from the queue.

Per Section 9 of the BPA LGIP, a customer may request to execute an E&P to advance implementation of its

interconnection. This same section explicitly states that an E&P Agreement is an option procedure and it will not alter the IC's queue position or in-service date. Should the Summit Ridge interconnection customer terminate the E&P, it is our expectation that BPA will finalize the NEPA review and EA, tender the LGIA with a revised COD schedule and the standard suspension rights as they exist in the pro-forma LGIA in the BPA LGIP.

Furthermore, Section 3.3.1 says that a valid interconnection in-serviced date may succeed the date the Interconnection Request is received by Transmission Provider by a period up to ten years, or longer where Interconnection Customer and Transmission Provider agree, such agreement not to be unreasonably withheld.

We understand terminating the E&P now would mean that the project could no longer meet a December 2020 COD, but the project would retain its queue position.

In light of the currently scheduled December 18th start date of your engineering firm, we believe an expeditious resolution of this matter is in everyone's best interests.

Thank you in advance for you time and consideration.

Sincerely,

Steve

Steven A. Ostrowski, Jr.

President

9611 NE 117th Ave

Suite 2840

Vancouver, WA 98662

P (b) (6)

F 360.737.9835

(b) (6)

sostrowski@energysi.org

From: Knight,Ellyn A (BPA) - TEPO-TPP-1

Sent: Mon Dec 17 15:15:50 2018

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Cosola,Anna M (BPA) - TPCC-TPP-4

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1; Gutierrez,Lindsey A (CONTR) - TEPO-TPP-1

Subject: RE: Summit Ridge Queue Position Discussion 12-17-18 2

Importance: Normal

Attachments: image002.png; image003.jpg; image004.jpg; image005.jpg; image006.jpg; image007.jpg; image008.jpg; image009.png; image010.jpg

Thanks for the heads up.

Looks like we will have to transfer all the TC/CF charges to the RE and cancel the TC/CF's.

Rasha, Lindsey and I can address that.

Thanks.

Ellyn Knight

Program Analyst | TEPO-TPP-1

Bonneville Power Administration

bpa.gov | P 360-619-6734

Facebook-Icon_31x31_v3Flickr-Icon_31x31Instagram-Icon_31x31LinkedIn-Icon_31x31[Twitter](#) 31x31YouTube_31x31

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Sent: Monday, December 17, 2018 2:49 PM

To: Cosola,Anna M (BPA) - TPCC-TPP-4; Knight,Ellyn A (BPA) - TEPO-TPP-1

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1

Subject: FW: Summit Ridge Queue Position Discussion

Head's up. Rasha will be requesting close out of the contract (16TP-110044) and work orders for G0345.

Thanks,

Cherilyn

From: Kevin Wetzel [<mailto:Kevin.Wetzel@patternenergy.com>]

Sent: Monday, December 17, 2018 2:28 PM

To: Steven Ostrowski; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor, Eric K (TFE)(BPA) - TSE-TPP-2

Subject: [EXTERNAL] RE: Summit Ridge Queue Position Discussion

In case it is required, Pattern agrees and also requests that the E&P agreement for Summit Ridge is cancelled and the deposit is returned to us (less the charges that the PM and the contracting office put in while getting the contract in place). Let me know if you need anything else from us to process the request. Thank you.

Kevin Wetzel

Manager, Project Development

main +1 415-283-4000

direct + (b) (6)

mobile (b)(6)

Kevin.Wetzel@patternenergy.com

1088 Sansome St
San Francisco, CA 94111
patterndev.com

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This email message may contain information that is confidential and proprietary. If you are not the intended recipient, please contact the sender and destroy the original and any copies of the original message. We take measures to protect the content of our communications. However, we cannot guarantee that email messages will not be intercepted by third parties or that email messages will be free of errors or viruses.

From: Steven Ostrowski <SOstrowski@energysi.org>

Sent: Monday, December 17, 2018 2:24 PM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4 <ccrandall@bpa.gov>; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2 <ektaylor@bpa.gov>

Cc: Kevin Wetzel <Kevin.Wetzel@patternenergy.com>

Subject: RE: Summit Ridge Queue Position Discussion

Importance: High

This message came from outside of Pattern. Be careful with links and attachments. Learn more [here](#).

Cherilyn,

Please proceed with cancelling the E&P agreement for Summit Ridge.

Please confirm receipt of this email.

Thank you,

Steve Ostrowski

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4 [<mailto:ccrandall@bpa.gov>]
Sent: Monday, December 17, 2018 10:43 AM
To: Steven Ostrowski; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: RE: Summit Ridge Queue Position Discussion

The PM has told me that if we can cancel today, we won't owe any cancellation fee to the contractor. You'll get almost all of the deposit back, minus the charges that the PM and the contracting office put in while getting the contract in place.

From: Steven Ostrowski [<mailto:SOstrowski@energysi.org>]
Sent: Monday, December 17, 2018 9:56 AM
To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: [EXTERNAL] RE: Summit Ridge Queue Position Discussion

Cherilyn,

Thanks for this. We will do our best to get back to you today. Unfortunately the individual we need to make that call is on vacation. We've reached out and hope to have a response later today.

Steve

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4 [<mailto:ccrandall@bpa.gov>]
Sent: Monday, December 17, 2018 9:36 AM
To: Steven Ostrowski; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: RE: Summit Ridge Queue Position Discussion

After discussions with the PM and the environmental group, (b) (4)

[REDACTED]
[REDACTED]. We are having the design kick off meeting for this project tomorrow. If you are going to terminate the E&P, I don't suppose you could let us know today?

Thanks,

Cherilyn

From: Steven Ostrowski [<mailto:SOstrowski@energysi.org>]
Sent: Tuesday, December 11, 2018 10:28 AM
To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: [EXTERNAL] RE: Summit Ridge Queue Position Discussion

Thank you Cherilyn,

Do you have a sense for what the cost will be? (b) (4) _____, is that still a reasonable estimate?

Thanks,

Steve

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4 [<mailto:ccrandall@bpa.gov>]
Sent: Tuesday, December 11, 2018 10:15 AM
To: Steven Ostrowski; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: RE: Summit Ridge Queue Position Discussion

You are correct, the E&P is optional. However, the NEPA review cannot proceed without some level of design input. So if you'd rather pay for the design needed for NEPA review under the NEPA agreement, we can accommodate that. What we cannot accommodate is a complete stall out of the NEPA review. Either way, there is going to be a required payment for at least enough design to finish NEPA. Failure to tender that payment under one agreement or another will start a "deemed withdrawn" cure period. Based on your email below, I will assume that you have a preference for using the NEPA agreement rather than a separate E&P agreement. I will tender a modification to the NEPA agreement in January.

Thanks,

Cherilyn Randall

BPA Customer Service Engineering

360-619-6051

From: Steven Ostrowski [<mailto:SOstrowski@energysi.org>]

Sent: Monday, December 10, 2018 2:59 PM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2

Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)

Subject: [EXTERNAL] Summit Ridge Queue Position Discussion

Good afternoon Eric/Cherilyn,

The purpose of this email is to follow-up on our conversation of last week regarding Summit Ridge maintaining its

current queue position while terminating the existing E&P agreement.

We are in discussions with a potential buyer of the Summit Ridge Wind project. It is our understanding of the BPA tariff that the interconnection process follows a set of sequential steps: Feasibility Study, System Impact Study, Facility Study, NEPA review, LGIA and finally customer funding of the interconnection according to an agreed upon energization and operations schedule. There is nothing in the BPA LGIP that obligates a customer to execute an E&P or that states that terminating an E&P results in being withdrawn from the queue.

Per Section 9 of the BPA LGIP, a customer may request to execute an E&P to advance implementation of its interconnection. This same section explicitly states that an E&P Agreement is an option procedure and it will not alter the IC's queue position or in-service date. Should the Summit Ridge interconnection customer terminate the E&P, it is our expectation that BPA will finalize the NEPA review and EA, tender the LGIA with a revised COD schedule and the standard suspension rights as they exist in the pro-forma LGIA in the BPA LGIP.

Furthermore, Section 3.3.1 says that a valid interconnection in-serviced date may succeed the date the Interconnection Request is received by Transmission Provider by a period up to ten years, or longer where Interconnection Customer and Transmission Provider agree, such agreement not to be unreasonably withheld.

We understand terminating the E&P now would mean that the project could no longer meet a December 2020 COD, but the project would retain its queue position.

In light of the currently scheduled December 18th start date of your engineering firm, we believe an expeditious resolution of this matter is in everyone's best interests.

Thank you in advance for you time and consideration.

Sincerely,

Steve

Steven A. Ostrowski, Jr.

President

9611 NE 117th Ave

Suite 2840

Vancouver, WA 98662

P (b) (8)

F 360.737.9835

C (b)(6)

sostrowski@energysi.org

From: Grange,Katey C (BPA) - ECT-4

Sent: Fri Jan 25 15:12:41 2019

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Adams,Hub V (BPA) - LN-7; O'Connell,Michael J (BPA) - ECT-4; Mason,Stacy L (BPA) - ECP-4; Schmidt,Sunshine R (BPA) - ECC-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2

Subject: RE: Summit Ridge Queue Position Discussion 1-25-19 1

Importance: Normal

Attachments: image001.jpg

Hi Cherilyn,

We had a few edits for Hub's draft email- please use the below text. Hub, Stacy, Mike, and I have all reviewed and agree on content.

Thanks and please let us know if you need anything else.

Katey

Hello Steve,

I've had a chance to double-check with our environmental group on your question below. Generally, (b) (4) is needed for the interconnection facilities so that our environmental group has sufficient design information to complete our environmental analysis and consultations. While NEPA is a large part of that, just as important is our consultations under the NHPA Section 106 for cultural resources, and ensuring that we have a well-defined APE for the interconnection facilities. There are also other environmental laws such, as ESA, that may need to be complied with as well. So a (b) (4) is what we have determined is needed to allow for these processes to proceed with a decent amount of certainty. Also, by achieving that level of design, it helps ensure that we are processing a site and design that will not change midstream or after the fact, thereby allowing us to more efficiently complete all the environmental processes and maintain good working relationships with our consulting parties/agencies and the public— not just NEPA, but also NHPA/Section 106, ESA/Section 7, etc.

Katey Grange

Environmental Protection Specialist | ECT-4

Bonneville Power Administration
kcgrange@bpa.gov | 503.230.4047

Please consider the environment before printing this email.

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4
Sent: Thursday, January 24, 2019 9:10 AM
To: Grange,Katey C (BPA) - ECT-4

Cc: Adams,Hub V (BPA) - LN-7; O'Connell,Michael J (BPA) - ECT-4; Mason,Stacy L (BPA) - ECP-4; Schmidt,Sunshine R (BPA) - ECC-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Subject: RE: Summit Ridge Queue Position Discussion

Thanks, Katey. This question keeps coming up. I'm trying to develop some canned responses.

From: Grange,Katey C (BPA) - ECT-4
Sent: Thursday, January 24, 2019 7:33 AM
To: Randall,Cherilyn C (BPA) - TPCV-TPP-4
Cc: Adams,Hub V (BPA) - LN-7; O'Connell,Michael J (BPA) - ECT-4; Mason,Stacy L (BPA) - ECP-4; Schmidt,Sunshine R (BPA) - ECC-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Subject: FW: Summit Ridge Queue Position Discussion

Hi Cherilyn,

Nancy Wittpenn forwarded on this chain and I am looping in a few of the relevant EC folks on this email. We will discuss and loop back with you soon.

-Katey

Katey Grange

Environmental Protection Specialist | ECT-4

Bonneville Power Administration
kcgrange@bpa.gov | 503.230.4047

Please consider the environment before printing this email.

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4
Sent: Wednesday, January 23, 2019 4:45 PM
To: Adams,Hub V (BPA) - LN-7; Wittpenn,Nancy A (BPA) - ECT-4
Cc: Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Subject: RE: Summit Ridge Queue Position Discussion

Thanks. What if the customer says they will take the risk of a re-do? How firm are we on this issue?

From: Adams,Hub V (BPA) - LN-7
Sent: Wednesday, January 23, 2019 2:10 PM
To: Randall,Cherilyn C (BPA) - TPCV-TPP-4
Cc: Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Subject: RE: Summit Ridge Queue Position Discussion

Hi Cherilyn,

My recollection from when the percent design requirement was being discussed by EC and T last summer was that EC was concerned that if there were substantial changes in the interconnection substation design or location after starting environmental review, EC would need to do additional review for it, which likely would take more time for them as well as SHPOs and the Services. So EC wanted more certainty on the substation to more efficiently begin and complete the NEPA process, including ESA, NHPA, etc. I believe they landed on requiring a certain level of design completeness as the way to get that additional certainty.

Given that, a possible response to the developer could be something along the lines of:

Hello Steve,

I've had a chance to double-check with our environmental group on your question below. The (b) (4) requirement for the interconnection facilities has developed out of a concern about not having truly sufficient design information before our people begin environmental processes and consultations. While NEPA is a large part of that, just as important is our consultations with SHPOs under the NHPA Section 106 for cultural resources, and ensuring we have a well-defined APE for the interconnection facilities. There are also other environmental laws such as ESA that may need to be complied with as well. So a (b) (4) is what we have determined is needed to allow for these processes to begin with a decent amount of certainty. Also, by achieving that level of design before progressing, it helps ensuring that we are processing a site and design that will not change midstream, thereby allowing us to more efficiently begin and complete all the environmental processes – not just NEPA but also NHPA/Section 106, ESA/Section 7, etc etc.

That said, you probably need to run any possible response by EC before getting back with the developer. While I think EC likely would agree with my stab at a response, they are really the source of the percent design requirement so you should make sure they are ok with the rationale for it.

Hope that helps,

Hub

From: Taylor, Eric K (TFE)(BPA) - TSE-TPP-2
Sent: Tuesday, January 22, 2019 4:58 PM
To: Randall, Cherilyn C (BPA) - TPCV-TPP-4; Adams, Hub V (BPA) - LN-7
Subject: RE: Summit Ridge Queue Position Discussion

Thanks Cherilyn and Hub. The developer is trying to sell the project to another entity, but the potential purchaser is balking at the \$(b) (4) that BPA is requesting under the NEPA agreement.

From: Randall, Cherilyn C (BPA) - TPCV-TPP-4
Sent: Tuesday, January 22, 2019 4:50 PM
To: Adams, Hub V (BPA) - LN-7
Cc: Taylor, Eric K (TFE)(BPA) - TSE-TPP-2
Subject: FW: Summit Ridge Queue Position Discussion

Can you help me craft a response to this email, Hub? Customer is challenging our requirement for 50% design (minimum) to do our EA. We've done some preliminary site layout and I need to explain why that is not sufficient, but I am afraid I don't understand well enough myself to give a coherent reply.

Thanks,

Cherilyn

From: Steven Ostrowski [<mailto:SOstrowski@energysi.org>]
Sent: Thursday, January 03, 2019 7:20 AM
To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: [EXTERNAL] RE: Summit Ridge Queue Position Discussion

Good morning Cherilyn and Happy New Year,

This email is a follow-up to your December 17th email (b) (4).

Would you please provide some additional explanation as to why (b) (4).
(b) (4) Given that considerable effort has already been spent finalizing the location and the type of substation required, (b) (4).

Thank you,

Steve

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4 [<mailto:ccrandall@bpa.gov>]
Sent: Monday, December 17, 2018 9:36 AM
To: Steven Ostrowski; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: RE: Summit Ridge Queue Position Discussion

After discussions with the PM and the environmental group, (b) (4)

We are having the design kick off meeting for this project tomorrow. If you are going to terminate the E&P, I don't suppose you could let us know today?

Thanks,

Cherilyn

From: Steven Ostrowski [<mailto:SOstrowski@energysi.org>]
Sent: Tuesday, December 11, 2018 10:28 AM
To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: [EXTERNAL] RE: Summit Ridge Queue Position Discussion

Thank you Cherilyn,

Do you have a sense for what the cost will be? (b) (4) [REDACTED], is that still a reasonable estimate?

Thanks,

Steve

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4 [<mailto:ccrandall@bpa.gov>]
Sent: Tuesday, December 11, 2018 10:15 AM
To: Steven Ostrowski; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2
Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)
Subject: RE: Summit Ridge Queue Position Discussion

You are correct, the E&P is optional. However, the NEPA review cannot proceed without some level of design input. So if you'd rather pay for the design needed for NEPA review under the NEPA agreement, we can accommodate that. What we cannot accommodate is a complete stall out of the NEPA review. Either way, there is going to be a required payment for at least enough design to finish NEPA. Failure to tender that payment under one agreement or another will start a "deemed withdrawn" cure period. Based on your email below, I will assume that you have a preference for using the NEPA agreement rather than a separate E&P agreement. I will tender a modification to the NEPA agreement in January.

Thanks,

Cherilyn Randall

BPA Customer Service Engineering

360-619-6051

From: Steven Ostrowski [<mailto:SOstrowski@energysi.org>]

Sent: Monday, December 10, 2018 2:59 PM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2

Cc: Kevin Wetzel (Kevin.Wetzel@patternenergy.com)

Subject: [EXTERNAL] Summit Ridge Queue Position Discussion

Good afternoon Eric/Cherilyn,

The purpose of this email is to follow-up on our conversation of last week regarding Summit Ridge maintaining its current queue position while terminating the existing E&P agreement.

We are in discussions with a potential buyer of the Summit Ridge Wind project. It is our understanding of the BPA tariff that the interconnection process follows a set of sequential steps: Feasibility Study, System Impact Study, Facility Study, NEPA review, LGIA and finally customer funding of the interconnection according to an agreed upon energization and operations schedule. There is nothing in the BPA LGIP that obligates a customer to execute an E&P or that states that terminating an E&P results in being withdrawn from the queue.

Per Section 9 of the BPA LGIP, a customer may request to execute an E&P to advance implementation of its interconnection. This same section explicitly states that an E&P Agreement is an option procedure and it will not alter the IC's queue position or in-service date. Should the Summit Ridge interconnection customer terminate the E&P, it is our expectation that BPA will finalize the NEPA review and EA, tender the LGIA with a revised COD schedule and the standard suspension rights as they exist in the pro-forma LGIA in the BPA LGIP.

Furthermore, Section 3.3.1 says that a valid interconnection in-serviced date may succeed the date the Interconnection Request is received by Transmission Provider by a period up to ten years, or longer where Interconnection Customer and Transmission Provider agree, such agreement not to be unreasonably withheld.

We understand terminating the E&P now would mean that the project could no longer meet a December 2020 COD, but the project would retain its queue position.

In light of the currently scheduled December 18th start date of your engineering firm, we believe an expeditious resolution of this matter is in everyone's best interests.

Thank you in advance for you time and consideration.

Sincerely,

Steve

Steven A. Ostrowski, Jr.

President

9611 NE 117th Ave

Suite 2840

Vancouver, WA 98662

F (b) (6)

F 360.737.9835

C(b)(6)

sostrowski@energysi.org

From: Roberts,Ken (BPA) - TELP-CSB-2

Sent: Tue Jun 19 10:42:38 2018

To: Cook,Kerry B (BPA) - TELF-TPP-3; Belanger Jr,John E (BPA) - TFHQ-TPP-3; Wood,Scott E (CONTR) - TELF-TPP-3; Kroonen,Rasha (CONTR) - TEP-TPP-1; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Clark,James L (BPA) - TERR-CHEMAWA; Legare,Jonathan L (CONTR) - TERR-3; Liebhaber,Dustin F (BPA) - TELP-TPP-3

Cc: O'Connell,Michael J (BPA) - ECT-4; O'Donnchadha,Brian M (BPA) - ECC-4

Subject: Rough Map for Boyd Ridge 6-19-18 1

Importance: Normal

Attachments: Boyd Ridge Rough 10 acre.pdf

Team,

Here is a map I have drawn up given our conversation yesterday. I kept the plot the same width but elongated the acreage to 10 acres to account for a potential need to stretch further south to accommodate for the control house move/yard reconfiguration. The mapping tools on eGIS are far from great and this was as close as I could get it.

- The overall land purchase size was meant to be 550ft x 800 ft which equals 10.10 acres.
- The interior area that is shaded in would be the maximum fenced in area and lies 100 feet inside the border on each side to give us the appropriate distance from the yard fence to the BPA land boundary. This will work out to roughly 4.82 acres (350 ft x 600 ft). This map shows 4.74 acres, it was as close as I could get it.

- There is roughly 190 ft from the prospective BPA property boundary and 290 ft from the prospective BPA fence boundary to the property owners northern property line. This should leave plenty of space to drive farming equipment regardless of what agreement is made regarding the use or movement between the BPA fence and BPA property line.
- With the fill area filled for farming like Kerry was talking about, there is roughly 200 ft between the prospective BPA property line and the dam-like formation and over 300 ft to the prospective BPA fence line. Again, this should leave plenty of area for farming equipment to drive around.
- This follows the outdoor design (still being revised for the control house move) that would allow for future expansion to 4 bays total breaker and a half. This should allow the customer to still qualify for transmission credits.

Scott Wood was going to add a potential road route to it for the land owner to give feedback on. Please don't distribute this beyond our group yet. Let me know if you have any comments please.

Thank you,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Mon Nov 06 14:40:44 2017

To: Ackerman, Robert (BPA) - TECC-CSB-2; Amrine, Liz (CONTR) - TERG-3; Barton-Smith, Julie G (BPA) - TTOI-DITT-1; Brady, Brian P (CONTR) - TERS-3; Brockway, Jenny (BPA) - TPPC-OPP-3; Burn, Beverley D (CONTR) - NWM-1; Capiral, Rebekah S (BPA) - TECD-CSB-1; Christianson, Corey C (BPA) - TFDE-THE DALLES; Gilroy, Michael J (CONTR) - TERM-TPP-4; Hagensen, Matt L (BPA) - TPWP-TPP-4; Hoang, Anthony D (CONTR) - TERS-3; Hollenbeck, Justin M (CONTR) - TERM-TPP-4; Jacobsen, Nancy L (BPA) - TFDB-THE DALLES; Jusupovic, Jana D (BPA) - TPCV-TPP-4; Kintz, Jourdan C (BPA) - TELC-TPP-3; Konency, Thomas J (BPA) - TERS-3; Kroonen, Rasha (CONTR) - TEP-TPP-1; Lee, Christina A (BPA) - TPPA-OPP-3; Legare, Jonathan L (CONTR) - TERR-3; Liebhaber, Dustin F (BPA) - TELP-TPP-3; Loop, Laura A (BPA) - TERR-3; Lunde, Rod T (BPA) - TECR-CSB-1; Lynch, William C (BPA) - TERM-TPP-4; Mifsud, Frank D (BPA) - TERM-TPP-4; Moe, Chance C (BPA) - TFDD-THE DALLES; O'Connell, Michael J (BPA) - ECT-4; O'Donnchadha, Brian M (BPA) - ECC-4; Owen, Kenneth E (CONTR) - TPMC-OPP-3; Patterson, Shawn M (BPA) - TFDC-THE DALLES; Platt, Travis J (BPA) - TERG-TPP-4; Randall, Cheryl C (BPA) - TPCV-TPP-4; Sager, Andrew (CONTR) - TERM-TPP-4; Schmidt, Patrick L (BPA) - TTCT-AMPN-1; Tabata, Mason I (BPA) - TECT-CSB-1; Thurston, Jamie S (CONTR) - TERM-TPP-4; Wahrgren, Robert O (CONTR) - TELD-TPP-3; Williams, Scott M (BPA) - TFDF-THE DALLES; Wong, Christopher M (CONTR) - TELC-TPP-3; Wood, Scott E (CONTR) - TELF-TPP-3

Subject: Site Visit Notes 11-6-17 1

Importance: Normal

Attachments: Site Visit Notes Boyd 10-30-17.docx

Team,

Attached are the notes from our site visit last week. I will get weekly meetings scheduled very soon.

Best Regards,

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Phillips,Catherine O (CONTR) - TPO-TPP-4

Sent: Mon Jul 02 07:02:11 2018

To: Stepanoff,D'Angelo J (BPA) - TELP-CSB-2; Hallar Jr,James J (BPA) - TPO-TPP-4; Hammack,Debby (BPA) - TPPC-OPP-3; Hagensen,Matt L (BPA) - TPWP-TPP-4; Roberts,Ken (BPA) - TELP-CSB-2; Jusupovic,Jana D (BPA) - TPCV-TPP-4; Randall,Cherilyn C (BPA) - TPCV-TPP-4; Shea,Jessica C (BPA) - CBE-7; Dickinson,Sheila L (BPA) - FAC-MODD; Alvarez,Gabriela V (BPA) - TELP-TPP-3; Willhite,Paula L (BPA) - TPWP-TPP-4; Sanford,Chris T (BPA) - TOR-DITT-1; Cook,Jeffrey W (BPA) - TP-DITT-2; Miller,Mike P (BPA) - TE-DITT-2; Tyson,Ivy L (BPA) - TP-DITT-2; Staats,Michael L (BPA) - TEL-TPP-3; Furrer,Robin R (BPA) - TF-DITT-2; Cathcart,Michelle M (BPA) - TO-DITT-2; Rowe,Pilar R (BPA) - TPW-TPP-4; Sinha,Amit (BPA) - TEP-TPP-1; Gilbreath,Julia S (BPA) - TEPO-TPP-1; Hanes,Julie A (BPA) - TEPO-TPP-1; Karras,Jini J (CONTR) - TEPO-TPP-1; Jackson,Dennis G (BPA) - TPWE-TPP-4; Rehmer,Kathryn C (BPA) - FAC-OPP-2

Cc: Simmons,Jessica K (BPA) - TPWP-TPP-4; Kroonen,Rasha (CONTR) - TEP-TPP-1

Subject: TAMEC 6/29/2018 Meeting Notes

Importance: Normal

Attachments: TAMEC_6_29_18_Meeting Notes.docx

Good Morning All,

Please find attached.

Kind Regards,

Cathy Phillips (Contractor)

Aerotek

ASA III for

Paul Fiedler, TPO, Strategy & Program Mgmt.

Ravi Aggarwal, TPL, Long Range Planning

Bonneville Power Administration
cophillips@bpa.gov | P 360.418.8896

Compliance Application Notice – 0031

CIP-006 R1 Acceptable Opening Dimensions

Posted December 9, 2011

Primary Interest Groups

Compliance Enforcement Authority (CEA)¹

NERC

Regional Entity

Registered Entities subject to CIP-006

Responsible Entities²

Issue: What is the acceptable unprotected opening dimension in the Physical Security Perimeter (PSP)?

For the purpose of aiding a CEA, this CAN provides instruction to assess whether an opening in the PSP must have additional protective measures in place.

Background

CIP-006 R1.1 is intended to ensure protection of assets within an Electronic Security Perimeter (ESP) via a “six-wall” border or documented alternative measures. To date there are a variety of ways in which entities have endeavored to create a completely enclosed (six-wall) border.

Compliance Application

CIP-006 states, in pertinent part:

R1. Physical Security Plan – The Responsible Entity shall document, implement, and maintain a physical security plan, approved by the senior manager or delegate(s) that shall address, at a minimum, the following:

R1.1. All Cyber Assets within an Electronic Security Perimeter shall reside within an identified Physical Security Perimeter. Where a completely enclosed (“six-wall”) border

¹ Compliance Enforcement Authorities include ERO auditors, investigators, enforcement personnel or any person authorized to assess issues of concern, potential non-compliance, and possible, alleged or confirmed violations of NERC Reliability Standard requirements.

² Within the text of Standard CIP-006, “Responsible Entity” shall mean: Reliability Coordinator; Balancing Authority; Interchange Authority; Transmission Service Provider; Transmission Owner; Transmission Operator; Generator Owner; Generator Operator; Load Serving Entity; NERC; and Regional Entity

cannot be established, the Responsible Entity shall deploy and document alternative measures to control physical access to such Cyber Assets.

R.1.2. *Identification of all physical access points through each Physical Security Perimeter and measures to control entry at those access points.*

R.1.3. *Processes, tools, and procedures to monitor physical access to the perimeter(s).*

CEAs are to consider 96 square inches as the measurement for each maximum acceptable opening without physical protective measures in place. This is consistent with other agencies that use similar measurement practices in other industries.

- Director of Central Intelligence Directive (DCID) 6/9 is the Manual of Physical Security Standards for Sensitive Compartmented Information Facilities (SCIF) adopted by the Department of Defense (DOD). Section 3.3.4 of this document references the 96-square-inch metric in regard to physical protection of vents, ducts and pipes. <http://www.fas.org/irp/offdocs/dcid6-9.pdf>
- Department of Homeland Security Management Directives System MD# 11030.1 is the Manual of Physical Protection of Facilities and Real Property adopted by the Department of Homeland Security (DHS). Section VI.A.2 of this document references a 100-square-inch metric in regard to areas of single openings for perimeter walls. http://www.dhs.gov/xlibrary/assets/foia/mgmt_directive_110301_physical_protection_of_facilities_and_real_property.pdf
- DOD Directive 5210.63 is the directive for Security of Nuclear Reactors and Special Nuclear Materials. In Enclosure 2 of this directive, definition E2.1.16.2 references 96 square inches as the maximum allowable opening without protective measures for Special Nuclear Material Vaults. <http://biotech.law.lsu.edu/blaw/dodd/corres/pdf2/D521063p.pdf>

Additionally, for any opening greater than 96 square inches, regardless of shape, with its shortest side greater than 6 inches in length, CEAs are to look for evidence that the opening is protected against entry by the use of bars, wire mesh or other permanently installed barrier that leaves no opening greater than 6 inches on its shortest side.

Several application examples include:

- An opening of 8 inches by 8 inches would not require any additional protection since the opening is less than 96 square inches.

- An opening of 2 inches by 100 inches would not require any additional protection, because even though the opening is greater than 96 square inches, the smaller dimension is less than 6 inches.
- An opening of 8 inches by 15 inches would require metal bars, mesh, or other permanently installed barrier since the opening is greater than 96 square inches, and the smaller dimension is greater than 6 inches.
- An opening of 8 inches by 100 inches that cannot be closed in by bars or mesh due to safety/regulatory requirements but upon which entities utilized “alternative measures” (e.g., electronic sensors) would require a TFE to be filed with the appropriate Regional Entity.

Effective Period for CAN

This CAN is effective upon posting as final on the NERC Web site, and is to be used by CEAs to assess compliance from the posting date forward, regardless of the start date of any non-compliance or Possible Violation. It supersedes all prior communications and will remain in effect until such time that a future version of a FERC-approved or other applicable government authority-approved standard or interpretation becomes effective and addresses the specific issue contained in this CAN.

For any enforcement action in process and for audits that have been initiated,³ a CEA will apply the appropriate discretion, including consideration of the specific facts and circumstances of the non-compliance, in determining whether to assess compliance pursuant to this CAN.

Evidence of Compliance

A CEA is to assess the following to obtain reasonable assurance of the entity’s compliance:

- That any opening that does not have physical preventative⁴ measures in place is less than 96 square inches.
- That any opening greater than 96 square inches, with its shortest side greater than 6 inches in length, is protected against entry by the use of bars, wire mesh or other permanently installed barrier that leaves no opening greater than 6 inches on its shortest side.

In addition, a CEA is to verify that a responsible entity submitted a TFE for CIP-006 R1.1 that outlines the basis and alternate and/or compensating measures for any opening over 96 square inches without physical protective measures. For example, a motion detector is a non-physical protective measure.

³ “initiated” means that a registered entity has received notification of the upcoming audit.

⁴ In this usage, “preventative” means a CEA is to verify there is a true physical prevention control and not merely a physical detection control (e.g. motion sensors are detection controls – barriers are prevention controls).

For more information please contact:

Michael Moon
Director of Compliance Operations
michael.moon@nerc.net
404-446-2567

Valerie Agnew
Manager of Interface and Outreach
valerie.agnew@nerc.net
404-446-2566

Ben Engelby
Senior Compliance Interface and Outreach Specialist
ben.engelby@nerc.net
404-446-2578

This document is designed to convey compliance monitoring instruction to achieve a measure of consistency among auditors and Compliance Enforcement Authorities. It is not intended to establish new requirements under NERC's Reliability Standards or to modify the requirements in any existing NERC Reliability Standard. Compliance will continue to be assessed based on language in the currently enforceable NERC Reliability Standards. This document is not intended to define the exclusive method an entity must use to comply with a particular standard or requirement, or foreclose a registered entity's demonstration by alternative means that it has complied with the language and intent of the standard or requirement, taking into account the facts and circumstances of a particular registered entity. Implementation of information in this document is not a substitute for compliance with requirements in NERC's Reliability Standards.

**U.S. DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
AGREEMENT**

1. AGREEMENT NUMBER	2. AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL	3. AMENDMENT NO.	4. EFFECTIVE DATE
16TP-11044	See Block #11	-3-	Same as Block #17

ISSUED TO		ISSUED BY	
5. ORGANIZATION AND ADDRESS Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP ATTN: General Counsel Pier 1, Bay 3 San Francisco, CA 94111		6. ORGANIZATION AND ADDRESS U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola – TPCCTPP-4 P.O. Box 61409 Vancouver, WA 98666	
7. TECHNICAL CONTACT Stan Gray	PHONE NUMBER (b) (6)	8. TECHNICAL CONTACT Rasha Kroonen	PHONE NUMBER (360) 619-6918
9. ADMINISTRATIVE CONTACT Kevin Wetzel	PHONE NUMBER (b) (6)	10. ADMINISTRATIVE CONTACT Cherilyn Randall	PHONE NUMBER (360) 619-6051

11. TITLE/BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT

**AMENDMENT NO. 3: DESIGN ACTIVITIES FOR LARGE GENERATOR INTERCONNECTION
REQUEST NO. G0345 SUMMIT RIDGE WIND, LLC C/O PATTERN RENEWABLES 2 LP**

Background: This Reimbursable Agreement No. 16TP-11044 (Agreement) between the Bonneville Power Administration (BPA) and Summit Ridge Wind, LLC c/o Pattern Renewables 2 LP (Summit Ridge) provides for BPA, at Summit Ridge's expense, to perform design activities needed to interconnect Summit Ridge's proposed 200 MW Summit Ridge Wind Project (Project) to the proposed BPA-owned (b) (4). The activities will include the completion of design and land acquisition for the (b) (4).

This Amendment No. 3 (Amendment) to the Agreement provides for additional funds needed to complete design, acquire the land needed for (b) (4) adds termination language to the Financial Terms and Conditions Statement (FTC) and extends the estimated completion date for such activities to October 1, 2019.

This Amendment is hereby incorporated and made a part of the original Agreement and is subject to all the provisions therein. All provisions of the original Agreement unless expressly deleted, modified, or otherwise superseded in this Amendment shall continue to be binding on all parties hereto.

The following document is attached to and becomes a part of this Amendment:

- Financial Terms and Conditions Statement, Amendment No. 3

12. AMOUNT TO BE PAID BY BPA -0-		13. AMOUNT TO BE PAID TO BPA \$(b) (4) (estimated, see FTC)	
14. SUBMIT SIGNED AMENDMENT TO U.S. Department of Energy Bonneville Power Administration ATTN: Anna Cosola – TPCCTPP-4 P.O. Box 61409 Vancouver, WA 98666		15. ACCOUNTING INFORMATION (For BPA Use Only) Work Order No. 00421854	
		16. SUBMIT INVOICE TO (Name and Address) Same as Block #5 above.	
PARTICIPANT		BPA	
17. APPROVED BY (Signature)	DATE (mm/dd/yyyy)	18. APPROVED BY (Signature)	DATE (mm/dd/yyyy)
NAME AND TITLE		NAME AND TITLE Transmission Account Executive Transmission Sales	

FINANCIAL TERMS AND CONDITIONS STATEMENT

BPA's cost of performing the project at Summit Ridge's expense shall be the actual cost of doing the work specified in this Agreement, plus the following overhead rates, representing the indirect costs of the project office plus the contractual support costs of contract negotiation, billing and accounting functions, and contract management.

BPA Labor	45%
Materials/Supplies/Equipment	15%
Supplemental Labor and Service Contracts	45%
Construction, Survey and Turnkey Contracts	15%

Summit Ridge hereby agrees to advance (b) (4) the estimated project cost, to BPA based on the following payment schedule:

Payment	Amount	Date Due
1	(b) (4)	(b) (4)
2	(b) (4)	(b) (4)
3	(b) (4)	(b) (4)
4	(b) (4)	(b) (4)

If BPA and Summit Ridge execute a Large Generator Interconnection Agreement (LGIA), the advance funds received and costs incurred under this Amendment will be accounted for under the LGIA, which will describe the final plan of service, cost estimates and deposits, as well as the classification of those Network Upgrades eligible for credits.

If BPA needs additional funds to complete the work at any time during performance of this Agreement, BPA may request, in writing, for Summit Ridge to advance such additional funds to BPA for deposit in the account. Summit Ridge shall advance such additional funds within 30 days of BPA's written request, and BPA may temporarily stop work until Summit Ridge supplies the requested funds.

If Summit Ridge does not advance such additional funds by the due date or, if at any time before completion of the project Summit Ridge elects to terminate or suspend work under this Agreement, BPA has the right to cease all work and restore, as a cost to the project at Summit Ridge's expense, government facilities and/or records to their condition prior to the beginning of work under this Agreement. BPA shall then make a full accounting to Summit Ridge showing the actual costs charged against the account, and shall either remit any unexpended balance in the account to Summit Ridge or bill for any costs in excess of the deposits in the account. Summit Ridge shall pay any excess costs within 30 days of the invoice date (due date). BPA shall return to stock any reusable equipment and materials, as determined by BPA, and Summit Ridge shall receive no transmission credits or associated interest for amounts paid to BPA for network upgrades under this provision.

Payments not received by the due date will accrue interest on the amount due beginning the first calendar day after due date to the date paid, at the appropriate rate calculated in accordance with the methodology specified for interest on refunds in the Federal Energy Regulatory Commission's regulations at 18 C.F.R. § 35.19a(a)(2)(iii).

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Sent: Fri Feb 08 16:03:19 2019

To: Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Kintz,Jourdan C (BPA) - TELC-TPP-3; Fredrickson,Erik E (BPA) - TELP-TPP-3

Subject: RE: Is G0345 Boyd Ridge Substation canceled?par **Importance:** Normal

Attachments: image001.jpg; image002.jpg; image003.jpg; image004.jpg; image005.jpg; image006.jpg

We don't know the schedule for G0345, but since it hasn't dropped out yet, we still have to plan as if it is there. Queue order and all that. FERC does not allow "first ready, first served" in the interconnection queue (I really wish they would, but they don't). So to keep us all from getting in super trouble with our Compliance group, please plan on G0345 until it is officially withdrawn from the queue.

From: Kroonen,Rasha (CONTR) - TEP-TPP-1

Sent: Friday, February 08, 2019 3:56 PM

To: Roberts,Ken (BPA) - TELP-CSB-2; Kintz,Jourdan C (BPA) - TELC-TPP-3; Fredrickson,Erik E (BPA) - TELP-TPP-3

Cc: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: RE: Is G0345 Boyd Ridge Substation canceled?

Hey Team,

We have no idea when will Boyd Ridge come back.

Kind Regards,

Rasha Kroonen, PMP | Senior Project Manager
Bonneville Power Administration | Flux
Transmission Project Management | TEP-TPP-1
Civil/Environmental Engineer- M.Sc. (Eng)
Office: (360) 619-6918 Cell: (b) (6)
Email: rmkroonen@bpa.gov

Facebook-Icon_31x31_v3Flickr-Icon_31x31Instagram-Icon_31x31LinkedIn-Icon_31x31[Twitter_31x31](#)YouTube_31x31

From: Roberts, Ken (BPA) - TELP-CSB-2
Sent: Thursday, February 07, 2019 2:58 PM
To: Kintz, Jourdan C (BPA) - TELC-TPP-3; Fredrickson, Erik E (BPA) - TELP-TPP-3; Kroonen, Rasha (CONTR) - TEP-TPP-1
Cc: Randall, Cherilyn C (BPA) - TPCV-TPP-4
Subject: RE: Is G0345 Boyd Ridge Substation canceled?

I wondered about this myself when I saw the PRD for Bakeoven and saw that it had Boyd Ridge (G0345) on it. I'm bringing Cherilyn into this in case she has any additional information she can lend to the conversation.

The conservative side of me would say that we should include it in case it did manage to get picked back

up. Devil's advocate could say that if Boyd comes back it would be on that developer to accommodate for the increase in load from Bakeoven. I don't know what our policy is, or if we even have one for instances like this.

Is there a major change to the impairment list with Boyd Ridge considered, that wouldn't be there if it wasn't?

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Kintz, Jourdan C (BPA) - TELC-TPP-3

Sent: Thursday, February 07, 2019 2:49 PM

To: Roberts, Ken (BPA) - TELP-CSB-2; Fredrickson, Erik E (BPA) - TELP-TPP-3; Kroonen, Rasha (CONTR) - TEP-TPP-1

Subject: RE: Is G0345 Boyd Ridge Substation canceled?

Thanks Ken-

So, for the G0367 project, should we scope it with the planning loads that included boyd ridge? Seeing as it looks like it could come back in the future?

From: Roberts, Ken (BPA) - TELP-CSB-2

Sent: Thursday, February 07, 2019 2:47 PM

To: Fredrickson, Erik E (BPA) - TELP-TPP-3; Kroonen, Rasha (CONTR) - TEP-TPP-1

Cc: Kintz, Jourdan C (BPA) - TELC-TPP-3

Subject: RE: Is G0345 Boyd Ridge Substation canceled?

It appears that it is dead in the water unless Pattern Energy can find a buyer which I thought Cherilyn said was an outside chance.

This was the last email from Rasha sent December 17th:

Good Afternoon Team,

We have just received our answer from Pattern Energy, they have requested cancelling the E&P agreement for Summit Ridge. In other words the project is now at a complete stop until further notice.

Please notify all impacted external parties as appropriate.

If and when the developer comes back to request the design and NEPA clearance for this project a new E&P agreement will have be developed with a new set of WOs and contracts

All design WOs will be closed within the next week so you will have a chance to charge for the next pay period.

WO# 00246369 will stay open to address final activities on the project

Thank you so much for your patience

Happy Holidays

Kind Regards,
Rasha Kroonen, PMP | Senior Project Manager

Ken Roberts

Electrical Engineer | Substation Project Engineering

Bonneville Power Administration

bpa.gov | P 360.418.8111

From: Fredrickson,Erik E (BPA) - TELP-TPP-3
Sent: Thursday, February 07, 2019 2:30 PM
To: Kroonen,Rasha (CONTR) - TEP-TPP-1
Cc: Roberts,Ken (BPA) - TELP-CSB-2; Kintz,Jourdan C (BPA) - TELC-TPP-3
Subject: Is G0345 Boyd Ridge Substation canceled?

Hi, Rasha,

Is G0345 Boyd Ridge Substation canceled? We're looking at how much work Big Eddy-Redmond will need to tie in G0367, a wind project, at Maupin.

-Erik



Boyd Ridge Substation (Design Contract 74567 release 011)

Kick off Meeting Agenda

December 18, 2018

Agenda:

- ❖ Introductions (roles & responsibilities)
- ❖ Brief overview of the scope and risk items
 - Substation Site
 - Transmission Line
 - Access Road
 - Remote Sites
- ❖ Environmental permitting
- ❖ Realty, survey and land acquisition
- ❖ Project Management
 - Schedule
 - Review resources
 - Site visit
 - Project meetings
 - District and customer coordination
- ❖ Open items list
- ❖ Contracting
- ❖ Q&A



Boyd Ridge Substation (Design Contract 74567 release 011)

Kick off Meeting Agenda

December 18, 2018

Work Order Summary:

Bundle ID	Bundle Description	Work Order	WO Description
<u>P00627</u>	G0345 BOYD RIDGE SUBSTATION	00469803	BOYD: LAND ACQUISITION FOR BOYD RIDGE SUBSTATION
		00469816	BIGE-RDMD-1: LAND RIGHTS REVIEW/ACQ FOR LOOP
		00469817	SUMT: COLLECTOR COMM/CTRL - G0345 DESIGN
		00469896	BOYD: NEW 230KV BOYD RIDGE SUBSTATION - G0345
		00470222	RDMD: INSTALL TT/COMM (DESIGN) - G0345
		00470224	MOPN: INSTALL TT/COMM (DESIGN) - G0345
		00470225	BIGE-RDMD-1: NEW LINE LOOP IN (DESIGN) - G0345
		00482897	BIGE-RDMD-1: EXPENSE REMEDIATION FOR IMPAIRMENTS - G0345
		00482894	BIGE-RDMD-1: NEW STRUCTURES FOR IMPAIRMENTS - G0345

(b) (4)



Legend

- All Substations
 - BPA Substation
 - BPA Maintenance HQ
 - Non-BPA Substation
- BPA Transmission Towers
 - Lattice Tower
 - Pole Structure
 - Substation Dead End Bays
 - Unknown Tower Type
- BPA Transmission Lines
- BPA Transmission Lines (Spur)
- BPA Right-of-way Corridors
- Acquired BPA Access Road or
 - Road Tract
 - Non-Road Tract
- World Boundaries and Places
- World Imagery
- Low Resolution 15m Imagery
- High Resolution 60cm Imagery
- High Resolution 30cm Imagery
- Citations

1: 13,390



Notes



Boyd Ridge Substation Scoping - G0345 Wind Farm

Site Visit Notes

o Meeting Information

- Date: 10/30/17
- Time: 800 - 1500
- Location: Boyd, OR

o Ken Cell: (b) (6)

0800: Depart PDX/Vancouver

1000: Arrive at Site (See Map & Travel Instructions)

o **Introductions and purpose of the meeting – Ken Roberts**

o **Individual disciplines discussions**

o **SITE 1 (Potentially Workable)**

- Line Design: Not on the preferred side of the existing line. Would require Pattern Energy to bring their line to our sub, under the DC Intertie/Big Eddy – Redmond #1 line, and require us to do the same to connect to the Big Eddy – Redmond #1 line. Not immediately sure if this is a problem but it isn't ideal. Dustin can investigate if needed.
- Civil / Road: Flat surface which is nice but it would take up a big portion of farmed field. Access road looked workable from a bend to the west but would also cut through farmed field.
- Environmental: Just south of this area we know there are culturally sensitive areas.

o **SITE 2 (Last Choice)**

- Line Design: On the preferred side of the existing line.
- Civil / Road: Surface area is small before sloping downwards towards the road. Also has some pretty rocky areas. Not an ideal location. The road would need to be even longer than at Site 1, joining the main road at the same location.
- Environmental: Just south of this area we know there are culturally sensitive areas.

o **SITE 3 (Best Location Based On Site Visit)**

- Line Design: On the right side of the existing line. Would require more towers to get from this location to tap the Big Eddy – Redmond #1 line. Could possibly come in at structure 11/1 but after further investigation, structure 11/2 looks to be better. That structure would need to be replaced regardless and the fiber splice can is at this structure, not at 11/1 like we originally thought. Land owner was present during the scoping of this location and did not have an issue with the proposed connecting towers being in their fields.
- Civil /Road: There is an area that is mostly unfarmed that looks like it would work well for the yard. (Scott Wood later created a map showing 11 acres at this location, Ken to verify how much over the planned 8 developed acres we need). Scott to investigate a road location proposed by the land owner (Scott later verified that it looks like it could possibly done at 8% grade requiring only a gravel road, but for sure could be done at 12% paved, worst case scenario). Land owner would prefer to have the road encroach on farmed land as little as possible.



Boyd Ridge Substation Scoping - G0345 Wind Farm

Site Visit Notes

- Environmental: Unknown

- o Q/A

- 1230: Head to Lunch - Big Jim's Drive In or groups can split up to go elsewhere

- 1500-1515: Arrive back at PDX/Vancouver

- o Project information
 - PRD: [285137](#)
 - WO: 00421854 - G0345: SUMMIT RIDGE WIND
 - Project Workspace:
(b) (2)
 - CDD Direct Link: Coming Soon

Meeting notes - TAMEC 6/29/18

Friday, June 29, 2018
11:01 AM

TAMEC members in attendance: Robin Furrer, Jeff Cook, Mike Miller

FY18 EOY Forecast and Q3 Actuals: (Kathy Rehmer)

See attached Excel sheet.

TAMEC approved the EOY forecast.

Non-responsive



Approved by TAMEC.

Boyd Ridge Business Case:

Customer funded and financed project, funds provided by customer in advance for 201 MW wind project. This project was initially approved in 2011 by CAB. 500kV alternative plan of service was more costly and the interconnection is at 230 kV. (b) (4) is direct assigned to the customer for collector station communications and the balance of the project cost will be customer financed with eligibility for transmission credits. Transmission credits will be repaid in approximately 11 years. Identified risks are: Resource constraints may lead to delays. Possible environmental or archeological issues (due to cultural finds located close by); however land has been tilled and so protected species are not likely.

Approved by TAMEC.

Finance Committee Meeting attendance is restricted; either Richard or Jeff will brief the projects. Pilar will pre-brief Janet Herrin as usual.

CIA Process Improvements for Customer Projects:

Jana and Paul briefed as an "inform"; to TAMEC. See attached PowerPoint file.



CIA Improvements for Customer Projects_Fir



Copy of Q3 Capital Forecast For 6-29 TAMEC

From: Peck,Nick (CONTR) - TPC-TPP-4

Sent: Thu Mar 01 12:03:20 2018

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4; Taylor,Eric K (BPA) - TSE-TPP-2

Subject: G0345

Importance: Normal

Attachments: image001.jpg

I have a note from late last Fall saying we needed (b) (4) "in 3 months" Any updates?

Nick Peck
Business Analyst
Customer Service Engineering
Bonneville Power Administration : TPC/TPP-4

Tel: (360) 619-6419 : Cell: (b)(6)
cnpeck@bpa.gov
Strategic | Achiever | Responsibility | Adaptability | Learner

Attitude is everything

From: TBL Reservation Desk

Sent: Thu Jul 16 10:33:54 2020

To: 'Mike Raschio'; TBL Reservation Desk

Cc: Taylor, Eric K (TFE)(BPA) - TSQR-TPP-2

Subject: RE: [EXTERNAL] Additional What if TX analysis.

Importance: Normal

Attachments: Maupin 10.docx; Maupin 9.docx

Mike,

Attached are the additional What-If analysis requested.

Thanks!

Kari (Norman) Mitchell
Public Utilities Specialist/Reservation Desk Specialist | TOOS
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 360-418-2125

This email may contain SOC Restricted, OFFICIAL USE ONLY, confidential, and/or privileged information intended only for the addressee. If you received this email in error, please notify me immediately.

-----Original Message-----

From: Mike Raschio <maraschio@comcast.net>

Sent: Monday, July 13, 2020 11:43 AM

To: TBL Reservation Desk <tblresdesk@bpa.gov>

Subject: [EXTERNAL] Additional What if TX analysis.

Attached are two additional Transmission Analysis requests.

Thanks

Mike Raschio

From: TBL Reservation Desk

Sent: Thu Jul 16 10:24:05 2020

To: 'Mike Raschio'; TBL Reservation Desk

Cc: Taylor, Eric K (TFE)(BPA) - TSQR-TPP-2

Subject: RE: [EXTERNAL] What if Transmission Analysis Requests

Importance: Normal

Attachments: Maupin 8 - Redirect.docx; Maupin 8 - Redirect.docx; Maupin 1 Transmission-Reservation-ATC-Analysis-Request.docx; Maupin 2.docx; Maupin 3.docx; Maupin 4.docx; Maupin 5.docx; Maupin 6.docx; Maupin 7 - Redirect.docx

Mike,

Attached are the completed What-If analysis requested.

Eric,

If this is no longer your customer, can you please forward to the correct AE and CC the Res Desk?

Thank you,

Kari (Norman) Mitchell
Public Utilities Specialist/Reservation Desk Specialist | TOOS
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 360-418-2125

This email may contain SOC Restricted, OFFICIAL USE ONLY, confidential, and/or privileged information intended only for the addressee. If you received this email in error, please notify me immediately.

-----Original Message-----

From: Mike Raschio <maraschio@comcast.net>
Sent: Wednesday, July 8, 2020 1:05 PM
To: TBL Reservation Desk <tblresdesk@bpa.gov>
Cc: Bryan,Natasha M K (TFE)(BPA) - TOOS-DITT-1 <nggivens@bpa.gov>
Subject: [EXTERNAL] What if Transmission Analysis Requests

Attached is a number of requests for What if analysis for various Point of Delivery for the Summit Ridge Wind project. The project is 201 MW, but my evaluation is for 100 MW for De Minimis benefits. Maupin 7 and 8 are redirect only analysis.

The Account Executive was Eric Taylor. Not sure who is the AE now.

Mike Raschio

U.S. DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION

**TRANSMISSION RESERVATION & AVAILABLE TRANSFER CAPABILITY (ATC)
ANALYSIS REQUEST**

Disclaimer: This analysis is based on posted ATC at the time it was performed, is subject to change, and is for information purposes only. The analysis is based on the information provided by the customer and may not align with the points BPA uses to evaluate a transmission service request (TSR). All TSRs will be evaluated per BPA's tariff and applicable business practices. A customer shall not use BPA's analysis as a basis for any claim, demand, or cause for action against BPA. Decisions based upon this analysis are the sole responsibility of the customer. Questions and comments should be directed to your Account Executive or Reservation Desk at tblresdesk@bpa.gov.

Requestor Name: Mike Raschio	Company Name: AYPA	Phone No.: 503-653-1264
Assigned Transmission Account Executive (AE) (<i>AE assignment required prior to what-if submittal</i>): not sure		
<i>If the Requestor does not have an assigned Transmission Account Executive, please call BPA Transmission Sales (360) 619-6016 and request the assignment of a Transmission Account Executive prior to a what-if submittal.</i>		
Date Submitted: 7/7/2020	*Requested Due Date: 7/10/2020	

**The Reservation Desk will try to accommodate the requested due date, if possible. If the Reservation Desk is unable to meet the timeline, the Requestor will be contacted.*

Please complete the "What-if" ATC analysis request for the applicable scenario(s) regarding a potential or existing Transmission Service Request (TSR) and email to the TBL Reservation Desk at tblresdesk@bpa.gov and include the assigned Transmission Account Executive in the distribution list. All "What-if" analysis will include the following considerations: (1) ATC/Available Flowgate Capability and the potential for Conditional Firm service, (2) the Long-Term Pending Queue, and (3) BPA's current Long-Term Service Commitments. Refer to the current Long-Term Firm Queue: Evaluation of Requests and Offer of Service Business Practice, or its successor, for additional What-if information.

ORIGINAL (NEW) TRANSMISSION SERVICE SCENARIO

Service Type: PTP <input checked="" type="checkbox"/> NT <input type="checkbox"/>	For NT: DNR/New Load was included in 10 year forecast: YES <input type="checkbox"/> NO <input type="checkbox"/>	
Generation Interconnection No. (if applicable): G0345	Generation Type: wind	
Source/POR (if known): Maupin 230	Sink/POD (if known): Troutdale 230/PAC	
Geographical Location (if Source/Sink unknown):		
Start Date: 12/1/23	Service Duration (Years): 5	MW: 100

Description of Analysis Need (**Required information**): *Please provide as much detail as possible for analysis purposes.*

Just Redirect analysis on this one

REDIRECT OF EXISTING PTP TRANSMISSION SERVICE SCENARIO

Parent TSR (if known):		
Source/PO (Parent): McNary 230	Sink/POD (Parent): Pearl 230	
Source/PO (Child): Maupin 230	Sink/POD (Child): Pearl 230	
Start Date:	Service Duration (Years):	MW: 100 MW

Description of Analysis Need (**Required information**): *Please provide as much detail as possible for analysis purposes.*

ATC/AFC ANALYSIS RESULT

Colored cells in the analysis reflect De Minimis results and require no ATC; white cells require ATC.

LTF Caveats:

- The results of the what-if are based on the information as presented by the customer.
- BPA will require further detail at the time an OASIS request is submitted.
- All NEWPOINT requests are analyzed using proxy points and may not reflect the actual impacts of the request. Further study will likely be required.

Analysis Results:

There is sufficient ATC to offer 100MW of Full Term/Full MW Long Term Firm service at this snapshot in time.

T	T	SOA_NS	CCN_EW	WL_EW	CCS_EW	NOH_NS	NJD_NS	PA_NS	RP_NS	WOM_EW	WOS_EW	WJD_EW	SOC_NS	WOH_E-W	NOEL_S
POR	MAUPIN_69.00	-0.1839	-0.1922	-0.0726	0.1493	-0.5686	-0.7662	-0.1565	-0.1225	-0.1536	-0.1827	-0.3175	0.0003	0.0484	0.0372
POD	PEARL E_230.00	-0.3096	-0.3214	-0.067	-0.6186	-0.4758	-0.7555	-0.2676	-0.2107	-0.1255	-0.1411	-0.2028	-0.0046	0.0425	0.0428
Path PUF		0.1257	0.1292	-0.0056	0.7679	-0.0928	-0.0107	0.1111	0.0882	-0.0281	-0.0416	-0.1147	0.0049	0.0059	-0.0056
Impact		12.57	12.92	0	76.79	0	0	11.11	0	0	0	0	0	0	0
POR	MCNRY S2_230.00	-0.1531	-0.1581	-0.0866	0.1423	-0.5588	-0.7255	-0.1253	-0.0981	0.5504	0.1162	0.1225	0.0034	0.0336	0.0328
POD	PEARL E_230.00	-0.3096	-0.3214	-0.067	-0.6186	-0.4758	-0.7555	-0.2676	-0.2107	-0.1255	-0.1411	-0.2028	-0.0046	0.0425	0.0428
Path PUF		0.1565	0.1633	-0.0198	0.7609	-0.0828	0.03	0.1423	0.1126	0.6759	0.2573	0.3253	0.008	-0.0089	-0.01
Impact		15.65	16.33	0	76.09	0	0	14.23	-11.26	67.59	25.73	32.53	0	0	0
Impact Used		0	0	0	1	0	0	0	0	0	0	0	0	0	0

NOTE: The PTDF for Maupin 230 mapped out to MAUPIN_69 for analysis.

CONDITIONAL FIRM

Customers may request to be studied for conditional firm by either participating in a Cluster or Individual Study.

From: Kelly,Shanna M (CONTR) - TPC-TPP-4

Sent: Fri Mar 23 09:12:19 2018

To: Taylor,Eric K (BPA) - TSE-TPP-2

Subject: RE: G0345 FOR SIGNATURE 16TP-11044 A3_Summit Ridge_Prelim Engrg

Importance: Normal

Thank you

Shanna Kelly (CONTR)

Flux Resources, LLC

A David Evans Enterprises Company

Administrative Service Assistant

Customer Service Engineering, TPC-TPP-4

Bonneville Power Administration

Phone: 360-619-6075

E-mail: smskelly@bpa.gov

Developer ~ Empathy ~ Responsibility ~ Restorative ~ Relator

From: Taylor,Eric K (BPA) - TSE-TPP-2

Sent: Thursday, March 22, 2018 4:06 PM

To: Kelly,Shanna M (CONTR) - TPC-TPP-4

Cc: Cosola,Anna M (BPA) - TPCC-TPP-4

Subject: RE: G0345 FOR SIGNATURE 16TP-11044 A3_Summit Ridge_Prelim Engrg

Here you go

Kevin Wetzel Kevin.Wetzel@patternenergy.com

From: Kelly,Shanna M (CONTR) - TPC-TPP-4
Sent: Thursday, March 22, 2018 3:11 PM
To: Taylor,Eric K (BPA) - TSE-TPP-2
Cc: Cosola,Anna M (BPA) - TPCC-TPP-4
Subject: RE: G0345 FOR SIGNATURE 16TP-11044 A3_Summit Ridge_Prelim Engrg

Do we have an email for Mr. Wetzel?

Shanna Kelly (CONTR)

Flux Resources, LLC

A David Evans Enterprises Company

Administrative Service Assistant

Customer Service Engineering, TPC-TPP-4

Bonneville Power Administration

Phone: 360-619-6075

E-mail: smskelly@bpa.gov

Developer ~ Empathy ~ Responsibility ~ Restorative ~ Relator

From: Taylor,Eric K (BPA) - TSE-TPP-2
Sent: Thursday, March 22, 2018 1:13 PM
To: Kelly,Shanna M (CONTR) - TPC-TPP-4
Cc: Cosola,Anna M (BPA) - TPCC-TPP-4; PWASstudy
Subject: RE: G0345 FOR SIGNATURE 16TP-11044 A3_Summit Ridge_Prelim Engrg

Signed agreement and cover letter attached, thanks.

ET

From: Kelly,Shanna M (CONTR) - TPC-TPP-4
Sent: Thursday, March 22, 2018 12:36 PM
To: Taylor,Eric K (BPA) - TSE-TPP-2

Cc: Cosola,Anna M (BPA) - TPCC-TPP-4; PWASstudy; Kelly,Shanna M (CONTR) - TPC-TPP-4
Subject: FW: G0345 FOR SIGNATURE 16TP-11044 A3_Summit Ridge_Prelim Engrg

The attached letter and agreement are ready for you to e-sign.

Shanna Kelly (CONTR)

Flux Resources, LLC

A David Evans Enterprises Company

Administrative Service Assistant

Customer Service Engineering, TPC-TPP-4

Bonneville Power Administration

Phone: 360-619-6075

E-mail: smskelly@bpa.gov

Developer ~ Empathy ~ Responsibility ~ Restorative ~ Relator

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Thursday, March 22, 2018 12:08 PM

To: Kelly,Shanna M (CONTR) - TPC-TPP-4

Subject: G0345 FOR SIGNATURE 16TP-11044 A3_Summit Ridge_Prelim Engrg

Shanna,

The attached documents are ready for signature. The Review & Approve process has been completed.

Thanks,

Anna

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Wed Apr 04 12:30:35 2018

To: Kelly,Shanna M (CONTR) - TPC-TPP-4; Taylor,Eric K (BPA) - TSE-TPP-2

Subject: RE: G0345 FOR SIGNATURE 16TP-11044_Design_Retender

Importance: Normal

Kevin Wetzel (Kevin.Wetzel@patternenergy.com)

From: Kelly,Shanna M (CONTR) - TPC-TPP-4

Sent: Wednesday, April 04, 2018 12:30 PM

To: Taylor,Eric K (BPA) - TSE-TPP-2

Cc: Cosola,Anna M (BPA) - TPCC-TPP-4; PWASStudy

Subject: RE: G0345 FOR SIGNATURE 16TP-11044_Design_Retender

Do we have Kevin Witzels email?

Shanna Kelly (CONTR)

Flux Resources, LLC

A David Evans Enterprises Company

Administrative Service Assistant

Customer Service Engineering, TPC-TPP-4

Bonneville Power Administration

Phone: 360-619-6075

E-mail: smskelly@bpa.gov

Developer ~ Empathy ~ Responsibility ~ Restorative ~ Relator

From: Taylor, Eric K (BPA) - TSE-TPP-2
Sent: Wednesday, April 04, 2018 9:52 AM
To: Kelly, Shanna M (CONTR) - TPC-TPP-4
Cc: Cosola, Anna M (BPA) - TPCC-TPP-4; PWASStudy
Subject: RE: G0345 FOR SIGNATURE 16TP-11044_Design_Retender

Attached letter and agreement attached, thanks.

From: Kelly, Shanna M (CONTR) - TPC-TPP-4
Sent: Tuesday, April 03, 2018 8:54 AM
To: Taylor, Eric K (BPA) - TSE-TPP-2
Cc: Cosola, Anna M (BPA) - TPCC-TPP-4; PWASStudy; Kelly, Shanna M (CONTR) - TPC-TPP-4
Subject: FW: G0345 FOR SIGNATURE 16TP-11044_Design_Retender

Morning Eric,
The attached letter and agreement are ready for you to e-sign.

Shanna Kelly (CONTR)

Flux Resources, LLC

A David Evans Enterprises Company

Administrative Service Assistant

Customer Service Engineering, TPC-TPP-4

Bonneville Power Administration

Phone: 360-619-6075

E-mail: smskelly@bpa.gov

Developer ~ Empathy ~ Responsibility ~ Restorative ~ Relator

From: Cosola, Anna M (BPA) - TPCC-TPP-4
Sent: Monday, April 02, 2018 12:58 PM
To: Kelly, Shanna M (CONTR) - TPC-TPP-4
Subject: G0345 FOR SIGNATURE 16TP-11044_Design_Retender

Shanna,

The attached documents are ready for signature, dated for tomorrow.

Thank you,

Anna

From: DeClerck,Angela (TFE)(BPA) - TSE-TPP-2

Sent: Wed Jun 26 08:14:29 2019

To: Bustamante,Richard (BPA) - TPP-OPP-3; Taylor,Eric K (TFE)(BPA) - TSE-TPP-2

Cc: Rochelle,Patrick R (BPA) - TPPB-OPP-3; Hauge,Daniel R (BPA) - TPPB-OPP-3; Matthews,Chuck (BPA) - TPP-OPP-3; Lee,Christina A (BPA) - TPPA-OPP-3; Gardner,Amy M (BPA) - TEPS-TPP-1; Roberts,Ken (BPA) - TEEH-CSB-2; Randall,Cherilyn C (BPA) - TPCV-TPP-4

Subject: RE: G0345 Status

Importance: Normal

This is Eric Taylor's project. I don't know the status. Cherilyn do you know.

From: Bustamante,Richard (BPA) - TPP-OPP-3

Sent: Wednesday, June 26, 2019 8:13 AM

To: DeClerck,Angela (TFE)(BPA) - TSE-TPP-2

Cc: Rochelle,Patrick R (BPA) - TPPB-OPP-3; Hauge,Daniel R (BPA) - TPPB-OPP-3; Matthews,Chuck (BPA) - TPP-OPP-3; Lee,Christina A (BPA) - TPPA-OPP-3; Gardner,Amy M (BPA) - TEPS-TPP-1; Roberts,Ken (BPA) - TEEH-CSB-2

Subject: RE: G0345 Status

"Summit Ridge Wind" 201MW wind project coming into the new Boyd Ridge BPA Substation on the Big Eddy – Maupin line.

Ricky Bustamante
P 360-619-6592 | (b)(6)

From: DeClerck,Angela (TFE)(BPA) - TSE-TPP-2

Sent: Wednesday, June 26, 2019 8:09 AM

To: Lee,Christina A (BPA) - TPPA-OPP-3; Gardner,Amy M (BPA) - TEPS-TPP-1; Roberts,Ken (BPA) - TEEH-CSB-2

Cc: Rochelle,Patrick R (BPA) - TPPB-OPP-3; Hauge,Daniel R (BPA) - TPPB-OPP-3; Bustamante,Richard (BPA) - TPP-OPP-3; Matthews,Chuck (BPA) - TPP-OPP-3

Subject: RE: G0345 Status

What is the name of this project. thanks

From: Lee,Christina A (BPA) - TPPA-OPP-3

Sent: Tuesday, June 25, 2019 4:03 PM

To: Gardner,Amy M (BPA) - TEPS-TPP-1; Roberts,Ken (BPA) - TEEH-CSB-2; DeClerck,Angela (TFE)(BPA) - TSE-TPP-2

Cc: Rochelle,Patrick R (BPA) - TPPB-OPP-3; Hauge,Daniel R (BPA) - TPPB-OPP-3; Bustamante,Richard (BPA) - TPP-OPP-3;

Matthews,Chuck (BPA) - TPP-OPP-3

Subject: G0345 Status

Hi Amy, Ken, and Angela,

Would any of you happen to know the status of G0345? According to the CDD for G0367 it says that G0345 has been scoped but was put on hold as soon as it entered design. Do you know if it is still on hold or if there are plans for it to come off hold?

Thanks!

Christina

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Wed Mar 14 10:26:43 2018

To: Taylor,Eric K (BPA) - TSE-TPP-2

Subject: RE: G0345 Summit Ridge Wind_Project Status Update

Importance: Normal

Attachments: image001.png

That is how the last amendments were drafted. When this new amendment was passed to Cherilyn for her edits, she removed 'Summit Ridge Wind'. I just added it back in. She was not in the email string where I was working the naming convention out with the customer.

From: Taylor,Eric K (BPA) - TSE-TPP-2

Sent: Wednesday, March 14, 2018 10:18 AM

To: Cosola,Anna M (BPA) - TPCC-TPP-4

Subject: RE: G0345 Summit Ridge Wind_Project Status Update

Yes, I think that's the main one...just wanted to make sure folks were ok with that.

From: Cosola,Anna M (BPA) - TPCC-TPP-4

Sent: Wednesday, March 14, 2018 10:09 AM

To: Taylor,Eric K (BPA) - TSE-TPP-2

Subject: RE: G0345 Summit Ridge Wind_Project Status Update

The only edit I see is adding Summit Ridge Wind to the agreement which I had already added. ☺ The payment due date will change once it's gone through all the CCM reviews.

Thanks!

From: Taylor,Eric K (BPA) - TSE-TPP-2

Sent: Wednesday, March 14, 2018 9:52 AM
To: Cosola,Anna M (BPA) - TPCC-TPP-4
Subject: RE: G0345 Summit Ridge Wind_Project Status Update

Great, thanks.

Were we ok with his edits?

From: Cosola,Anna M (BPA) - TPCC-TPP-4
Sent: Wednesday, March 14, 2018 9:50 AM
To: Taylor,Eric K (BPA) - TSE-TPP-2
Subject: RE: G0345 Summit Ridge Wind_Project Status Update

Thanks Eric. It's in CCM review...

From: Taylor,Eric K (BPA) - TSE-TPP-2
Sent: Wednesday, March 14, 2018 9:31 AM
To: Cosola,Anna M (BPA) - TPCC-TPP-4
Subject: FW: G0345 Summit Ridge Wind_Project Status Update

From: Kevin Wetzel [<mailto:Kevin.Wetzel@patternenergy.com>]
Sent: Tuesday, March 13, 2018 7:44 PM
To: Randall,Cherilyn C (BPA) - TPCV-TPP-4
Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; O'Connell,Michael J (BPA) - ECT-4; George Hardie
Subject: [EXTERNAL] RE: G0345 Summit Ridge Wind_Project Status Update

Hi BPA team – we received our approvals to move forward with Amendment 3 and post the requested deposit. Please see attached proposed amendment based on the form sent on January 25th. If this is acceptable please sign and send back to me so that I can have it signed on our end and begin setting up the payment. Thank you.

Kevin Wetzel

Manager, Project Development
direct +1 (b) (6)
mobile +1 (b)(6)
Pier 1, Bay 3
San Francisco, CA 94111

From: Kevin Wetzel

Sent: Monday, March 12, 2018 8:02 AM

To: 'Randall,Cherilyn C (BPA) - TPCV-TPP-4'

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; O'Connell,Michael J (BPA) - ECT-4; George Hardie

Subject: RE: G0345 Summit Ridge Wind_Project Status Update

Cherilyn – I believe we have internal support to move forward with (b) (4) and am getting final approvals this week. We anticipate being able to send in the wire by mind next week. Can you please have the team send through the latest amendment with the funding request so we can review it and start our legal signoff process to keep us on track for 2020 in service? Thanks.

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4 [<mailto:ccrandall@bpa.gov>]

Sent: Wednesday, February 28, 2018 11:04 AM

To: Kevin Wetzel

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; O'Connell,Michael J (BPA) - ECT-4; George Hardie

Subject: RE: G0345 Summit Ridge Wind_Project Status Update

Well, October would be about a quarter of the time allotted to design, so maybe assume a quarter of the dollars would be spent. That's not a guarantee, of course, but seems like a reasonable guesstimate. If you pull out of the design process, there is no guarantee that we would be able to re-use that work. In my experience, it is generally wasted time and dollars. No guarantee you'll have the same designers next time around and if the previous team had got as far as some preliminary mark-ups and half-done drawings, but no final drawings, it can be very hard for a new team to figure out exactly what the previous team had in mind. Design usually starts over. Now if you finish design and have the final design drawings, those are generally good for at most one year. After that, they have to be re-looked at. Comm equipment and relays, in particular, tend to migrate to new standards about every year.

From: Kevin Wetzel [<mailto:Kevin.Wetzel@patternenergy.com>]

Sent: Wednesday, February 28, 2018 10:52 AM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; O'Connell,Michael J (BPA) - ECT-4; George Hardie

Subject: [EXTERNAL] RE: G0345 Summit Ridge Wind_Project Status Update

Thanks Cherilyn yes that answers it at a high level. It sounds like you are not sure exactly how much will be spent by when and that's understandable. If you could provide an estimate to what you think may be spent (understanding it's a best guess) by end of October this year, I would really appreciate it as that's what management has asked of me. Also, if we pulled out of the design process, would the design work done to that point be usable when we started back up, such that the spend was not wasted?

To let you know, we are leaning toward making the posting and I'm putting together management documentation to get the funds distributed. As mentioned before we are aiming to have the funds to you by mid-March. Please let me know if there are any issues with that timeline to maintain our pace. Thanks.

Kevin Wetzel

Manager, Project Development

direct +1 (b) (6)

mobile +1 (b) (6)

Pier 1, Bay 3

San Francisco, CA 94111

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4 [<mailto:ccrandall@bpa.gov>]

Sent: Wednesday, February 28, 2018 10:30 AM

To: Kevin Wetzel

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; O'Connell,Michael J (BPA) - ECT-4; George Hardie

Subject: RE: G0345 Summit Ridge Wind_Project Status Update

Hi Kevin,

In terms of spend, this is pretty high level. But after we get your payment, we can solicit a design contractor. The spend against the work order is light (there are a couple of people that prepare the RFP, so they will charge to the work order, but no one else should be

using it) until after the contractor is hired. After that, the spend comes in chunks, as the contractor sends in invoices. Some do monthly invoices, some do quarterly, so it's not easy to predict the spend rate. We do have some BPA people doing design review, and also the RAS design is done in-house. If you stop before design is complete, we will true up with the design contractor and internal design groups and refund you all unspent funds. Obviously, the earlier you pull the project, the less time we've had to spend the funds, the more of your deposit you will get back. If you pull out of design, you start a three-year "suspension" clock. You have to start design up again before the three years is over, or the project is removed from our queue. Does that answer all your questions?

Thanks,
Cherilyn

From: Kevin Wetzel [<mailto:Kevin.Wetzel@patternenergy.com>]

Sent: Monday, February 26, 2018 12:59 PM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; O'Connell,Michael J (BPA) - ECT-4; George Hardie

Subject: [EXTERNAL] RE: G0345 Summit Ridge Wind_Project Status Update

Hi Cherilyn – wanted to check in on the note below regarding projected spend schedule and see if you have any thoughts. We understand we're coming down to the wire and management has asked for the spend schedule as part of our approval process. If approved our goal would be to have the funds in your hands by March 15 if we can get the schedule in the next day or so. Thanks and give me a call if you want to discuss this live.

Kevin Wetzel

Manager, Project Development

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mobile +1 (415) (b)(6)

Pier 1, Bay 3

San Francisco, CA 94111

From: Kevin Wetzel

Sent: Friday, February 16, 2018 12:43 PM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; O'Connell,Michael J (BPA) - ECT-4; George Hardie

Subject: RE: G0345 Summit Ridge Wind_Project Status Update

Cherilyn – one point we would appreciate some understanding on is when the requested \$(b) will be spent. We understand you need to collect the funds before starting the RFP process for the design works, and when we spoke last month it sounded like the actual spend against the deposit would be light until around July after the contractor is selected and design work begins. Can you help us understand the spend schedule and how much we would recover from the deposit if we decided to suspend work before July and push in-service out to 2021? Thanks.

From: Kevin Wetzel

Sent: Monday, February 12, 2018 9:17 AM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; O'Connell,Michael J (BPA) - ECT-4; George Hardie

Subject: RE: G0345 Summit Ridge Wind_Project Status Update

Hi Cherilyn – wanted to let you know that we're still evaluating this but not to worry about the 30 day clock in terms of when you would expect payment. To the extent we decide to move forward with the 2020 COD we will let you know and plan to wire the funds ahead of the 30 days to ensure we can stay on schedule. I should have more concrete feedback by end of week.

Kevin Wetzel

Manager, Project Development

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mobile +1 (b)(6)

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San Francisco, CA 94111

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4 [<mailto:ccrandall@bpa.gov>]

Sent: Tuesday, February 06, 2018 10:35 AM

To: Kevin Wetzel

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; O'Connell,Michael J (BPA) - ECT-4

Subject: RE: G0345 Summit Ridge Wind_Project Status Update

Hi Kevin,

With the time to process the agreement, and the 30 day standard payment clause, you are very quickly running out of time to keep your project on track for a 2020 energization date. Please let me know by Friday if I should issue the agreement amendment for design and land acquisition ((b) (4) required) or if we are moving this project to 2021.

Thanks,
Cherilyn

From: Kevin Wetzel [<mailto:Kevin.Wetzel@patternenergy.com>]

Sent: Thursday, January 25, 2018 2:52 PM

To: Randall,Cherilyn C (BPA) - TPCV-TPP-4

Cc: Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; O'Connell,Michael J (BPA) - ECT-4

Subject: [EXTERNAL] RE: G0345 Summit Ridge Wind_Project Status Update

Thanks Cherilyn – one thing I forgot to ask was if we make the payment in March and later decide we would like to stop work and be refunded the funds not yet spent, would that result in a complete removal from the queue, or just a pause in the process with corresponding delay in the in-service expectation? Thanks.

Kevin Wetzel

Manager, Project Development

main +1 415 283 4000

direct +1 ((b) (6))

mobile +1 ((b) (6))

Kevin.Wetzel@patternenergy.com

Pier 1, Bay 3

San Francisco, CA 94111

patterndev.com

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This email message may contain information that is confidential and proprietary. If you are not the intended recipient, please contact the sender and destroy the original and any copies of the original message. We take measures to protect the content of our communications. However, we cannot guarantee that email messages will not be intercepted by third parties or that email messages will be free of errors or viruses.

From: Randall,Cherilyn C (BPA) - TPCV-TPP-4 [<mailto:ccrandall@bpa.gov>]

Sent: Thursday, January 25, 2018 1:52 PM

To: Kevin Wetzel; Kroonen,Rasha (CONTR) - TEP-TPP-1; Roberts,Ken (BPA) - TELP-CSB-2; Taylor,Eric K (BPA) - TSE-TPP-2; O'Connell,Michael J (BPA) - ECT-4

Subject: RE: G0345 Summit Ridge Wind_Project Status Update

Adding Mike O'Connell to the email so you have his contact info.

Sent from my Verizon 4G LTE smartphone

From: Martinez, Geneva C (CONTR) - TSES-TPP-2

Sent: Thu Jun 18 08:02:29 2020

To: Taylor, Eric K (TFE)(BPA) - TSQR-TPP-2

Subject: RE: Phone Meeting Request

Importance: Normal

Chris L has it –

Geneva Martinez

SalientCRGT

Administrative Assistant II/TSES

Bonneville Power Administration

360-619-6693 P

360-619-6940 F

From: Taylor, Eric K (TFE)(BPA) - TSQR-TPP-2 <ektaylor@bpa.gov>

Sent: Thursday, June 18, 2020 7:22 AM

To: Martinez, Geneva C (CONTR) - TSES-TPP-2 <gcmartinez@bpa.gov>
Subject: FW: Phone Meeting Request

Yo G,

Do you know who took over Summit Ridge Wind? Thanks.

ET

From: Steven Ostrowski <SOstrowski@energysi.org>
Sent: Wednesday, June 17, 2020 5:06 PM
To: Randall, Cherilyn C (BPA) - TPCV-TPP-4 <ccrandall@bpa.gov>; Taylor, Eric K (TFE)(BPA) - TSQR-TPP-2 <ektaylor@bpa.gov>
Cc: Moe Hajabed <mhajabed@nrstor.com>; Quinn Havart <qhavart@nrstor.com>; gardner.sa@gmail.com
Subject: [EXTERNAL] Phone Meeting Request

Good afternoon Cherilyn/Eric,

We are in discussions with a potential buyer/investor for our Summit Ridge project. As part of their due diligence they would like to speak to the BPA regarding interconnect, LGIA, queue position, transmission and storage. Would be so kind as to provide some times over the next week or so that you could be available for such

a call?

Thank you,

Steve

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: A3-1170-1-0

Facility BOYD RIDGE SUBSTATION

Description NEW 230KV SUBSTATION

Estimator Gutierrez, Arnold
Requestor KEN ROBERTS TECP
PRD # 285137
Est. Type Land
Estimate Status Final
Capital / Expense
Contract / BPA
Bundle

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
4 Survey/Mapping/Photo&RS/GIS	\$47,500	\$0	\$18,072	\$2,520	\$0	\$0	\$68,092
5 Land	\$0	\$200,000	\$15,976	\$3,440	\$0	\$0	\$219,416
Total	\$47,500	\$200,000	\$34,048	\$5,960	\$0	\$0	\$287,508

Estimate Range: \$\$230,006.40 to \$\$373,760.4

Approved Date 5/18/2017

Valid Through 5/18/2018

BOYD RIDGE SUBSTATION

Comments

LAND ESTIMATE FOR A NEW 230KV SUBSTATION LOCATED IN BOYD OREGON.

NOTE : THIS ESTIMATE WAS CREATED FROM INPUT FROM THE LAND GROUP. NO ADDITIONAL REVIEW IS REQUIRED.

STATION ENGINEER:
PROJECT MANAGER:

PARENT PROJECT NUMBER :

Approved Date 5/18/2017
Printed 1/29/2018 10:08:14 AM

Page 2 of 4

Valid Through 5/18/2018
Estimate # A3-1170-1-0

BOYD RIDGE SUBSTATION

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<u>Survey/Mapping/Photo&RS/GIS Items</u>										
3250	MAPPING	(4)	8.50	SFDY	0%	\$0	\$0	\$0	\$3,876	\$0
3251	MAPPING	(4)	6.50	\$	0%	\$0	\$6,500	\$0	\$0	\$0
3252	SURVEY AND MAPPING PER DIEM	(4)	21.00	SFDY	0%	\$0	\$0	\$2,520	\$0	\$0
3255	GIS	(4)	13.00	SFDY	0%	\$0	\$0	\$0	\$5,304	\$0
3257	SURVEY	(4)	19.50	SFDY	0%	\$0	\$0	\$0	\$8,892	\$0
3258	SURVEY	(4)	41.00	\$	0%	\$0	\$41,000	\$0	\$0	\$0

Function Resources & Hours	Totals:	\$0	\$47,500	\$2,520	\$18,072	\$0
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GIS	104
MAPPING	68
SURVEY	156

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
3210	LAND-PAYMENTS TO OTHERS	(5)	200.00	\$	0%	\$200,000	\$0	\$0	\$0	\$0
3215	REAL PROPERTY SERVICES PER DIEM	(5)	6.00	SFDY	0%	\$0	\$0	\$720	\$0	\$0
3219	Real Property Services Projects	(5)	5.00	SFDY	0%	\$0	\$0	\$0	\$2,360	\$0
3225	MISC COST (TITLE POLICIES, FILING FEES, ETC)	(5)	2.00	\$	0%	\$0	\$0	\$2,000	\$0	\$0
3230	REAL PROPERTY FIELD SERVICES	(5)	12.00	SFDY	0%	\$0	\$0	\$0	\$5,280	\$0
3233	REAL PROPERTY SERVICES PROPERTY TECHINCAL SUPPORT	(5)	1.00	SFDY	0%	\$0	\$0	\$0	\$416	\$0
3237	REAL PROPERTY VALUATION AND FORESTRY	(5)	15.00	SFDY	0%	\$0	\$0	\$0	\$7,920	\$0
3239	REAL PROPERTY VALUATION AND FORESTRY PER DIEM	(5)	6.00	SFDY	0%	\$0	\$0	\$720	\$0	\$0

Totals:	\$200,000	\$0	\$3,440	\$15,976	\$0
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Function Resources & Hours	
REALFS	96
REALPROP	40
REALTYTS	8
REALTYVF	120

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: C3-1170-1-0

Facility G0345 WIND COLLECTOR GENERATION (LOTUS)

Description Install Communication and Control Equipment at Wind Collector Site

Estimator Ross, Steven

Requestor Ken Roberts

PRD # 285137

Est. Type Com

Estimate Status Final

Capital / Expense

Contract / BPA

Bundle

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$36,400	\$0	\$0	\$0	\$36,400
2 Scoping	\$9,750	\$0	\$15,880	\$0	\$0	\$0	\$25,630
6 Design	\$212,245	\$0	\$0	\$0	\$0	\$0	\$212,245
7 Construction - Contract	\$596,550	\$328,938	\$32,400	\$0	\$0	\$0	\$957,888
11 Construction - BPA - Electrical Work	\$0	\$0	\$329,290	\$0	\$10,000	\$0	\$339,290
Total	\$818,545	\$328,938	\$413,970	\$0	\$10,000	\$0	\$1,571,453

Estimate Range: \$\$1,257,162.12 to \$\$2,042,888

Approved Date 5/9/2017

Valid Through 5/9/2018

G0345 WIND COLLECTOR GENERATION (LOTUS)

Comments

Install (8) digital channels with (2) SRU cards, (3) OHSU card, and (1) FXS card. Install (1) set of 48 VDC batteries with (3) chargers, (2) channel banks, (1) Cisco 15454 fiber optic multiplexer, (1) SER/SCADA , (1) GPS unit, (1) FIN , (1) substation information server, (1) Data PMU/ IC/RTR , (2) JEMStar meters, (1), (1) NMS RTU, (1) repeat relay, (2) isolation amplifiers, and (1) line sharing switch, (2) Gen Drop Panels, (2)contact extenders, , (1) LOMP, (1) Sonnet,

C&C Planning Engr: Karl Knoll
Coordinating Engr:
Proj Manager: Rasha Kroonen

Notes:

- 1) Based off of final approved PRD #285137 dated 02/08/11
 - 2) Based off of CDD prepared by Ken Roberts 12/30/2016
 - 3) This estimate is figured using contract design and contract construction.
 - 4) Per new estimating process, zero contingency has been added to this estimate.
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Approved Date: 5/9/2017
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Valid Through: 5/9/2018
Estimate # CS-1170-1-0

G0345 WIND COLLECTOR GENERATION (LOTUS)

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	50.00	SFDY	0%	\$0	\$0	\$0	\$36,400	\$0
Function Resources & Hours						Totals:				
PROJMGMT 400						\$0	\$0	\$0	\$36,400	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,640	\$0
2585	PROTECTION ENGINEERING - SCOPING	(2)	2.00	SFDY	0%	\$0	\$0	\$0	\$960	\$0
2595	RAS - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,920	\$0
2615	DATA SYSTEMS - DATA SYSTEMS SCOPING	(2)	15.00	SFDY	0%	\$0	\$9,750	\$0	\$0	\$0
2625	TELECOMMUNICATIONS ENGINEERING - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,360	\$0
Function Resources & Hours						Totals:				
PROJMGMT 40						\$0	\$9,750	\$0	\$15,880	\$0
PROTRLY 16										
RASDSN 80										
TCOMMENG 80										

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Design Items</i>										
2110	PROTECTION ENGINEERING	(6)	50.00	SFDY	0%	\$0	\$32,000	\$0	\$0	\$0
2130	RAS DESIGN	(6)	40.00	SFDY	0%	\$0	\$29,600	\$0	\$0	\$0
2150	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	150.00	SFDY	0%	\$0	\$97,500	\$0	\$0	\$0
2154	DATA SYSTEMS - METERING DESIGN	(6)	25.00	SFDY	0%	\$0	\$16,250	\$0	\$0	\$0
2155	MEASUREMENT SYSTEMS	(6)	5.00	SFDY	0%	\$0	\$4,400	\$0	\$0	\$0
2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	48.50	SFDY	0%	\$0	\$32,495	\$0	\$0	\$0
Totals:						\$0	\$212,245	\$0	\$0	\$0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<i>Construction - Contract Items</i>										
2440	CONSTRUCTION MANAGEMENT	(7)	50.00	SFDY	0%	\$0	\$40,500	\$0	\$0	\$0
28535	Substation Data Manager -Manf = General Electric, Model D-400, 129Vdc, AUP \$8K. BES# 1008293. Item includes materials -cables (\$500) & labor (5 days) for data connection from IP Server to the relays. Item replaces SEL-2020, SEL-2030, SEL PRTU, GE-IP.	(7)	1.00	LOT	0%	\$8,500	\$4,450	\$0	\$0	\$0
29300	Contact Extender. SEL 2595 or SEL 2505 Rack Mounted System.	(7)	2.00	EACH	0%	\$4,000	\$1,113	\$0	\$0	\$0
29476	RAS Generation-Load dropping panel. Includes: decked selector switches, cut-out switches, interfacing relays (lock out relay and high-speed tripping), terminal blocks, and control wiring.	(7)	2.00	LOT	0%	\$11,400	\$7,644	\$0	\$0	\$0
29825	Phasor Measurement Unit, Single PMU	(7)	1.00	EACH	0%	\$9,600	\$31,568	\$0	\$0	\$0
29855	Router/Switch, for use with Data PMU. Includes power supply, firmware, accessories	(7)	1.00	EACH	0%	\$7,000	\$2,670	\$0	\$0	\$0
30802	CONTROL CABLE, INDOOR, 600 VOLT, COPPER CONDUCTOR.	(7)	5,000.00	LNFT	0%	\$5,500	\$27,800	\$0	\$0	\$0
3270	CONSTRUCTION INSPECTION	(7)	50.00	SFDY	0%	\$0	\$40,500	\$0	\$0	\$0
3270	CONSTRUCTION INSPECTION	(7)	50.00	SFDY	0%	\$0	\$0	\$0	\$32,400	\$0
53125	FIN Package, Field Information Network access server. Includes router, terminal server and switch	(7)	1.00	LOT	0%	\$9,500	\$3,783	\$0	\$0	\$0
53126	Rack 24", secure rack includes - power fuse panel, wire, grounding, lockable enclosure for FIN Access, SIS, Open-i.	(7)	6.00	EACH	0%	\$9,600	\$21,360	\$0	\$0	\$0
53126	Rack 24", secure rack includes - power fuse panel, wire, grounding, lockable enclosure for FIN Access, SIS, Open-i.	(7)	1.00	EACH	0%	\$1,600	\$3,560	\$0	\$0	\$0
53507	ORION LX SER/SCADA HMI/RTU, redundant package. For use at NERC CIP Sites. Includes 2 Orion LX units, rack with panels, switches, meter, circuit breakers, computer, terminal blocks, and misc. wiring and items.	(7)	1.00	PKG	0%	\$66,842	\$67,500	\$0	\$0	\$0
54428	CURRENT ISOLATOR FOR FAN OUT MILLIAMPS FROM JEM METER OUT- PUT. SEMTRONICS ISOLATOR, OHIO POWER 12VAC MODEL VT7-002BY25 COST \$385 W/ PANEL & TERM \$200	(7)	2.00	LOT	0%	\$1,170	\$1,780	\$0	\$0	\$0

Approved Date: 5/9/2017
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
54461	Solid State Bi-Directional Meter Panel, With 2-JEMStar model JS-09R6020-36 WH/VARH Meters. (DNP-3 Protocol), Registers, mass memory, test switches. (BES# 1004223 aup\$2375)	(7)	1.00	LOT	0%	\$6,615	\$5,553	\$0	\$0	\$0
54485	LOSS OF POTENTIAL RELAY 3-PHASE VOLTAGE, TIMEMARK 258B 23-5109 (\$58) WITH SOCKET BASE OCTAL 67-7803 (\$6.16)	(7)	1.00	LOT	0%	\$65	\$227	\$0	\$0	\$0
54486	LOSS OF METER POTENTIAL WIRING PACKAGE CONTAINING SWITCHBOARD WIRE FROM E SOURCE TO RELAY BASE AND TW SH PR 22 AWG FROM RELAY BASE TO RFL9850	(7)	1.00	LOT	0%	\$50	\$489	\$0	\$0	\$0
54492	Repeat Relay (for revenue metering). 2 inputs, 2 outputs (CAT ID: 1010508, AUP \$425).	(7)	1.00	LOT	0%	\$425	\$512	\$0	\$0	\$0
54496	RACK, 24 IN., FREE STANDING, WITHOUT PANELS, WITH TERMINAL BLOCKS, AC recp, Power Switch, 40 Amp DC.	(7)	1.00	EACH	0%	\$1,150	\$2,400	\$0	\$0	\$0
54916	Annunciator Logger System with Monitor. Includes: SEL-3354 Annunciator/Logger, 17" LCD Touch Screen w/ Mounting Bracket, Rack Mount USB Keyboard, Sliding Drawer, Cable Assembly (CAT ID: #1008451), printer (#1001206), media converter (#1008570)	(7)	1.00	EACH	0%	\$8,356	\$2,469	\$0	\$0	\$0
55294	New CISCO ONS 15454 Package. Includes chassis, backplanes, warranties, cross-connect cards, optical cards, optics, and electrical cards.	(7)	1.00	PKG	0%	\$50,000	\$10,000	\$0	\$0	\$0
55425	NEW (DS1 or T1) DIGITAL CIRCUIT ON DIGITAL SYSTEM INCLUDES: All testing, may include staff at some cross-connects of the new circuit. Includes minor material of wire/cable at cross-connect sites.	(7)	2.00	CIRC	0%	\$40	\$16,910	\$0	\$0	\$0
55434	New Channel Bank Package. Includes DSX and VF jackfields, IDF blocks, payload cards, and common cards.	(7)	2.00	PKG	0%	\$50,200	\$33,857	\$0	\$0	\$0
55454	PREMISYS IMACS 8-PORT, 2-WIRE FXS MODEL #8129 (EQUIPMENT @ END STATION) BSP 992511	(7)	2.00	EACH	0%	\$1,880	\$1,113	\$0	\$0	\$0
55458	PREMISYS, IMACS, 10-PORT, SRU, RS-232C, SYNC/ASYNCSUB-RATE DATA PART # 8220 LOW SPEED 300BPS, MED SPEED 38.4BPS bes# 992514 aup\$1089	(7)	2.00	EACH	0%	\$2,200	\$890	\$0	\$0	\$0
55459	Premisys, IMACS, 2-port OHSU, C37.94 part # 8237.60 BPS# 1006264 aup \$ 1387 includes FO cabling	(7)	2.00	CARD	0%	\$2,800	\$445	\$0	\$0	\$0
55462	Time Provider GPS Upgrade Package	(7)	1.00	EACH	0%	\$7,800	\$1,558	\$0	\$0	\$0
55545	NMS Package, Open-I. Includes termination panel and cables	(7)	1.00	LOT	0%	\$9,000	\$12,460	\$0	\$0	\$0
55563	48 VDC GPS Receiver System.	(7)	1.00	PKG	0%	\$4,875	\$2,480	\$0	\$0	\$0

Approved Date: 5/9/2017
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Valid Through 5/9/2018
 Estimate # C3-1170-1-0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
58000	BATTERY, 48 VOLT, 720 AMP-HOUR WITH RACK AND SPILL CONTAINMENT.	(7)	1.00	PKG	0%	\$17,518	\$10,500	\$0	\$0	\$0
58210	Turnkey Services. Includes contract installation for one basic DC charger system. Use with item #58610.	(7)	1.00	LOT	0%	\$0	\$5,000	\$0	\$0	\$0
58610	Basic DC Charger System. Includes: 3 chargers, rack, and other battery and charger accessories. Use with item #58210.	(7)	1.00	PKG	0%	\$7,000	\$3,700	\$0	\$0	\$0
61107	SIGNALLING UNIT, DIAL LINE. 66-4040 TELLABS OR XELCOMM	(7)	2.00	CARD	0%	\$610	\$1,422	\$0	\$0	\$0
64551	TELEPHONE TERMINATION WITH HANDSET, INCLUDES WIRING AND TELEPHONE TERMINATION FOR ONE CIRCUIT FROM TYPE 10 KEY SYS. (PHONES TO BE DAISIED CHAINED)	(7)	3.00	LOT	0%	\$150	\$2,670	\$0	\$0	\$0
64631	LINE SHARING SWITCH, 4 PORTS, BPA CAT (MID) # MS1097 MANF TELTONE M-394-B-01 AC Transformer. ACCESSED W/O POLLING CONTROLLER, mounted on a panel segment.	(7)	1.00	EACH	0%	\$492	\$223	\$0	\$0	\$0
64679	Basic Telephone Protection Pkg: Positron Isolator 5 Card Shelf w/ Internal Power Supply 125VDC/VAC, Battery Backup Card 24VDC, Modules, and Terminal Panel.	(7)	1.00	PKG	0%	\$3,000	\$3,449	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	224.00	\$	0%	\$0	\$224,000	\$0	\$0	\$0
99920	MISC SMALL ITEMS	(7)	200.00	LUMP	0%	\$20,000	\$0	\$0	\$0	\$0

Totals:	\$328,938	\$596,550	\$0	\$32,400	\$0
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Function Resources & Hours

CONSINSP 400

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Construction - BPA - Electrical Work Items

1510	FIELD - SUBSTATION OPERATOR: Providing District Integration Services, Consulting Services, Update Station and Standing instructions, and provide switching.	(11)	16.00	SFDY	0%	\$0	\$0	\$0	\$9,472	\$0
1520	FIELD - DISTRICT ENGINEER POWER SYSTEM CONTROL: Providing District Integration Services, Consulting Services, Update District Documents, T&E Services.	(11)	27.25	SFDY	0%	\$0	\$0	\$0	\$19,402	\$0
1525	PSC Craftsman - One staff day of work.	(11)	50.00	SFDY	0%	\$0	\$0	\$0	\$35,600	\$0
1528	PSC Branch - providing support services to design & field	(11)	13.00	SFDY	0%	\$0	\$0	\$0	\$7,696	\$0
1530	FIELD - DISTRICT ENGINEER SYSTEM PROTECTION CONTROL: Providing District Integration Services, Consulting Services, Update District Documents, T&E Services.	(11)	50.00	SFDY	0%	\$0	\$0	\$0	\$35,600	\$0
1535	SPC Craftsman - One staff day of work.	(11)	50.00	SFDY	0%	\$0	\$0	\$0	\$35,600	\$0
1538	SPC Branch - providing support services to design & field	(11)	17.00	SFDY	0%	\$0	\$0	\$0	\$9,520	\$0
2180	TEST AND ENERGIZATION A/B POWER SYSTEMS	(11)	150.00	SFDY	0%	\$0	\$0	\$0	\$91,200	\$0
2185	TEST AND ENERGIZATION A/B COMM. TESTING	(11)	150.00	SFDY	0%	\$0	\$0	\$0	\$85,200	\$0
99910	TRAVEL - WINDSHIELD TIME- 15% const. labor coded as Misc. \$	(11)	10.00	\$	0%	\$0	\$0	\$0	\$0	\$10,000

Totals:	\$0	\$0	\$0	\$329,290	\$10,000
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Function Resources & Hours

COMMTST	1200
PCRAFT	226
PSCDE	218
PWRSYCTR	104
PWRSYS	1200
SCRAFT	400
SPCDE	400
SUBOP	128
SYSCONTR	136

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: C3-1170-2-0

Facility Go345 POI (Boyd Ridge Substation)

Description Install Communication and Control Equipment

Estimator Ross, Steven

Requestor Ken Roberts

PRD # 285137

Est. Type Com

Estimate Status Final

Capital / Expense

Contract / BPA

Bundle

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$36,400	\$0	\$0	\$0	\$36,400
2 Scoping	\$0	\$0	\$23,760	\$0	\$0	\$0	\$23,760
6 Design	\$175,400	\$0	\$4,800	\$0	\$0	\$0	\$180,200
7 Construction - Contract	\$801,303	\$469,565	\$32,400	\$0	\$0	\$0	\$1,303,268
11 Construction - BPA - Electrical Work	\$0	\$0	\$318,076	\$12,000	\$5,000	\$0	\$335,076
Total	\$976,703	\$469,565	\$415,436	\$12,000	\$5,000	\$0	\$1,878,704

Estimate Range: \$1,502,963.09 to \$2,442,315

Approved Date 5/9/2017

Valid Through 5/9/2018

Go345 POI (Boyd Ridge Substation)

Comments

Install (8) digital channels with (2) SRU cards, (3) OHSU card, and (1) FXS card. Install (1) set of 48 VDC batteries with (3) chargers, (2) channel banks, (1) Cisco 15454 fiber optic multiplexer, (1) SER/SCADA , (1) GPS unit, (1) FIN , (1) substation information server, (1) Data PMU/ IC/RTR , (1), (1) NMS RTU, and (1) line sharing switch, (2)contact extenders, (2) UR's

C&C Planning Engr: Karl Knoll
Coordinating Engr:
Proj Manager: Rasha Kroonen

Notes:

- 1) Based off of final approved PRD #285137 dated 02/08/11
- 2) Based off of CDD prepared by Ken Roberts 12/30/2016
- 3) This estimate based on contract design and contract construction.
- 4) Per new estimating process, zero contingency has been added to this estimate.

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Valid Through 5/9/2018
Estimate # CS-1170-2-0

Go345 POI (Boyd Ridge Substation)

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	50.00	SFDY	0%	\$0	\$0	\$0	\$36,400	\$0
Function Resources & Hours						Totals:				
PROJMGMT 400						\$0	\$0	\$0	\$36,400	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$7,280	\$0
2595	RAS - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,920	\$0
2615	DATA SYSTEMS - DATA SYSTEMS SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,200	\$0
2625	TELECOMMUNICATIONS ENGINEERING - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,360	\$0
Function Resources & Hours						Totals:				
DATASYST 80						\$0	\$0	\$0	\$23,760	\$0
PROJMGMT 80										
RASDSN 80										
TCOMMENG 80										

Design Items

2110	PROTECTION ENGINEERING	(6)	10.00	SFDY	0%	\$0	\$0	\$0	\$4,800	\$0
2130	RAS DESIGN	(6)	60.00	SFDY	0%	\$0	\$44,400	\$0	\$0	\$0
2150	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	150.00	SFDY	0%	\$0	\$97,500	\$0	\$0	\$0
2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	50.00	SFDY	0%	\$0	\$33,500	\$0	\$0	\$0
Function Resources & Hours						Totals:				
PROTRLY 80						\$0	\$175,400	\$0	\$4,800	\$0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
2440	CONSTRUCTION MANAGEMENT	(7)	50.00	SFDY	0%	\$0	\$40,500	\$0	\$0	\$0
28535	Substation Data Manager -Manf = General Electric, Model D-400, 129Vdc, AUP \$8K. BES# 1008293. Item includes materials -cables (\$500) & labor (5 days) for data connection from IP Server to the relays. Item replaces SEL-2020, SEL-2030, SEL PRTU, GE-IP.	(7)	1.00	LOT	0%	\$8,500	\$4,450	\$0	\$0	\$0
29300	Contact Extender. SEL 2595 or SEL 2505 Rack Mounted System.	(7)	2.00	EACH	0%	\$4,000	\$1,113	\$0	\$0	\$0
29310	Remote Site: RAS Basic Digital Package. GE-UR N-60 relay: includes relay, rack, test & output isolation switch, terminal blocks and breakers.	(7)	1.00	LOT	0%	\$11,500	\$16,272	\$0	\$0	\$0
29311	Remote Site: RAS Basic Digital Package. GE-UR N-60 relay: includes relay mounted on panel, test & output isolation switch, terminal blocks and breakers. NO RACK.	(7)	1.00	LOT	0%	\$11,000	\$8,937	\$0	\$0	\$0
29330	Add new Line Loss Logic (LLL) to existing UR relay.	(7)	2.00	EACH	0%	\$6,000	\$6,786	\$0	\$0	\$0
29840	Terminal Server, for use with PMUs	(7)	1.00	EACH	0%	\$1,800	\$3,560	\$0	\$0	\$0
29845	Router, for use with Control PMU, and OMET. Includes power supply, firmware, modules and accessories	(7)	2.00	EACH	0%	\$45,200	\$30,000	\$0	\$0	\$0
29850	Ethernet Switch, substation-hardened for PMU applications	(7)	2.00	EACH	0%	\$9,696	\$3,560	\$0	\$0	\$0
30802	CONTROL CABLE, INDOOR, 600 VOLT, COPPER CONDUCTOR.	(7)	5,000.00	LNFT	0%	\$5,500	\$27,800	\$0	\$0	\$0
3270	CONSTRUCTION INSPECTION	(7)	50.00	SFDY	0%	\$0	\$40,500	\$0	\$0	\$0
3270	CONSTRUCTION INSPECTION	(7)	50.00	SFDY	0%	\$0	\$0	\$0	\$32,400	\$0
53125	FIN Package, Field Information Network access server. Includes router, terminal server and switch	(7)	1.00	LOT	0%	\$9,500	\$3,783	\$0	\$0	\$0
53126	Rack 24", secure rack includes - power fuse panel, wire, grounding, lockable enclosure for FIN Access, SIS, Open-i.	(7)	1.00	EACH	0%	\$1,600	\$3,560	\$0	\$0	\$0
53507	ORION LX SER/SCADA HMI/RTU, redundant package. For use at NERC CIP Sites. Includes 2 Orion LX units, rack with panels, switches, meter, circuit breakers, computer, terminal blocks, and misc. wiring and items.	(7)	2.00	PKG	0%	\$133,683	\$135,000	\$0	\$0	\$0

Approved Date: 5/9/2017
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Valid Through: 5/9/2018
 Estimate # C3-1170-2-0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
55294	New CISCO ONS 15454 Package. Includes chassis, backplanes, warranties, cross-connect cards, optical cards, optics, and electrical cards.	(7)	1.00	PKG	0%	\$50,000	\$10,000	\$0	\$0	\$0
55425	NEW (DS1 or T1) DIGITAL CIRCUIT ON DIGITAL SYSTEM INCLUDES: All testing, may include staff at some cross-connects of the new circuit. Includes minor material of wire/cable at cross-connect sites.	(7)	3.00	CIRC	0%	\$60	\$25,365	\$0	\$0	\$0
55434	New Channel Bank Package. Includes DSX and VF jackfields, IDF blocks, payload cards, and common cards.	(7)	2.00	PKG	0%	\$50,200	\$33,857	\$0	\$0	\$0
55454	PREMISYS IMACS 8-PORT, 2-WIRE FXS MODEL #8129 (EQUIPMENT @ END STATION) BSP 992511	(7)	1.00	EACH	0%	\$940	\$556	\$0	\$0	\$0
55458	PREMISYS, IMACS, 10-PORT, SRU, RS-232C, SYNC/ASYNCSUB-RATE DATA PART # 8220 LOW SPEED 300BPS, MED SPEED 38.4BPS bes# 992514 aup\$1089	(7)	2.00	EACH	0%	\$2,200	\$890	\$0	\$0	\$0
55459	Premisys, IMACS, 2-port OHSU, C37.94 part # 8237-60 BPS# 1006264 aup \$ 1387 includes FO cabling	(7)	2.00	CARD	0%	\$2,800	\$445	\$0	\$0	\$0
55462	Time Provider GPS Upgrade Package	(7)	1.00	EACH	0%	\$7,800	\$1,558	\$0	\$0	\$0
55545	NMS Package, Open-I. Includes termination panel and cables	(7)	1.00	LOT	0%	\$9,000	\$12,460	\$0	\$0	\$0
55547	NMS Access Server, for use with Open-I (Alarm Server)	(7)	1.00	LOT	0%	\$4,200	\$1,780	\$0	\$0	\$0
55563	48 VDC GPS Receiver System.	(7)	1.00	PKG	0%	\$4,875	\$2,480	\$0	\$0	\$0
58000	BATTERY, 48 VOLT, 720 AMP-HOUR WITH RACK AND SPILL CONTAINMENT.	(7)	1.00	PKG	0%	\$17,518	\$10,500	\$0	\$0	\$0
58610	Basic DC Charger System. Includes: 3 chargers, rack, and other battery and charger accessories. Use with item #58210.	(7)	1.00	PKG	0%	\$7,000	\$3,700	\$0	\$0	\$0
61107	SIGNALLING UNIT, DIAL LINE. 66-4040 TELLABS OR XELCOMM	(7)	2.00	CARD	0%	\$610	\$1,422	\$0	\$0	\$0
64056	RACK 19", FUSE PANEL/WIRE/GNDING-Telect Filter Fuse pnl 988211\$397, GND KIT 66-7630\$47, GNDBAR 664350\$50, RACK1001727\$397, Wire/connector \$100, rack mount: top 667632\$34 floor 667630\$47 isolation 667633\$38, 400A gnd bar 1000669 \$480,ALMBAR\$300	(7)	6.00	EACH	0%	\$11,340	\$23,742	\$0	\$0	\$0
64185	DATS LINE CARD, INSTALL LINE ON ONE OF EIGHT PORTS INCLUDES SOFTWARE 'AUTOMATIC ROUTE SELECTION' ARS TABLE CHANGES	(7)	2.00	EACH	0%	\$400	\$1,780	\$0	\$0	\$0

Approved Date: 5/9/2017
 Printed: 5/25/2018 10:10:48 AM

Valid Through: 5/9/2018
 Estimate # C3-1170-2-0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
64551	TELEPHONE TERMINATION WITH HANDSET, INCLUDES WIRING AND TELEPHONE TERMINATION FOR ONE CIRCUIT FROM TYPE 10 KEY SYS. (PHONES TO BE DAISIED CHAINED)	(7)	3.00	LOT	0%	\$150	\$2,670	\$0	\$0	\$0
64631	LINE SHARING SWITCH, 4 PORTS, BPA CAT (MID) # MS1097 MANF TELTONE M-394-B-01 AC Transformer, ACCESSED W/O POLLING CONTROLLER, mounted on a panel segment	(7)	1.00	EACH	0%	\$492	\$223	\$0	\$0	\$0
64679	Basic Telephone Protection Pkg: Positron Isolator 5 Card Shelf w/ Internal Power Supply 125VDC/VAC, Battery Backup Card 24VDC, Modules, and Terminal Panel.	(7)	1.00	PKG	0%	\$3,000	\$3,449	\$0	\$0	\$0
66475	Digital or Analog Transfer Trip System (includes 2 units).	(7)	2.00	PKG	0%	\$44,000	\$70,608	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	268.00	\$	0%	\$0	\$268,000	\$0	\$0	\$0
99920	MISC SMALL ITEMS	(7)	50.00	LUMP	0%	\$5,000	\$0	\$0	\$0	\$0
Function Resources & Hours						Totals: \$469,565 \$801,303 \$0 \$32,400 \$0				
CONSP		400								

Approved Date: 5/9/2017
 Printed: 5/25/2018 10:10:49 AM

Valid Through: 5/9/2018
 Estimate # C3-1170-2-0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Construction - BPA - Electrical Work Items

1510	FIELD - SUBSTATION OPERATOR: Providing District Integration Services, Consulting Services, Update Station and Standing instructions, and provide switching.	(11)	16.00	SFDY	0%	\$0	\$0	\$0	\$9,472	\$0
1520	FIELD - DISTRICT ENGINEER POWER SYSTEM CONTROL: Providing District Integration Services, Consulting Services, Update District Documents, T&E Services.	(11)	27.25	SFDY	0%	\$0	\$0	\$0	\$19,402	\$0
1525	PSC Craftsman - One staff day of work.	(11)	50.00	SFDY	0%	\$0	\$0	\$0	\$35,600	\$0
1528	PSC Branch - providing support services to design & field	(11)	13.00	SFDY	0%	\$0	\$0	\$0	\$7,696	\$0
1530	FIELD - DISTRICT ENGINEER SYSTEM PROTECTION CONTROL: Providing District Integration Services, Consulting Services, Update District Documents, T&E Services.	(11)	42.25	SFDY	0%	\$0	\$0	\$0	\$30,082	\$0
1535	SPC Craftsman - One staff day of work.	(11)	42.00	SFDY	0%	\$0	\$0	\$0	\$29,904	\$0
1538	SPC Branch - providing support services to design & field	(11)	17.00	SFDY	0%	\$0	\$0	\$0	\$9,520	\$0
2180	TEST AND ENERGIZATION A/B POWER SYSTEMS	(11)	150.00	SFDY	0%	\$0	\$0	\$0	\$91,200	\$0
2185	TEST AND ENERGIZATION A/B COMM. TESTING	(11)	150.00	SFDY	0%	\$0	\$0	\$0	\$85,200	\$0
64170	DATS license, one per site.	(11)	1.00	EACH	0%	\$0	\$0	\$12,000	\$0	\$0
99910	TRAVEL - WINDSHIELD TIME- 15% const. labor coded as Misc. \$	(11)	5.00	\$	0%	\$0	\$0	\$0	\$0	\$5,000

Function Resources & Hours

COMMTEST	1200
PCRAFT	400
PSCDE	218
PWRSYCTR	104
PWRSYS	1200
SCRAFT	336
SPCDE	338
SUBOP	128
SYSCONTR	136

Totals:	\$0	\$0	\$12,000	\$318,076	\$5,000
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Approved Date: 5/9/2017
Printed: 5/23/2018 10:18:31 AM

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Valid Through: 5/9/2018
Estimate # C3-1170-2-0

Go345 POI (Boyd Ridge Substation)

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: C3-1170-3-0

Facility Big Eddy Substation

Description Install equipment and controls per PRD

Estimator Ross, Steven

Requestor Ken Roberts

PRD # 285137

Est. Type Com

Estimate Status Final

Capital / Expense

Contract / BPA

Bundle

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$7,280	\$0	\$0	\$0	\$7,280
2 Scoping	\$0	\$0	\$6,200	\$0	\$0	\$0	\$6,200
6 Design	\$27,460	\$0	\$0	\$0	\$0	\$0	\$27,460
7 Construction - Contract	\$121,246	\$57,930	\$3,240	\$0	\$0	\$0	\$182,416
11 Construction - BPA - Electrical Work	\$0	\$0	\$17,456	\$0	\$5,000	\$0	\$22,456
Total	\$148,706	\$57,930	\$34,176	\$0	\$5,000	\$0	\$245,812

Estimate Range: \$\$196,649.70 to \$\$319,555.7

Approved Date 5/9/2017

Valid Through 5/9/2018

Big Eddy Substation

Comments

Install equipment and control per PRD. # 285137

C&C Planning Engr: Karl Knoll
Coordinating Engr: Carol Larvick
Proj Manager: Rasha Kroonen

Notes:

- 1) Based off of final approved PRD #285137 dated 02/08/11
 - 2) Based off of CDD prepared by Ken Roberts 12/30/2016
 - 3) This estimate figured contract design and construction.
 - 4) Per new estimating process, zero contingency has been added to this estimate.
-

Approved Date: 5/9/2017
Printed: 1/29/2018 10:19:37 AM

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Big Eddy Substation

Valid Through: 5/9/2018
Estimate # CS-1170-3-0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	10.00	SFDY	0%	\$0	\$0	\$0	\$7,280	\$0
Function Resources & Hours						Totals:				
PROJMGMT		80				\$0	\$0	\$0	\$7,280	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	3.00	SFDY	0%	\$0	\$0	\$0	\$2,184	\$0
2595	RAS - SCOPING	(2)	5.00	SFDY	0%	\$0	\$0	\$0	\$2,960	\$0
2615	DATA SYSTEMS - DATA SYSTEMS SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$520	\$0
2625	TELECOMMUNICATIONS ENGINEERING - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$536	\$0
Function Resources & Hours						Totals:				
DATASYST		8				\$0	\$0	\$0	\$6,200	\$0
PROJMGMT		24								
RASDSN		40								
TCOMMENG		8								

Design Items

2130	RAS DESIGN	(6)	30.00	SFDY	0%	\$0	\$22,200	\$0	\$0	\$0
2150	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	5.00	SFDY	0%	\$0	\$3,250	\$0	\$0	\$0
2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	3.00	SFDY	0%	\$0	\$2,010	\$0	\$0	\$0
Totals:						\$0	\$27,460	\$0	\$0	\$0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Construction - Contract Items

2440	CONSTRUCTION MANAGEMENT	(7)	5.00	SFDY	0%	\$0	\$4,050	\$0	\$0	\$0
29310	Remote Site: RAS Basic Digital Package. GE-UR N-60 relay: includes relay, rack, test & output isolation switch, terminal blocks and breakers.	(7)	1.00	LOT	0%	\$11,500	\$16,272	\$0	\$0	\$0
29311	Remote Site: RAS Basic Digital Package. GE-UR N-60 relay: includes relay mounted on panel, test & output isolation switch, terminal blocks and breakers. NO RACK.	(7)	1.00	LOT	0%	\$11,000	\$8,937	\$0	\$0	\$0
29330	Add new Line Loss Logic (LLL) to existing UR relay.	(7)	1.00	EACH	0%	\$3,000	\$3,393	\$0	\$0	\$0
30802	CONTROL CABLE, INDOOR, 600 VOLT, COPPER CONDUCTOR.	(7)	2,000.00	LNFT	0%	\$2,200	\$11,120	\$0	\$0	\$0
3270	CONSTRUCTION INSPECTION	(7)	5.00	SFDY	0%	\$0	\$4,050	\$0	\$0	\$0
3270	CONSTRUCTION INSPECTION	(7)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,240	\$0
55385	Digital Cross-Connect programming by PSC labor, no materials, NTE one staff day. (This item to be used when labor at a com. site is one day or less, labor charges for the minor site to be accounted at a major site, no WO to be created @ minor site.)	(7)	4.00	SFDY	0%	\$0	\$3,560	\$0	\$0	\$0
55450	PREMISYS IMACS, 8-PORT, 2-WIRE FXO, PART # 8139 (EQUIPMENT AT CENTRAL OFFICE)	(7)	2.00	EACH	0%	\$2,310	\$1,780	\$0	\$0	\$0
55459	Premisys, IMACS, 2-port OHSU, C37.94 part # 8237-60 BPS# 1006264 aup \$ 1387 includes FO cabling	(7)	2.00	CARD	0%	\$2,800	\$445	\$0	\$0	\$0
64053	Install/remove Voice Circuit wiring at the drop/insert location: includes tasks (1) wiring pair add/remove from racked equipment to IDF/MDF blocks or demarc point(s), OR (2) change x-connect hard wiring or digital software, OR both tasks 1&2.	(7)	6.00	PAIR	0%	\$120	\$1,335	\$0	\$0	\$0
66475	Digital or Analog Transfer Trip System (includes 2 units).	(7)	1.00	PKG	0%	\$22,000	\$35,304	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	31.00	\$	0%	\$0	\$31,000	\$0	\$0	\$0
99920	MISC SMALL ITEMS	(7)	30.00	LUMP	0%	\$3,000	\$0	\$0	\$0	\$0

Function Resources & Hours

CONSINSP 40

Totals:	\$57,930	\$121,246	\$0	\$3,240	\$0
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Approved Date: 5/9/2017
Printed: 5/25/2018 10:19:32 AM

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Construction - BPA - Electrical Work Items

1525	PSC Craftsman - One staff day of work.	(11)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,560	\$0
1535	SPC Craftsman - One staff day of work.	(11)	3.00	SFDY	0%	\$0	\$0	\$0	\$2,136	\$0
2180	TEST AND ENERGIZATION A/B POWER SYSTEMS	(11)	10.00	SFDY	0%	\$0	\$0	\$0	\$6,080	\$0
2185	TEST AND ENERGIZATION A/B COMM. TESTING	(11)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,680	\$0
99910	TRAVEL - WINDSHIELD TIME- 15% const. labor coded as Misc. \$	(11)	5.00	\$	0%	\$0	\$0	\$0	\$0	\$5,000

Function Resources & Hours

COMMTEST	80
PCRAFT	40
PWRSYS	80
SCRAFT	24

Totals:	\$0	\$0	\$0	\$17,456	\$5,000
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TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: C3-1170-4-0

Facility Dittmer Control Center

Description Install new (1) one SRU card.

Estimator Ross, Steven

Requestor Ken Roberts

PRD # 285137

Est. Type Com

Estimate Status Final

Capital / Expense

Contract / BPA

Bundle

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$464	\$0	\$0	\$0	\$464
2 Scoping	\$0	\$0	\$1,784	\$0	\$0	\$0	\$1,784
6 Design	\$0	\$0	\$1,072	\$0	\$0	\$0	\$1,072
11 Construction - BPA - Electrical Work	\$0	\$0	\$3,312	\$1,155	\$0	\$0	\$4,467
Total	\$0	\$0	\$6,632	\$1,155	\$0	\$0	\$7,787

Estimate Range: \$6,229.60 to \$10,123.10

Approved Date 5/9/2017

Valid Through 5/9/2018

Dittmer Control Center

Comments

Install new (1) one SRU card and make cross connections as needed.

C&C Planning Engr: Karl Knoll
Coordinating Engr: Carol Larvick
Proj Manager: Rasha Kroonen

Notes:

- 1) Based off of final approved PRD #285137 dated 02/08/11
 - 2) Based off of CDD prepared by Ken Roberts 12/30/2016
 - 4) Per new estimating process, zero contingency has been added to this estimate.
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

3144	DITTMER CC PROJECT MANAGER	(1)	1.00	SFDY	0%	\$0	\$0	\$0	\$464	\$0
Function Resources & Hours						Totals:				
DCCPM 8						\$0	\$0	\$0	\$464	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$728	\$0
2615	DATA SYSTEMS - DATA SYSTEMS SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$520	\$0
2625	TELECOMMUNICATIONS ENGINEERING - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$536	\$0
Function Resources & Hours						Totals:				
DATASYST 8						\$0	\$0	\$0	\$1,784	\$0
PROJMGMT 8										
TCOMMENG 8										

Design Items

2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,072	\$0
Function Resources & Hours						Totals:				
TCOMMENG 16						\$0	\$0	\$0	\$1,072	\$0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Construction - BPA - Electrical Work Items

2185	TEST AND ENERGIZATION A/B COMM. TESTING	(11)	4.00	SFDY	0%	\$0	\$0	\$0	\$1,920	\$0
3140	DITTMER CC PSC CRAFTSMAN	(11)	1.00	SFDY	0%	\$0	\$0	\$0	\$600	\$0
55385	Digital Cross-Connect programming by PSC labor, no materials, NTE one staff day. (This item to be used when labor at a com. site is one day or less, labor charges for the minor site to be accounted at a major site, no WO to be created @ minor site.)	(11)	1.00	SFDY	0%	\$0	\$0	\$0	\$528	\$0
55458	PREMISYS, IMACS, 10-PORT, SRU, RS-232C, SYNC/ASYNCSUB-RATE DATA PART # 8220 LOW SPEED 300BPS, MED SPEED 38.4BPS bes# 992514 aup\$1089	(11)	1.00	EACH	0%	\$0	\$0	\$1,100	\$264	\$0
99920	MISC SMALL ITEMS	(11)	0.55	LUMP	0%	\$0	\$0	\$55	\$0	\$0

Function Resources & Hours

COMMTEST	32
DCCPCRFT	8

Totals:	\$0	\$0	\$1,155	\$3,312	\$0
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Approved Date: 5/9/2017
 PCH: 5/23/2018 10:22:01 AM

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Valid Through: 5/9/2018
 Estimate # C3-1170-4-0

Dittmer Control Center

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: C3-1170-5-0

Facility Redmond Substation

Description Install equipment and controls per PRD

Estimator Ross, Steven

Requestor Ken Roberts

PRD # 285137

Est. Type Com

Estimate Status Final

Capital / Expense

Contract / BPA

Bundle

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$3,640	\$0	\$0	\$0	\$3,640
2 Scoping	\$0	\$0	\$4,744	\$0	\$0	\$0	\$4,744
6 Design	\$25,510	\$0	\$0	\$0	\$0	\$0	\$25,510
7 Construction - Contract	\$133,646	\$53,363	\$3,240	\$0	\$0	\$0	\$190,249
11 Construction - BPA - Electrical Work	\$0	\$0	\$5,696	\$0	\$3,000	\$0	\$8,696
Total	\$159,156	\$53,363	\$17,320	\$0	\$3,000	\$0	\$232,839

Estimate Range: \$\$186,270.90 to \$\$302,690.2

Approved Date 5/9/2017

Valid Through 5/9/2018

Redmond Substation

Comments

Install equipment and control per PRD. # 285137

C&C Planning Engr: Karl Knoll
Coordinating Engr: Carol Larvick
Proj Manager: Rasha Kroonen

Notes:

- 1) Based off of final approved PRD #285137 dated 02/08/11
 - 2) Based off of CDD prepared by Ken Roberts 12/30/2016
 - 3) This estimate figured contract design and contract construction.
 - 4) Per new estimating process, zero contingency has been added to this estimate.
-

Approved Date 5/9/2017
Printed: 1/29/2018 10:23:15 AM

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Redmond Substation

Valid Through 5/9/2018
Estimate # C3-1170-5-0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,640	\$0
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Function Resources & Hours

Totals:	\$0	\$0	\$0	\$3,640	\$0
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PROJMGMT 40

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$728	\$0
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2595	RAS - SCOPING	(2)	5.00	SFDY	0%	\$0	\$0	\$0	\$2,960	\$0
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2615	DATA SYSTEMS - DATA SYSTEMS SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$520	\$0
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2625	TELECOMMUNICATIONS ENGINEERING - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$536	\$0
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Function Resources & Hours

Totals:	\$0	\$0	\$0	\$4,744	\$0
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DATASYST 8
 PROJMGMT 8
 RASDSN 40
 TCOMMENG 8

Design Items

2130	RAS DESIGN	(6)	30.00	SFDY	0%	\$0	\$22,200	\$0	\$0	\$0
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2150	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	2.00	SFDY	0%	\$0	\$1,300	\$0	\$0	\$0
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2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	3.00	SFDY	0%	\$0	\$2,010	\$0	\$0	\$0
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Totals:	\$0	\$25,510	\$0	\$0	\$0
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Construction - BPA - Electrical Work Items

1525	PSC Craftsman - One staff day of work.	(11)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,560	\$0
1535	SPC Craftsman - One staff day of work.	(11)	3.00	SFDY	0%	\$0	\$0	\$0	\$2,136	\$0
99910	TRAVEL - WINDSHIELD TIME- 15% const. labor coded as Misc. \$	(11)	3.00	\$	0%	\$0	\$0	\$0	\$0	\$3,000

Totals:	\$0	\$0	\$0	\$5,696	\$3,000
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Function Resources & Hours

PCRAFT	40
SCRAFT	24

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: C3-1170-6-0

Facility Munro Control Center

Description Install new (1) one SRU card.

Estimator Ross, Steven

Requestor Ken Roberts

PRD # 285137

Est. Type Com

Estimate Status Final

Capital / Expense

Contract / BPA

Bundle

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$928	\$0	\$0	\$0	\$928
2 Scoping	\$0	\$0	\$1,784	\$0	\$0	\$0	\$1,784
6 Design	\$0	\$0	\$1,072	\$0	\$0	\$0	\$1,072
10 Construction - Retirement Work	\$0	\$0	\$89	\$0	\$0	\$0	\$89
11 Construction - BPA - Electrical Work	\$0	\$0	\$3,312	\$1,155	\$0	\$0	\$4,467
Total	\$0	\$0	\$7,185	\$1,155	\$0	\$0	\$8,340

Estimate Range: \$\$6,600.80 to \$\$10,726.30

Approved Date 5/9/2017

Valid Through 5/9/2018

Munro Control Center

Comments

Install new (1) one SRU card and make cross connections as needed.

C&C Planning Engr: Karl Knoll
Coordinating Engr: Carol Larvick
Proj Manager: Rasha Kroonen

Notes:

- 1) Based off of final approved PRD #285137 dated 02/08/11
 - 2) Based off of CDD prepared by Ken Roberts 12/30/2016
 - 3) Per new estimating process, zero contingency has been added to this estimate.
-

Approved Date: 5/9/2017
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Munro Control Center

Valid Through: 5/9/2018
Estimate # CS-1170-6-0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

3146	MUNRO CC PROJECT MANAGER	(1)	2.00	SFDY	0%	\$0	\$0	\$0	\$928	\$0
Function Resources & Hours						Totals:				
MCCPM	16					\$0	\$0	\$0	\$928	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$728	\$0
2615	DATA SYSTEMS - DATA SYSTEMS SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$520	\$0
2625	TELECOMMUNICATIONS ENGINEERING - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$536	\$0
Function Resources & Hours						Totals:				
DATASYST	8					\$0	\$0	\$0	\$1,784	\$0
PROJMGMT	8									
TCOMMENG	8									

Design Items

2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,072	\$0
Function Resources & Hours						Totals:				
TCOMMENG	16					\$0	\$0	\$0	\$1,072	\$0

Construction - Retirement Work Items

							Cntr LAB %	Bpa Mat %	Bpa LAB %				
55458	PREMISYS, IMACS, 10-PORT, SRU, RS-232C, SYNC/ASYNCSUB-RATE DATA PART # 8220 LOW SPEED 300BPS, MED SPEED 38.4BPS bes# 992514 aup\$1089	(10)	1.00	EACH	0%	\$0	\$0	(0%)	\$0	(0%)	\$89	(25%)	\$0
Function Resources & Hours						Totals:							
PCRAFT	1					\$0	\$0		\$89				

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Construction - BPA - Electrical Work Items

2185	TEST AND ENERGIZATION A/B COMM. TESTING	(11)	4.00	SFDY	0%	\$0	\$0	\$0	\$1,920	\$0
3140	DITTMER CC PSC CRAFTSMAN	(11)	1.00	SFDY	0%	\$0	\$0	\$0	\$600	\$0
55385	Digital Cross-Connect programming by PSC labor, no materials, NTE one staff day. (This item to be used when labor at a com. site is one day or less, labor charges for the minor site to be accounted at a major site, no WO to be created @ minor site.)	(11)	1.00	SFDY	0%	\$0	\$0	\$0	\$528	\$0
55458	PREMISYS, IMACS, 10-PORT, SRU, RS-232C, SYNC/ASYNCSUB-RATE DATA PART # 8220 LOW SPEED 300BPS, MED SPEED 38.4BPS bes# 992514 aup\$1089	(11)	1.00	EACH	0%	\$0	\$0	\$1,100	\$264	\$0
99920	MISC SMALL ITEMS	(11)	0.55	LUMP	0%	\$0	\$0	\$55	\$0	\$0

Function Resources & Hours

COMMTEST	32
DCCPCRFT	8

Totals:	\$0	\$0	\$1,155	\$3,312	\$0
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TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: C3-1170-7-0

Facility Maupin Substation

Description Install equipment and controls per PRD

Estimator Ross, Steven

Requestor Ken Roberts

PRD # 285137

Est. Type Com

Estimate Status Final

Capital / Expense

Contract / BPA

Bundle

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$1,456	\$0	\$0	\$0	\$1,456
2 Scoping	\$0	\$0	\$2,376	\$0	\$0	\$0	\$2,376
6 Design	\$0	\$0	\$11,832	\$0	\$0	\$0	\$11,832
9 Construction - SB - Shop Work	\$0	\$0	\$11,768	\$11,000	\$0	\$0	\$22,768
11 Construction - BPA - Electrical Work	\$0	\$0	\$5,844	\$1,520	\$500	\$0	\$7,864
Total	\$0	\$0	\$33,276	\$12,520	\$500	\$0	\$46,296

Estimate Range: \$\$37,036.80 to \$\$60,184.80

Approved Date 5/16/2017

Valid Through 5/16/2018

Maupin Substation

Comments

Install equipment and control per PRD. # 285137

C&C Planning Engr: Karl Knoll
Coordinating Engr: Carol Larvick
Proj Manager: Rasha Kroonen

Notes:

- 1) Based off of final approved PRD #285137 dated 02/08/11
 - 2) Based off of CDD prepared by Ken Roberts 12/30/2016
 - 3) Per new estimating process, zero contingency has been added to this estimate.
-

Approved Date 5/16/2017
Printed: 5/29/2018 10:23:51 AM

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Maupin Substation

Valid Through 5/16/2018
Estimate # CS-1170-7-0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,456	\$0
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Function Resources & Hours

PROJMGMT	16
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Totals:	\$0	\$0	\$0	\$1,456	\$0
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Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$728	\$0
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2595	RAS - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$592	\$0
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2615	DATA SYSTEMS - DATA SYSTEMS SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$520	\$0
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2625	TELECOMMUNICATIONS ENGINEERING - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$536	\$0
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Function Resources & Hours

DATASYST	8
PROJMGMT	8
RASDSN	8
TCOMMENG	8

Totals:	\$0	\$0	\$0	\$2,376	\$0
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Design Items

2130	RAS DESIGN	(6)	5.00	SFDY	0%	\$0	\$0	\$0	\$2,960	\$0
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2150	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	15.00	SFDY	0%	\$0	\$0	\$0	\$7,800	\$0
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2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,072	\$0
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Function Resources & Hours

DATASYST	120
RASDSN	40
TCOMMENG	16

Totals:	\$0	\$0	\$0	\$11,832	\$0
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Construction - SB - Shop Work Items

66475	Digital or Analog Transfer Trip System (includes 2 units).	(9)	0.50	PKG	0%	\$0	\$0	\$11,000	\$11,768	\$0
Function Resources & Hours						Totals:				
ELEC			40					\$0	\$0	\$0
PCRAFT			23					\$11,000	\$11,768	\$0
SBSHOP			71							
SCRAFT			9							

Construction - BPA - Electrical Work Items

1525	PSC Craftsman - One staff day of work.	(11)	3.00	SFDY	0%	\$0	\$0	\$0	\$2,136	\$0
1535	SPC Craftsman - One staff day of work.	(11)	3.00	SFDY	0%	\$0	\$0	\$0	\$2,136	\$0
2180	TEST AND ENERGIZATION A/B POWER SYSTEMS	(11)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,216	\$0
55459	Premisys, IMACS, 4-port OHSU, C37.94, 830 NM ST Connectors, Firmware 1.0.2	(11)	1.00	CARD	0%	\$0	\$0	\$1,400	\$178	\$0
64053	Install/remove Voice Circuit wiring at the drop/insert location: includes tasks (1) wiring pair add/remove from racked equipment to IDF/MDF blocks or demarc point(s), OR (2) change x-connect hard wiring or digital software, OR both tasks 1&2.	(11)	1.00	PAIR	0%	\$0	\$0	\$20	\$178	\$0
99910	TRAVEL - WINDSHIELD TIME- 15% const. labor coded as Misc. \$	(11)	0.50	\$	0%	\$0	\$0	\$0	\$0	\$500
99920	MISC SMALL ITEMS	(11)	1.00	LUMP	0%	\$0	\$0	\$100	\$0	\$0
Function Resources & Hours						Totals:				
PCRAFT			28					\$1,520	\$5,844	\$500
PWRSYS			16							
SCRAFT			24							

Approved Date: 5/16/2017

Printed: 5/23/2018 10:23:54 AM

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Valid Through: 5/16/2018

Estimate # C3-1170-7-0

Maupin Substation

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: L3-1170-3-0

Facility Big Eddy-Remond No 1

Description Remediation for ground impairments for interconnecting Boyd Ridge Substation

Estimator McClemens, Laura

Requestor Ken Roberts

PRD # 285137

Est. Type Line

Estimate Status Final

Capital / Expense Capital

Contract / BPA

Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$7,280	\$0	\$0	\$0	\$7,280
2 Scoping	\$3,000	\$0	\$3,640	\$0	\$0	\$0	\$6,640
3 Environmental	\$30,300	\$0	\$0	\$0	\$0	\$0	\$30,300
4 Survey/Mapping/Photo&RS/GIS	\$22,240	\$0	\$7,296	\$0	\$0	\$0	\$29,536
5 Land	\$0	\$0	\$15,096	\$0	\$3,000	\$0	\$18,096
6 Design	\$27,600	\$0	\$12,448	\$0	\$0	\$0	\$40,048
7 Construction - Contract	\$746,804	\$45,329	\$16,200	\$0	\$0	\$0	\$808,332
10 Construction - Retirement Work	\$44,856	\$0	\$0	\$0	\$0	\$0	\$44,856
Total	\$874,799	\$45,329	\$61,960	\$0	\$3,000	\$0	\$985,088

Estimate Range: \$788,000 to \$1,281,000

Approved Date 6/27/2018

Valid Through 6/27/2019

Big Eddy-Remond No 1

Comments

Work assumes 26 ground impairments to be remediated with 3 adjusted attachment points, ground removal and 11 intermediate structures.

Structures: Lattice Steel/H-Frame Wood

Conductor: Pheasant

Groundwire: OPGW

Voltage: 230kV

Notes:

Land and Access Road cost are excluded

Assume Contractor design and construction

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	10.00	SFDY	0%	\$0	\$0	\$0	\$7,280	\$0
Function Resources & Hours						Totals:				
	PROJMGMT		80			\$0	\$0	\$0	\$7,280	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,640	\$0
2630	PROJECT ENGINEERING - SCOPING	(2)	3.00	\$	0%	\$0	\$3,000	\$0	\$0	\$0
Function Resources & Hours						Totals:				
	PROJMGMT		40			\$0	\$3,000	\$0	\$3,640	\$0

Environmental Items

1025	ENVIRONMENTAL IMPLEMENTATION	(3)	18.00	\$	0%	\$0	\$18,000	\$0	\$0	\$0
1026	ENVIRONMENTAL IMPLEMENTATION	(3)	15.00	SFDY	0%	\$0	\$12,300	\$0	\$0	\$0
						Totals:				
						\$0	\$30,300	\$0	\$0	\$0

Survey/Mapping/Photo&RS/GIS Items

3250	MAPPING	(4)	15.00	SFDY	0%	\$0	\$8,700	\$0	\$0	\$0
3255	GIS	(4)	6.00	SFDY	0%	\$0	\$3,540	\$0	\$0	\$0
3257	SURVEY	(4)	16.00	SFDY	0%	\$0	\$0	\$0	\$7,296	\$0
3258	SURVEY	(4)	10.00	\$	0%	\$0	\$10,000	\$0	\$0	\$0
Function Resources & Hours						Totals:				
	SURVEY		128			\$0	\$22,240	\$0	\$7,296	\$0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
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Land Items

3219	Real Property Services Projects	(5)	18.00	SFDY	0%	\$0	\$0	\$0	\$8,496	\$0
3225	MISC COST (TITLE POLICIES, FILING FEES, ETC)	(5)	3.00	\$	0%	\$0	\$0	\$0	\$0	\$3,000
3230	REAL PROPERTY FIELD SERVICES	(5)	15.00	SFDY	0%	\$0	\$0	\$0	\$6,600	\$0

Function Resources & Hours

<i>REALFS</i>	<i>120</i>
<i>REALPROP</i>	<i>144</i>

Totals:	\$0	\$0	\$0	\$15,096	\$3,000
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<i>Design Items</i>										
2094	TRANSMISSION LINE DESIGN - CONDUCTOR DESIGN	(6)	2.00	\$	0%	\$0	\$2,000	\$0	\$0	\$0
2096	TRANSMISSION LINE DESIGN - CONDUCTOR DESIGN	(6)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,056	\$0
2310	PROJECT ENGINEERING	(6)	10.00	\$	0%	\$0	\$10,000	\$0	\$0	\$0
2320	PROJECT ENGINEERING	(6)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,600	\$0
2400	CIVIL DESIGN	(6)	10.00	\$	0%	\$0	\$10,000	\$0	\$0	\$0
2410	CIVIL DESIGN	(6)	10.00	SFDY	0%	\$0	\$0	\$0	\$4,800	\$0
2420	STRUCTURAL DESIGN	(6)	2.00	\$	0%	\$0	\$2,000	\$0	\$0	\$0
2430	STRUCTURAL DESIGN	(6)	2.00	SFDY	0%	\$0	\$0	\$0	\$992	\$0
99912	DESIGN CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS: INCLUDES TRAVEL AND SERVICES DURING CONSTRUCTION	(6)	3.60	\$	0%	\$0	\$3,600	\$0	\$0	\$0

Totals:	\$0	\$27,600	\$0	\$12,448	\$0
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Function Resources & Hours

CIVILENG	80
LINEDSN	16
STRENG	16
TRANSENG	80

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<i>Construction - Contract Items</i>										
2440	CONSTRUCTION MANAGEMENT	(7)	25.00	SFDY	0%	\$0	\$0	\$0	\$16,200	\$0
3280	Contract Construction Inspection	(7)	16.00	\$	0%	\$0	\$16,000	\$0	\$0	\$0
70016SI	HAUL OFF	(7)	4,000.00		0%	\$0	\$160,000	\$0	\$0	\$0
70018SI	SILT FENCE	(7)	2,500.00		0%	\$0	\$4,400	\$0	\$0	\$0
70235	EXCAVATING & GRADING GT. 100K	(7)	4,000.00	CUYD	0%	\$0	\$31,840	\$0	\$0	\$0
75045	GRAVEL FOR POLE BACKFILL	(7)	22.00	CUYD	0%	\$475	\$857	\$0	\$0	\$0
75231	WOOD POLE, DOUGLAS FIR, 70 FOOT, CLASS 1	(7)	22.00	EACH	0%	\$28,490	\$40,629	\$0	\$0	\$0
77350	CROSSARM & HARDWARE, CROSSBRACE	(7)	11.00	EACH	0%	\$4,387	\$5,996	\$0	\$0	\$0
79135	SAFETY WATCHER (Lineman)	(7)	25.00	SFDY	0%	\$0	\$25,000	\$0	\$0	\$0
85700	CONDUCTOR HARDWARE, STEEL WF, MA1, MA1DB, MA1W, MA3, MB, PHEASANT, BITTERN	(7)	11.00	EACH	0%	\$2,867	\$0	\$0	\$0	\$0
88020	INSULATOR, 25 KIP	(7)	132.00	EACH	0%	\$7,110	\$0	\$0	\$0	\$0
93690	MOBILIZATION/DEMOBILIZATION	(7)	26.00	\$	0%	\$0	\$57,850	\$0	\$0	\$0
95040	7-MAN CREW, LABOR ONLY	(7)	16.00	CRDY	0%	\$0	\$239,232	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	165.00	\$	0%	\$0	\$165,000	\$0	\$0	\$0
99920	MISC SMALL ITEMS	(7)	20.00	LUMP	0%	\$2,000	\$0	\$0	\$0	\$0
Function Resources & Hours						Totals:				
CONSMGMT 200						\$45,329	\$746,804	\$0	\$16,200	\$0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>Cntr LAB %</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Mat %</i>	<i>BPA LAB %</i>	<i>BPA Misc</i>
<i>Construction - Retirement Work Items</i>													
95040	7-MAN CREW, LABOR ONLY	(10)	5.00	CRDY	0%	\$0	\$44,856	(60%)	\$0	\$0	(0%)	(0%)	\$0
						Totals:	\$0	\$44,856		\$0		\$0	\$0

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: L3-1170-1-0

Facility Big Eddy-Redmond No 1

Description G0345 a new 230 kV substation(Boyd Ridge) line loop-in_Contractor Construction

Estimator McClemens, Laura

Requestor Ken Roberts

PRD # 285137

Est. Type Line

Estimate Status Final

Capital / Expense

Contract / BPA

Bundle

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$18,200	\$0	\$0	\$0	\$18,200
2 Scoping	\$0	\$0	\$21,144	\$0	\$0	\$0	\$21,144
3 Environmental	\$15,000	\$0	\$5,576	\$0	\$720	\$0	\$21,296
4 Survey/Mapping/Photo&RS/GIS	\$60,000	\$0	\$38,880	\$0	\$600	\$0	\$99,480
6 Design	\$40,000	\$0	\$9,504	\$0	\$0	\$0	\$49,504
7 Construction - Contract	\$695,813	\$514,883	\$31,752	\$0	\$0	\$0	\$1,242,448
Total	\$810,813	\$514,883	\$125,056	\$0	\$1,320	\$0	\$1,452,072

Estimate Range: \$\$1,161,657.70 to \$\$1,887,693

Approved Date 5/17/2017

Valid Through 5/17/2018

Big Eddy-Redmond No 1

Comments

This project is for the interconnection of G0345, a 201 MW wind project, located in Wasco County, Oregon.
The requested point of interconnection (POI) is on BPA's Big Eddy – Redmond No 1 230 kV line via a new 230 kV substation near tower 11/3.
This estimate request pertains to construction associated with the new 230 kV substation AND the line loop-in portion.
Structure 11/1 will be modified to handle ground wire.
Structures 11/2 to 11/4 will be rebuilt to handle ground wire.
Assets to be split 50/50 Big Eddy-Boyd Ridge/Boyd Ridge-Redmond.

STRUCTURES: SC LATTICE STEEL
CONDUCTOR: PHEASANT
VOLTAGE: 230-KV
RIGHT-OF-WAY: EXISTING

NOTES:

1. NEW 48 SERIES TOWERS ARE USED.
2. ASSUME THAT THE EXISTING LINES ARE PHEASANT.
3. ASSUMES LAND, ACCESS ROAD AND ENVIROMENTAL COSTS ARE INCLUDED IN THE SUBSTATION ESTIMATE.
4. ENVIRONMENTAL PLACEHOLDERS INCLUDED.
5. ASSUME THAT EXISTING SUSPENSION TOWERS WILL NEED NEW GROUND WIRE PEAKS INSTALLED.
6. ASSUME CONTRACTOR CONSTRUCTION AND DESIGN

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	25.00	SFDY	0%	\$0	\$0	\$0	\$18,200	\$0
Function Resources & Hours						Totals:				
PROJMGMT 200						\$0	\$0	\$0	\$18,200	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	13.00	SFDY	0%	\$0	\$0	\$0	\$9,464	\$0
2525	ENVIRONMENT - SCOPING	(2)	4.00	SFDY	0%	\$0	\$0	\$0	\$2,080	\$0
2535	SURVEY/MAPPING - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$4,560	\$0
2635	PROJECT ENGINEERING - SCOPING	(2)	9.00	SFDY	0%	\$0	\$0	\$0	\$5,040	\$0
Function Resources & Hours						Totals:				
ENVI 32						\$0	\$0	\$0	\$21,144	\$0
PROJMGMT 104										
SURVEY 80										
TRANSENG 72										

Environmental Items

1025	ENVIRONMENTAL IMPLEMENTATION	(3)	15.00	\$	0%	\$0	\$15,000	\$0	\$0	\$0
1026	ENVIRONMENTAL IMPLEMENTATION	(3)	8.50	SFDY	0%	\$0	\$0	\$0	\$5,576	\$0
1027	ENVIRONMENTAL IMPLEMENTATION PER DIEM	(3)	6.00	SFDY	0%	\$0	\$0	\$0	\$0	\$720
Function Resources & Hours						Totals:				
ENVIRIMP 68						\$0	\$15,000	\$0	\$5,576	\$720

Approved Date: 5/17/2017
 Printed: 5/23/2018 10:10:18 AM

Valid Through: 5/17/2018
 Estimate # 13-1170-1-0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<i>Survey/Mapping/Photo&RS/GIS Items</i>										
3240	GEOSPATIAL SERVICES	(4)	40.00	\$	0%	\$0	\$40,000	\$0	\$0	\$0
3250	MAPPING	(4)	50.00	SFDY	0%	\$0	\$0	\$0	\$22,800	\$0
3251	MAPPING	(4)	20.00	\$	0%	\$0	\$20,000	\$0	\$0	\$0
3253	PHOTOGRAMMETRY AND REMOTE SENSING	(4)	7.00	SFDY	0%	\$0	\$0	\$0	\$2,856	\$0
3257	SURVEY	(4)	29.00	SFDY	0%	\$0	\$0	\$0	\$13,224	\$0
3259	GEOMATICS PER DIEM	(4)	5.00	SFDY	0%	\$0	\$0	\$0	\$0	\$600

Function Resources & Hours	Totals:	\$0	\$60,000	\$0	\$38,880	\$600
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MAPPING	400
PHOTOGRA	56
SURVEY	232

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<i>Design Items</i>										
2040	SUBSTATION DESIGN	(6)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,024	\$0
2080	TRANSMISSION LINE DESIGN - TRANSMISSION ELECTRICAL ENGINEERING	(6)	3.00	\$	0%	\$0	\$3,000	\$0	\$0	\$0
2090	TRANSMISSION LINE DESIGN - TRANSMISSION ELECTRICAL ENGINEERING	(6)	1.75	SFDY	0%	\$0	\$0	\$0	\$924	\$0
2094	TRANSMISSION LINE DESIGN - CONDUCTOR DESIGN	(6)	14.00	\$	0%	\$0	\$14,000	\$0	\$0	\$0
2096	TRANSMISSION LINE DESIGN - CONDUCTOR DESIGN	(6)	6.25	SFDY	0%	\$0	\$0	\$0	\$3,300	\$0
2310	PROJECT ENGINEERING	(6)	10.00	\$	0%	\$0	\$10,000	\$0	\$0	\$0
2320	PROJECT ENGINEERING	(6)	5.00	SFDY	0%	\$0	\$0	\$0	\$2,800	\$0
2400	CIVIL DESIGN	(6)	3.00	\$	0%	\$0	\$3,000	\$0	\$0	\$0
2410	CIVIL DESIGN	(6)	2.00	SFDY	0%	\$0	\$0	\$0	\$960	\$0
2420	STRUCTURAL DESIGN	(6)	2.00	\$	0%	\$0	\$2,000	\$0	\$0	\$0
2430	STRUCTURAL DESIGN	(6)	1.00	SFDY	0%	\$0	\$0	\$0	\$496	\$0
99912	DESIGN CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS: INCLUDES TRAVEL AND SERVICES DURNING CONSTRUCTION	(6)	8.00	\$	0%	\$0	\$8,000	\$0	\$0	\$0

Function Resources & Hours	Totals:	\$0	\$40,000	\$0	\$9,504	\$0
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CIVILENG	16
LINEDSN	50
STRENG	8
SUBDSN	16
TRANSENG	40
TRANSMEE	14

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
2439	CONSTRUCTION MANAGEMENT	(7)	500.00	\$	0%	\$0	\$50,000	\$0	\$0	\$0
2440	CONSTRUCTION MANAGEMENT	(7)	49.00	SFDY	0%	\$0	\$0	\$0	\$31,752	\$0
3270	CONSTRUCTION INSPECTION	(7)	140.00	SFDY	0%	\$0	\$113,400	\$0	\$0	\$0
74303	FOUNDATION, CONCRETE 1-50	(7)	10.00	CUYD	0%	\$2,200	\$18,913	\$0	\$0	\$0
74850	TOWER STEEL, SINGLE CIRCUIT SUSPENSION TOWERS - QUANTITY OF 1 TO 4 TOWERS AT \$2.0885/LB, PRICE INCLUDES DELIVERY AND DULLING	(7)	70.00	TON	0%	\$292,390	\$0	\$0	\$0	\$0
74918	TOWER STEEL ERECTION	(7)	70.00	TON	0%	\$0	\$266,333	\$0	\$0	\$0
80285	PHEASANT, SINGLE CIRCUIT	(7)	2.00	MILE	0%	\$72,624	\$0	\$0	\$0	\$0
86270	CONDUCTOR HARDWARE, SC SGL SUSP 115-230KV, PHEASANT, BITTERN	(7)	11.00	EACH	0%	\$5,729	\$0	\$0	\$0	\$0
86280	CONDUCTOR HARDWARE, SC DEAD END 115-230KV, PHEASANT, BITTERN	(7)	6.00	EACH	0%	\$10,925	\$0	\$0	\$0	\$0
88020	INSULATOR, 25 KIP	(7)	500.00	EACH	0%	\$11,500	\$0	\$0	\$0	\$0
88600	VIBRATION DAMPER, PHEASANT, BITTERN	(7)	100.00	EACH	0%	\$4,488	\$0	\$0	\$0	\$0
92403	OHGW, CONTINUOUS W/ COUNTERPOISE 1-1/2" STEEL GW	(7)	2.00	MILE	0%	\$6,959	\$13,684	\$0	\$0	\$0
92420	OHGW, HARDWARE, SUSPENSION, 1/2" STEEL	(7)	6.00	\$	0%	\$456	\$0	\$0	\$0	\$0
92425	OHGW, HARDWARE, DEADEND, 1/2" STEEL	(7)	4.00	\$	0%	\$660	\$0	\$0	\$0	\$0
93570	STRUCTURE REMARKING(COMPLETE) STEEL STR'S ONLY. SER. NO. STR.NO. AERIAL MARKER	(7)	98.00	EACH	0%	\$1,980	\$10,903	\$0	\$0	\$0
93580	STRUCTURE REMARKING(NAME & NO) STEEL STR'S ONLY.	(7)	572.00	EACH	0%	\$6,521	\$36,272	\$0	\$0	\$0
93630	CRANE TIME, WORKING 90 TON	(7)	80.00	HRS	0%	\$0	\$32,000	\$0	\$0	\$0
93650	CRANE TIME, MOVE IN, SET UP, AND MOVE OUT	(7)	1.00	LUMP	0%	\$0	\$8,125	\$0	\$0	\$0
93680	MOBILIZATION/DEMOBILIZATION	(7)	4.00	\$	0%	\$0	\$8,900	\$0	\$0	\$0

Approved Date: 5/17/2017
 P:\12\172018\10:11:22 AM

Valid Through: 5/17/2018
 Estimate # 13-1170-1-0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
99911	CONTRACT MATERIAL COST INCREASE (10%)	(7)	98.45	LUMP	0%	\$98,452	\$0	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	137.29	\$	0%	\$0	\$137,285	\$0	\$0	\$0
Function Resources & Hours						Totals:				
CONSMGMT 392						\$514,883	\$695,813	\$0	\$31,752	\$0

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: L3-1170-2-0

Facility G0345 interconnection - 230kV line to Collector Station

Description TERMINATE THE LINE ON THE SUBSTATION DEADEND TOWER

Estimator McClemens, Laura

Requestor Ken Roberts

PRD # 285137

Est. Type Line

Estimate Status Final

Capital / Expense

Contract / BPA

Bundle

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$1,168	\$0	\$0	\$0	\$1,168
4 Survey/Mapping/Photo&RS/GIS	\$3,000	\$0	\$1,392	\$0	\$0	\$0	\$4,392
6 Design	\$3,750	\$0	\$2,600	\$0	\$0	\$0	\$6,350
7 Construction - Contract	\$20,500	\$700	\$0	\$0	\$0	\$0	\$21,200
11 Construction - BPA - Electrical Work	\$0	\$0	\$1,584	\$0	\$0	\$0	\$1,584
Total	\$27,250	\$700	\$6,744	\$0	\$0	\$0	\$34,694

Estimate Range: \$\$27,755.20 to \$\$45,102.20

Approved Date 5/17/2017

Valid Through 5/17/2018

G0345 interconnection - 230kV line to Collector Station

Comments

This project is for the interconnection of G0345, a 201 MW wind project, located in Wasco County, Oregon. The requested point of interconnection (POI) is on BPA's Big Eddy – Redmond No 1 230 kV line via a new 230 kV substation near tower 11/1. This estimate request pertains to connecting of the last span into the substation associated with the POI line.

TERMINATE THE LINE ON THE SUBSTATION DEADEND TOWER

STRUCTURES: SC LATTICE STEEL
CONDUCTOR: PHEASANT
VOLTAGE: 230-KV

NOTES:
ASSUMES LAND OR ENVIRONMENTAL COSTS IS ASSOCIATED WITH NEW SUBSTATION ESTIMATE.
REQUESTOR WILL DESIGN AND CONSTRUCT THE TRANSMISSION LINE FROM THE COLLECTOR STATION TO LAST SPAN AT THE NEW SUBSTATION.
NO CONTINGENCY INCLUDED IN THIS ESTIMATE

Approved Date 5/17/2017
Printed 5/29/2018 10:11:33 AM

Page 2 of 4

Valid Through 5/17/2018
Estimate # 15-1170-2-0

G0345 interconnection - 230kV line to Collector Station

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,168	\$0
Function Resources & Hours						Totals:				
	PROJMGMT		16			\$0	\$0	\$0	\$1,168	\$0

Survey/Mapping/Photo&RS/GIS Items

3240	GEOSPATIAL SERVICES	(4)	1.00	\$	0%	\$0	\$1,000	\$0	\$0	\$0
3250	MAPPING	(4)	3.00	SFDY	0%	\$0	\$0	\$0	\$1,392	\$0
3251	MAPPING	(4)	2.00	\$	0%	\$0	\$2,000	\$0	\$0	\$0
Function Resources & Hours						Totals:				
	MAPPING		24			\$0	\$3,000	\$0	\$1,392	\$0

Design Items

2310	PROJECT ENGINEERING	(6)	3.00	\$	0%	\$0	\$3,000	\$0	\$0	\$0
2320	PROJECT ENGINEERING	(6)	5.00	SFDY	0%	\$0	\$0	\$0	\$2,600	\$0
99912	CONTRACT DESIGN TIME (25%)	(6)	0.75	\$	0%	\$0	\$750	\$0	\$0	\$0
Function Resources & Hours						Totals:				
	TRANSENG		40			\$0	\$3,750	\$0	\$2,600	\$0

Approved Date: 5/17/2017
Printed: 5/23/2018 10:11:37 AM

Valid Through: 5/17/2018
Estimate # 13-1170-2-0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<u>Construction - Contract Items</u>										
55228	DEADEND ASSEMBLY, SUBSTATION, INSULATED, SINGLE, STEEL STR., (TYPE O-DN)	(7)	3.00	EACH	0%	\$630	\$900	\$0	\$0	\$0
93670	CLEANUP	(7)	12.00	HRS	0%	\$0	\$750	\$0	\$0	\$0
95120	6-MAN CREW, CONDUCTOR STRINGING, MISCELLANEOUS, INCLUDES PER DIEM & EQUIPMENT	(7)	5.00	CRDY	0%	\$0	\$14,850	\$0	\$0	\$0
99911	CONTRACT MATERIAL COST INCREASE (10%)	(7)	0.07	LUMP	0%	\$70	\$0	\$0	\$0	\$0
99913	CONTRACT CONSTRUCTION COST INCREASE (25%)	(7)	4.00	\$	0%	\$0	\$4,000	\$0	\$0	\$0
Totals:						\$700	\$20,500	\$0	\$0	\$0

Construction - BPA - Electrical Work Items

1510	FIELD - SUBSTATION OPERATOR: Providing District Integration Services, Consulting Services, Update Station and Standing instructions, and provide switching.	(11)	3.00	SFDY	0%	\$0	\$0	\$0	\$1,584	\$0
Totals:						\$0	\$0	\$0	\$1,584	\$0
Function Resources & Hours										
SUBOP 24										

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: L3-1170-3-0

Facility Big Eddy-Remond No 1

Description Remediation for ground impairments for interconnecting Boyd Ridge Substation

Estimator McClemens, Laura

Requestor Ken Roberts

PRD # 285137

Est. Type Line

Estimate Status Final

Capital / Expense Capital

Contract / BPA

Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$7,280	\$0	\$0	\$0	\$7,280
2 Scoping	\$3,000	\$0	\$3,640	\$0	\$0	\$0	\$6,640
3 Environmental	\$30,300	\$0	\$0	\$0	\$0	\$0	\$30,300
4 Survey/Mapping/Photo&RS/GIS	\$22,240	\$0	\$7,296	\$0	\$0	\$0	\$29,536
5 Land	\$0	\$0	\$15,096	\$0	\$3,000	\$0	\$18,096
6 Design	\$27,600	\$0	\$12,448	\$0	\$0	\$0	\$40,048
7 Construction - Contract	\$746,804	\$45,329	\$16,200	\$0	\$0	\$0	\$808,332
10 Construction - Retirement Work	\$44,856	\$0	\$0	\$0	\$0	\$0	\$44,856
Total	\$874,799	\$45,329	\$61,960	\$0	\$3,000	\$0	\$985,088

Estimate Range: \$788,000 to \$1,281,000

Approved Date 6/27/2018

Valid Through 6/27/2019

Big Eddy-Remond No 1

Comments

Work assumes 26 ground impairments to be remediated with 3 adjusted attachment points, ground removal and 11 intermediate structures.

Structures: Lattice Steel/H-Frame Wood

Conductor: Pheasant

Groundwire: OPGW

Voltage: 230kV

Notes:

Land and Access Road cost are excluded

Assume Contractor design and construction

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	10.00	SFDY	0%	\$0	\$0	\$0	\$7,280	\$0
Function Resources & Hours						Totals:				
PROJMGMT 80						\$0	\$0	\$0	\$7,280	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,640	\$0
2630	PROJECT ENGINEERING - SCOPING	(2)	3.00	\$	0%	\$0	\$3,000	\$0	\$0	\$0
Function Resources & Hours						Totals:				
PROJMGMT 40						\$0	\$3,000	\$0	\$3,640	\$0

Environmental Items

1025	ENVIRONMENTAL IMPLEMENTATION	(3)	18.00	\$	0%	\$0	\$18,000	\$0	\$0	\$0
1026	ENVIRONMENTAL IMPLEMENTATION	(3)	15.00	SFDY	0%	\$0	\$12,300	\$0	\$0	\$0
Function Resources & Hours						Totals:				
						\$0	\$30,300	\$0	\$0	\$0

Survey/Mapping/Photo&RS/GIS Items

3250	MAPPING	(4)	15.00	SFDY	0%	\$0	\$8,700	\$0	\$0	\$0
3255	GIS	(4)	6.00	SFDY	0%	\$0	\$3,540	\$0	\$0	\$0
3257	SURVEY	(4)	16.00	SFDY	0%	\$0	\$0	\$0	\$7,296	\$0
3258	SURVEY	(4)	10.00	\$	0%	\$0	\$10,000	\$0	\$0	\$0
Function Resources & Hours						Totals:				
SURVEY 128						\$0	\$22,240	\$0	\$7,296	\$0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
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Land Items

3219	Real Property Services Projects	(5)	18.00	SFDY	0%	\$0	\$0	\$0	\$8,496	\$0
3225	MISC COST (TITLE POLICIES, FILING FEES, ETC)	(5)	3.00	\$	0%	\$0	\$0	\$0	\$0	\$3,000
3230	REAL PROPERTY FIELD SERVICES	(5)	15.00	SFDY	0%	\$0	\$0	\$0	\$6,600	\$0

Function Resources & Hours

<i>REALFS</i>	<i>120</i>
<i>REALPROP</i>	<i>144</i>

Totals:	\$0	\$0	\$0	\$15,096	\$3,000
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<i>Design Items</i>										
2094	TRANSMISSION LINE DESIGN - CONDUCTOR DESIGN	(6)	2.00	\$	0%	\$0	\$2,000	\$0	\$0	\$0
2096	TRANSMISSION LINE DESIGN - CONDUCTOR DESIGN	(6)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,056	\$0
2310	PROJECT ENGINEERING	(6)	10.00	\$	0%	\$0	\$10,000	\$0	\$0	\$0
2320	PROJECT ENGINEERING	(6)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,600	\$0
2400	CIVIL DESIGN	(6)	10.00	\$	0%	\$0	\$10,000	\$0	\$0	\$0
2410	CIVIL DESIGN	(6)	10.00	SFDY	0%	\$0	\$0	\$0	\$4,800	\$0
2420	STRUCTURAL DESIGN	(6)	2.00	\$	0%	\$0	\$2,000	\$0	\$0	\$0
2430	STRUCTURAL DESIGN	(6)	2.00	SFDY	0%	\$0	\$0	\$0	\$992	\$0
99912	DESIGN CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS: INCLUDES TRAVEL AND SERVICES DURING CONSTRUCTION	(6)	3.60	\$	0%	\$0	\$3,600	\$0	\$0	\$0

Totals:	\$0	\$27,600	\$0	\$12,448	\$0
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Function Resources & Hours

CIVILENG	80
LINEDSN	16
STRENG	16
TRANSENG	80

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<i>Construction - Contract Items</i>										
2440	CONSTRUCTION MANAGEMENT	(7)	25.00	SFDY	0%	\$0	\$0	\$0	\$16,200	\$0
3280	Contract Construction Inspection	(7)	16.00	\$	0%	\$0	\$16,000	\$0	\$0	\$0
70016SI	HAUL OFF	(7)	4,000.00		0%	\$0	\$160,000	\$0	\$0	\$0
70018SI	SILT FENCE	(7)	2,500.00		0%	\$0	\$4,400	\$0	\$0	\$0
70235	EXCAVATING & GRADING GT. 100K	(7)	4,000.00	CUYD	0%	\$0	\$31,840	\$0	\$0	\$0
75045	GRAVEL FOR POLE BACKFILL	(7)	22.00	CUYD	0%	\$475	\$857	\$0	\$0	\$0
75231	WOOD POLE, DOUGLAS FIR, 70 FOOT, CLASS 1	(7)	22.00	EACH	0%	\$28,490	\$40,629	\$0	\$0	\$0
77350	CROSSARM & HARDWARE, CROSSBRACE	(7)	11.00	EACH	0%	\$4,387	\$5,996	\$0	\$0	\$0
79135	SAFETY WATCHER (Lineman)	(7)	25.00	SFDY	0%	\$0	\$25,000	\$0	\$0	\$0
85700	CONDUCTOR HARDWARE, STEEL WF, MA1, MA1DB, MA1W, MA3, MB, PHEASANT, BITTERN	(7)	11.00	EACH	0%	\$2,867	\$0	\$0	\$0	\$0
88020	INSULATOR, 25 KIP	(7)	132.00	EACH	0%	\$7,110	\$0	\$0	\$0	\$0
93690	MOBILIZATION/DEMOBILIZATION	(7)	26.00	\$	0%	\$0	\$57,850	\$0	\$0	\$0
95040	7-MAN CREW, LABOR ONLY	(7)	16.00	CRDY	0%	\$0	\$239,232	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	165.00	\$	0%	\$0	\$165,000	\$0	\$0	\$0
99920	MISC SMALL ITEMS	(7)	20.00	LUMP	0%	\$2,000	\$0	\$0	\$0	\$0
Function Resources & Hours						Totals:				
CONSMGMT 200						\$45,329	\$746,804	\$0	\$16,200	\$0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Construction - Retirement Work Items</i>										
							<i>Cntr LAB %</i>	<i>Bpa Mat %</i>	<i>Bpa LAB %</i>	
95040	7-MAN CREW, LABOR ONLY	(10)	5.00	CRDY	0%	\$0	\$44,856 (60%)	\$0 (0%)	\$0 (0%)	\$0
						Totals:				
						\$0	\$44,856	\$0	\$0	\$0

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: A3-1170-1-1

Facility BOYD RIDGE SUBSTATION

Description NEW 230KV SUBSTATION

Estimator Gutierrez, Arnold
Requestor KEN ROBERTS TECP
PRD # 285137
Est. Type Land
Estimate Status Final
Capital / Expense Capital
Contract / BPA Contract - Contract
Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
4 Survey/Mapping/Photo&RS/GIS	\$47,500	\$0	\$18,072	\$2,520	\$0	\$0	\$68,092
5 Land	\$0	\$200,000	\$15,976	\$3,440	\$0	\$0	\$219,416
Total	\$47,500	\$200,000	\$34,048	\$5,960	\$0	\$0	\$287,508

Estimate Range: \$230,000 to \$374,000

Approved Date 4/6/2018

Valid Through 4/6/2019

BOYD RIDGE SUBSTATION

Comments

LAND ESTIMATE FOR A NEW 230KV SUBSTATION LOCATED IN BOYD OREGON.

NOTE : THIS ESTIMATE WAS CREATED FROM INPUT FROM THE LAND GROUP. NO ADDITIONAL REVIEW IS REQUIRED.

REVISION 1 UPDATES ESTIMATE TO LATEST INPUT FROM KEN ROBERTS.

STATION ENGINEER:
PROJECT MANAGER:

PARENT PROJECT NUMBER :

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Survey/Mapping/Photo&RS/GIS Items</i>										
3250	MAPPING	(4)	8.50	SFDY	0%	\$0	\$0	\$0	\$3,876	\$0
3251	MAPPING	(4)	6.50	\$	0%	\$0	\$6,500	\$0	\$0	\$0
3252	SURVEY AND MAPPING PER DIEM	(4)	21.00	SFDY	0%	\$0	\$0	\$2,520	\$0	\$0
3255	GIS	(4)	13.00	SFDY	0%	\$0	\$0	\$0	\$5,304	\$0
3257	SURVEY	(4)	19.50	SFDY	0%	\$0	\$0	\$0	\$8,892	\$0
3258	SURVEY	(4)	41.00	\$	0%	\$0	\$41,000	\$0	\$0	\$0

Function Resources & Hours

GIS	104
MAPPING	68
SURVEY	156

Totals:	\$0	\$47,500	\$2,520	\$18,072	\$0
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<i>Land Items</i>										
3210	LAND-PAYMENTS TO OTHERS	(5)	200.00	\$	0%	\$200,000	\$0	\$0	\$0	\$0
3215	REAL PROPERTY SERVICES PER DIEM	(5)	6.00	SFDY	0%	\$0	\$0	\$720	\$0	\$0
3219	Real Property Services Projects	(5)	5.00	SFDY	0%	\$0	\$0	\$0	\$2,360	\$0
3225	MISC COST (TITLE POLICIES, FILING FEES, ETC)	(5)	2.00	\$	0%	\$0	\$0	\$2,000	\$0	\$0
3230	REAL PROPERTY FIELD SERVICES	(5)	12.00	SFDY	0%	\$0	\$0	\$0	\$5,280	\$0
3233	REAL PROPERTY SERVICES PROPERTY TECHINCAL SUPPORT	(5)	1.00	SFDY	0%	\$0	\$0	\$0	\$416	\$0
3237	REAL PROPERTY VALUATION AND FORESTRY	(5)	15.00	SFDY	0%	\$0	\$0	\$0	\$7,920	\$0
3239	REAL PROPERTY VALUATION AND FORESTRY PER DIEM	(5)	6.00	SFDY	0%	\$0	\$0	\$720	\$0	\$0

Totals:	\$200,000	\$0	\$3,440	\$15,976	\$0
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Function Resources & Hours	
REALFS	96
REALPROP	40
REALTYTS	8
REALTYVF	120

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: A3-1170-2-0

Facility Big Eddy-Redmond No 1

Description Land rights review for G0345 a new 230 kV substation(Boyd Ridge) line loop-in

Estimator McClemens, Laura

Requestor Ken Roberts

PRD # 285137

Est. Type Land

Estimate Status Final

Capital / Expense Capital

Contract / BPA

Bundle

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$3,640	\$0	\$0	\$0	\$3,640
2 Scoping	\$0	\$0	\$6,016	\$0	\$0	\$0	\$6,016
4 Survey/Mapping/Photo&RS/GIS	\$32,000	\$0	\$25,704	\$0	\$1,680	\$0	\$59,384
5 Land	\$0	\$0	\$23,908	\$0	\$3,800	\$0	\$27,708
Total	\$32,000	\$0	\$59,268	\$0	\$5,480	\$0	\$96,748

Estimate Range: \$77,000 to \$126,000

Approved Date 4/10/2018

Valid Through 4/10/2019

Big Eddy-Redmond No 1

Comments

Land rights review for the interconnection of G0345, a 201 MW wind project, located in Wasco County, Oregon.
The requested point of interconnection (POI) is on BPA's Big Eddy – Redmond No 1 230 kV line via a new 230 kV substation near tower 11/2.
This estimate request pertains to construction associated with the new 230 kV substation AND the line loop-in portion.
Structure 11/2 will be transition to a new vertical phase double deadend tower.
Costs of the loop should be split 50/50 Big Eddy-Boyd Ridge/Boyd Ridge-Redmond.

STRUCTURES: SC LATTICE STEEL
CONDUCTOR: PHEASANT
VOLTAGE: 230-KV
RIGHT-OF-WAY: EXISTING AND NEW

NOTES:

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,640	\$0
Function Resources & Hours						Totals:				
PROJMGMT 40						\$0	\$0	\$0	\$3,640	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,456	\$0
2535	SURVEY/MAPPING - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$4,560	\$0
Function Resources & Hours						Totals:				
PROJMGMT 16						\$0	\$0	\$0	\$6,016	\$0
SURVEY 80										

Survey/Mapping/Photo&RS/GIS Items

3250	MAPPING	(4)	20.00	SFDY	0%	\$0	\$0	\$0	\$9,120	\$0
3251	MAPPING	(4)	9.00	\$	0%	\$0	\$9,000	\$0	\$0	\$0
3252	SURVEY AND MAPPING PER DIEM	(4)	14.00	SFDY	0%	\$0	\$0	\$0	\$0	\$1,680
3255	GIS	(4)	6.00	SFDY	0%	\$0	\$0	\$0	\$2,448	\$0
3257	SURVEY	(4)	31.00	SFDY	0%	\$0	\$0	\$0	\$14,136	\$0
3258	SURVEY	(4)	23.00	\$	0%	\$0	\$23,000	\$0	\$0	\$0
Function Resources & Hours						Totals:				
GIS 48						\$0	\$32,000	\$0	\$25,704	\$1,680
MAPPING 160										
SURVEY 248										

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Land Items

3210	LAND-PAYMENTS TO OTHERS	(5)	1.00	\$	0%	\$0	\$0	\$0	\$0	\$1,000
3219	Real Property Services Projects	(5)	5.00	SFDY	0%	\$0	\$0	\$0	\$2,360	\$0
3225	MISC COST (TITLE POLICIES, FILING FEES, ETC)	(5)	1.00	\$	0%	\$0	\$0	\$0	\$0	\$1,000
3230	REAL PROPERTY FIELD SERVICES	(5)	12.50	SFDY	0%	\$0	\$0	\$0	\$5,500	\$0
3233	REAL PROPERTY SERVICES PROPERTY TECHINCAL SUPPORT	(5)	0.50	SFDY	0%	\$0	\$0	\$0	\$208	\$0
3237	REAL PROPERTY VALUATION AND FORESTRY	(5)	30.00	SFDY	0%	\$0	\$0	\$0	\$15,840	\$0
3239	REAL PROPERTY VALUATION AND FORESTRY PER DIEM	(5)	15.00	SFDY	0%	\$0	\$0	\$0	\$0	\$1,800

Function Resources & Hours

REALFS	100
REALPROP	40
REALTYTS	4
REALTYVF	240

Totals:	\$0	\$0	\$0	\$23,908	\$3,800
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TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: C3-1170-1-1

Facility G0345 WIND COLLECTOR GENERATION (LOTUS)

Description Install Communication and Control Equipment at Wind Collector Site

Estimator Davis, Mike
Requestor Ken Roberts
PRD # 285137
Est. Type Com
Estimate Status Final
Capital / Expense Capital
Contract / BPA Contract - Contract
Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$36,400	\$0	\$0	\$0	\$36,400
2 Scoping	\$0	\$0	\$15,880	\$0	\$0	\$0	\$15,880
6 Design	\$247,200	\$0	\$85,464	\$0	\$0	\$0	\$332,664
7 Construction - Contract	\$555,637	\$327,538	\$64,800	\$0	\$0	\$0	\$947,975
11 Construction - BPA - Electrical Work	\$0	\$0	\$329,290	\$0	\$10,000	\$0	\$339,290
Total	\$802,837	\$327,538	\$531,834	\$0	\$10,000	\$0	\$1,672,209

Estimate Range: \$1,337,800 to \$2,173,900

Approved Date 4/6/2018

Valid Through 4/6/2019

G0345 WIND COLLECTOR GENERATION (LOTUS)

Comments

Install (8) digital channels with (2) SRU cards, (3) OHSU card, and (1) FXS card. Install (1) set of 48 VDC batteries with (3) chargers, (2) channel banks, (1) Cisco 15454 fiber optic multiplexer, (1) SER/SCADA , (1) GPS unit, (1) FIN , (1) substation information server, (1) Data PMU/ IC/RTR , (2) JEMStar meters, (1), (1) NMS RTU, (1) repeat relay, (2) isolation amplifiers, and (1) line sharing switch, (2) Gen Drop Panels, (2)contact extenders, , (1) LOMP, (1) Sonnet,

C&C Planning Engr: Karl Knoll
Coordinating Engr:
Proj Manager: Rasha Kroonen

Notes:

- 1) Based off of final approved PRD #285137 dated 02/08/11
- 2) Based off of CDD prepared by Ken Roberts 12/30/2016
- 3) This estimate is figured using contract design and contract construction.
- 4) Per new estimating process, zero contingency has been added to this estimate.

Rev. 1 – Added BPA design resources for review, and added design contract overhead and profit costs.

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Design Items</i>										
2100	PROTECTION ENGINEERING	(6)	32.00	\$	0%	\$0	\$32,000	\$0	\$0	\$0
2110	PROTECTION ENGINEERING	(6)	25.00	SFDY	0%	\$0	\$0	\$0	\$12,000	\$0
2120	RAS DESIGN	(6)	30.00	\$	0%	\$0	\$30,000	\$0	\$0	\$0
2130	RAS DESIGN	(6)	20.00	SFDY	0%	\$0	\$0	\$0	\$11,840	\$0
2140	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	98.00	\$	0%	\$0	\$98,000	\$0	\$0	\$0
2150	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	75.00	SFDY	0%	\$0	\$0	\$0	\$39,000	\$0
2152	DATA SYSTEMS - METERING DESIGN	(6)	16.00	\$	0%	\$0	\$16,000	\$0	\$0	\$0
2154	DATA SYSTEMS - METERING DESIGN	(6)	12.00	SFDY	0%	\$0	\$0	\$0	\$6,240	\$0
2155	MEASUREMENT SYSTEMS	(6)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,520	\$0
2160	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	33.00	\$	0%	\$0	\$33,000	\$0	\$0	\$0
2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	24.00	SFDY	0%	\$0	\$0	\$0	\$12,864	\$0
2380	Contractor Construction Take-Off Estimate (= 3% of Task 6 total)	(6)	6.40	\$	0%	\$0	\$6,400	\$0	\$0	\$0
99912	DESIGN CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS: INCLUDES TRAVEL AND SERVICES DURING CONSTRUCTION	(6)	31.80	\$	0%	\$0	\$31,800	\$0	\$0	\$0

Totals:	\$0	\$247,200	\$0	\$85,464	\$0
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Function Resources & Hours

DATASYST	600
INSTRMT	40
METERING	96
PROTRLY	200
RASDSN	160
TCOMMENG	192

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Construction - Contract Items</i>										
2440	CONSTRUCTION MANAGEMENT	(7)	50.00	SFDY	0%	\$0	\$0	\$0	\$32,400	\$0
28535	Substation Data Manager, 129Vdc. Item includes materials, cables & labor for data connection from IP Server to the relays. Item replaces SEL-2020, SEL-2030, SEL PRTU, GE-IP.	(7)	1.00	LOT	0%	\$8,500	\$4,450	\$0	\$0	\$0
29300	Contact Extender. SEL 2595 or SEL 2505 Rack Mounted System.	(7)	2.00	EACH	0%	\$4,000	\$1,113	\$0	\$0	\$0
29476	RAS Generation-Load dropping panel. Includes: decked selector switches, cut-out switches, interfacing relays (lock out relay and high-speed tripping), terminal blocks, and control wiring.	(7)	2.00	LOT	0%	\$11,400	\$7,644	\$0	\$0	\$0
29825	Phasor Measurement Unit, Single PMU	(7)	1.00	EACH	0%	\$9,600	\$31,568	\$0	\$0	\$0
29855	Router/Switch, for use with Data PMU. Includes power supply, firmware, accessories	(7)	1.00	EACH	0%	\$7,000	\$2,670	\$0	\$0	\$0
30802	CONTROL CABLE, INDOOR, 600 VOLT, COPPER CONDUCTOR.	(7)	5,000.00	LNFT	0%	\$5,500	\$27,800	\$0	\$0	\$0
3270	CONSTRUCTION INSPECTION	(7)	50.00	SFDY	0%	\$0	\$40,500	\$0	\$0	\$0
3270	CONSTRUCTION INSPECTION	(7)	50.00	SFDY	0%	\$0	\$0	\$0	\$32,400	\$0
53125	FIN Package, Field Information Network access server. Includes router, terminal server and switch	(7)	1.00	LOT	0%	\$9,500	\$3,783	\$0	\$0	\$0
53126	Rack 24", secure rack includes - power fuse panel, wire, grounding, lockable enclosure for FIN Access, SIS, Open-i.	(7)	6.00	EACH	0%	\$9,600	\$21,360	\$0	\$0	\$0
53126	Rack 24", secure rack includes - power fuse panel, wire, grounding, lockable enclosure for FIN Access, SIS, Open-i.	(7)	1.00	EACH	0%	\$1,600	\$3,560	\$0	\$0	\$0
53507	ORION LX SER/SCADA HMI/RTU, redundant package. For use at NERC GIP Sites. Includes 2 Orion LX units, rack with panels, switches, meter, circuit breakers, computer, terminal blocks, and misc. wiring and items.	(7)	1.00	PKG	0%	\$66,842	\$67,500	\$0	\$0	\$0
54428	CURRENT ISOLATOR FOR FAN OUT MILLIAMPS FROM JEM METER OUT- PUT. SEMTRONICS ISOLATOR, OHIO POWER 12VAC, W/ PANEL & TERM.	(7)	2.00	LOT	0%	\$1,170	\$1,780	\$0	\$0	\$0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
54461	Solid State Bi-Directional Meter Panel, With 2-JEMStar model JS-09R6020-36 WH/VARH Meters, (DNP-3 Protocol), Registers, mass memory, test switches.	(7)	1.00	LOT	0%	\$6,615	\$5,553	\$0	\$0	\$0
54485	LOSS OF POTENTIAL RELAY 3-PHASE VOLTAGE, TIMEMARK 258B 23-5109, WITH SOCKET BASE OCTAL.	(7)	1.00	LOT	0%	\$65	\$227	\$0	\$0	\$0
54486	LOSS OF METER POTENTIAL WIRING PACKAGE CONTAINING SWITCHBOARD WIRE FROM E SOURCE TO RELAY BASE AND TW SH PR 22 AWG FROM RELAY BASE TO RFL9850	(7)	1.00	LOT	0%	\$50	\$489	\$0	\$0	\$0
54492	Repeat Relay (for revenue metering). 2 inputs, 2 outputs.	(7)	1.00	LOT	0%	\$425	\$512	\$0	\$0	\$0
54496	RACK, 24", FREE STANDING, WITHOUT PANELS, WITH TERMINAL BLOCKS, AC recp, Power Switch, 40 Amp DC.	(7)	1.00	EACH	0%	\$1,150	\$2,400	\$0	\$0	\$0
54916	Annunciator Logger System with Monitor. Includes: SEL-3354 Annunciator/Logger, 17" LCD Touch Screen w/ Mounting Bracket, Rack Mount USB Keyboard, Sliding Drawer, Cable Assembly, printer, media converter.	(7)	1.00	EACH	0%	\$8,356	\$2,469	\$0	\$0	\$0
55294	New CISCO ONS 15454 Package. Includes chassis, backplanes, warranties, cross-connect cards, optical cards, optics, and electrical cards.	(7)	1.00	PKG	0%	\$50,000	\$10,000	\$0	\$0	\$0
55425	NEW (DS1 or T1) DIGITAL CIRCUIT ON DIGITAL SYSTEM INCLUDES: All testing, may include staff at some cross-connects of the new circuit. Includes mirror material of wire/cable at cross-connect sites.	(7)	2.00	CIRC	0%	\$40	\$16,910	\$0	\$0	\$0
55434	New Channel Bank Package. Includes DSX and IDF blocks, payload cards, and common cards.	(7)	2.00	PKG	0%	\$48,800	\$33,857	\$0	\$0	\$0
55454	PREMISYS IMACS 8-PORT, 2-WIRE FXS	(7)	2.00	EACH	0%	\$1,880	\$1,113	\$0	\$0	\$0
55458	PREMISYS, IMACS, 10-PORT, SRU, RS-232C, SYNC/ASYNCSUB-RATE DATA PART # 8220 LOW SPEED 300BPS, MED SPEED 38.4BPS.	(7)	2.00	EACH	0%	\$2,200	\$890	\$0	\$0	\$0
55459	Premisys, IMACS, 4-port OHSU, C37.94, 830 NM ST Connectors, Firmware 1.0.2	(7)	2.00	CARD	0%	\$2,800	\$32	\$0	\$0	\$0
55462	Time Provider GPS Upgrade Package	(7)	1.00	EACH	0%	\$7,800	\$1,558	\$0	\$0	\$0
55545	NMS Package, Open-I. Includes termination panel and cables	(7)	1.00	LOT	0%	\$9,000	\$12,460	\$0	\$0	\$0
55563	48 VDC GPS Receiver System.	(7)	1.00	PKG	0%	\$4,875	\$2,480	\$0	\$0	\$0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
58000	BATTERY, 48 VOLT, 720 AMP-HOUR WITH RACK AND SPILL CONTAINMENT.	(7)	1.00	PKG	0%	\$17,518	\$10,500	\$0	\$0	\$0
58210	Turnkey Services. Includes contract installation for one basic DC charger system.	(7)	1.00	LOT	0%	\$0	\$5,000	\$0	\$0	\$0
58610	Basic DC Charger System. Includes: 3 chargers, rack, and other battery and charger accessories.	(7)	1.00	PKG	0%	\$7,000	\$3,700	\$0	\$0	\$0
61107	SIGNALLING UNIT, DIAL LINE. TELLABS OR XELCOMM	(7)	2.00	CARD	0%	\$610	\$1,422	\$0	\$0	\$0
64551	TELEPHONE TERMINATION WITH HANDSET, INCLUDES WIRING AND TELEPHONE TERMINATION FOR ONE CIRCUIT FROM TYPE 10 KEY SYS. (PHONES TO BE DAISIED CHAINED)	(7)	3.00	LOT	0%	\$150	\$2,670	\$0	\$0	\$0
64631	LINE SHARING SWITCH, 4 PORTS, AC Transformer, ACCESSED W/O POLLING CONTROLLER, mounted on a panel segment.	(7)	1.00	EACH	0%	\$492	\$223	\$0	\$0	\$0
64679	Basic Telephone Protection Pkg. Positron Isolator 5 Card Shelf w/ Internal Power Supply 125VDC/VAC, Battery Backup Card 24VDC, Modules, and Terminal Panel.	(7)	1.00	PKG	0%	\$3,000	\$3,449	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	224.00	\$	0%	\$0	\$224,000	\$0	\$0	\$0
99920	MISC SMALL ITEMS	(7)	200.00	LUMP	0%	\$20,000	\$0	\$0	\$0	\$0

Function Resources & Hours	Totals:	\$327,538	\$555,637	\$0	\$64,800	\$0
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CONSINSP 400
 CONSMGMT 400

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Construction - BPA - Electrical Work Items

1510	FIELD - SUBSTATION OPERATOR: Providing District Integration Services, Consulting Services, Update Station and Standing instructions, and provide switching.	(11)	16.00	SFDY	0%	\$0	\$0	\$0	\$9,472	\$0
1520	FIELD - DISTRICT ENGINEER POWER SYSTEM CONTROL: Providing District Integration Services, Consulting Services, Update District Documents, T&E Services.	(11)	27.25	SFDY	0%	\$0	\$0	\$0	\$19,402	\$0
1525	PSC Craftsman - One staff day of work.	(11)	50.00	SFDY	0%	\$0	\$0	\$0	\$35,600	\$0
1528	PSC Branch - providing support services to design & field	(11)	13.00	SFDY	0%	\$0	\$0	\$0	\$7,696	\$0
1530	FIELD - DISTRICT ENGINEER SYSTEM PROTECTION CONTROL: Providing District Integration Services, Consulting Services, Update District Documents, T&E Services.	(11)	50.00	SFDY	0%	\$0	\$0	\$0	\$35,600	\$0
1535	SPC Craftsman - One staff day of work.	(11)	50.00	SFDY	0%	\$0	\$0	\$0	\$35,600	\$0
1538	SPC Branch - providing support services to design & field	(11)	17.00	SFDY	0%	\$0	\$0	\$0	\$9,520	\$0
2180	TEST AND ENERGIZATION A/B POWER SYSTEMS	(11)	150.00	SFDY	0%	\$0	\$0	\$0	\$91,200	\$0
2185	TEST AND ENERGIZATION A/B COMM. TESTING	(11)	150.00	SFDY	0%	\$0	\$0	\$0	\$85,200	\$0
99910	TRAVEL - WINDSHIELD TIME- 15% const. labor coded as Misc. \$	(11)	10.00	\$	0%	\$0	\$0	\$0	\$0	\$10,000

Function Resources & Hours

COMMTEST	1200
PCRAFT	400
PSCDE	218
PWRSYCTR	104
PWRSYS	1200
SCRAFT	400
SPCDE	400
SUBOP	128
SYSCONTR	136

Totals:	\$0	\$0	\$0	\$329,290	\$10,000
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TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: C3-1170-2-1

Facility Go345 POI (Boyd Ridge Substation)
Description Install Communication and Control Equipment

Estimator Davis, Mike
Requestor Ken Roberts
PRD # 285137
Est. Type Com
Estimate Status Final
Capital / Expense Capital
Contract / BPA Contract - Contract
Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$36,400	\$0	\$0	\$0	\$36,400
2 Scoping	\$0	\$0	\$23,760	\$0	\$0	\$0	\$23,760
6 Design	\$213,600	\$0	\$72,560	\$0	\$0	\$0	\$286,160
7 Construction - Contract	\$760,391	\$468,165	\$64,800	\$0	\$0	\$0	\$1,293,355
11 Construction - BPA - Electrical Work	\$0	\$0	\$318,076	\$12,000	\$5,000	\$0	\$335,076
Total	\$973,991	\$468,165	\$515,596	\$12,000	\$5,000	\$0	\$1,974,751

Estimate Range: \$1,579,800 to \$2,567,200

Approved Date 4/6/2018

Valid Through 4/6/2019

Go345 POI (Boyd Ridge Substation)

Comments

Install (8) digital channels with (2) SRU cards, (3) OHSU card, and (1) FXS card. Install (1) set of 48 VDC batteries with (3) chargers, (2) channel banks, (1) Cisco 15454 fiber optic multiplexer, (1) SER/SCADA , (1) GPS unit, (1) FIN , (1) substation information server, (1) Data PMU/ IC/RTR , (1), (1) NMS RTU, and (1) line sharing switch, (2)contact extenders, (2) UR's

C&C Planning Engr: Karl Knoll
Coordinating Engr:
Proj Manager: Rasha Kroonen

Notes:

- 1) Based off of final approved PRD #285137 dated 02/08/11
- 2) Based off of CDD prepared by Ken Roberts 12/30/2016
- 3) This estimate based on contract design and contract construction.
- 4) Per new estimating process, zero contingency has been added to this estimate.

Rev. 1 - Added BPA design resources for review, and added design contract overhead and profit costs.

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	50.00	SFDY	0%	\$0	\$0	\$0	\$36,400	\$0
Function Resources & Hours						Totals:				
PROJMGMT 400						\$0	\$0	\$0	\$36,400	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$7,280	\$0
2595	RAS - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,920	\$0
2615	DATA SYSTEMS - DATA SYSTEMS SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,200	\$0
2625	TELECOMMUNICATIONS ENGINEERING - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,360	\$0
Function Resources & Hours						Totals:				
DATASYST 80						\$0	\$0	\$0	\$23,760	\$0
PROJMGMT 80										
RASDSN 80										
TCOMMENG 80										

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Design Items</i>										
2100	PROTECTION ENGINEERING	(6)	5.00	\$	0%	\$0	\$5,000	\$0	\$0	\$0
2110	PROTECTION ENGINEERING	(6)	5.00	SFDY	0%	\$0	\$0	\$0	\$2,400	\$0
2120	RAS DESIGN	(6)	45.00	\$	0%	\$0	\$45,000	\$0	\$0	\$0
2130	RAS DESIGN	(6)	30.00	SFDY	0%	\$0	\$0	\$0	\$17,760	\$0
2140	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	98.00	\$	0%	\$0	\$98,000	\$0	\$0	\$0
2150	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	75.00	SFDY	0%	\$0	\$0	\$0	\$39,000	\$0
2160	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	34.00	\$	0%	\$0	\$34,000	\$0	\$0	\$0
2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	25.00	SFDY	0%	\$0	\$0	\$0	\$13,400	\$0
2380	Contractor Construction Take-Off Estimate (= 3% of Task 6 total)	(6)	5.30	\$	0%	\$0	\$5,300	\$0	\$0	\$0
99912	DESIGN CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS: INCLUDES TRAVEL AND SERVICES DURING CONSTRUCTION	(6)	26.30	\$	0%	\$0	\$26,300	\$0	\$0	\$0

Totals:	\$0	\$213,600	\$0	\$72,560	\$0
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Function Resources & Hours

DATASYST	600
PROTRLY	40
RASDSN	240
TCOMMENG	200

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Construction - Contract Items</i>										
2440	CONSTRUCTION MANAGEMENT	(7)	50.00	SFDY	0%	\$0	\$0	\$0	\$32,400	\$0
28535	Substation Data Manager, 129Vdc. Item includes materials, cables & labor for data connection from IP Server to the relays. Item replaces SEL-2020, SEL-2030, SEL PRTU, GE-IP.	(7)	1.00	LOT	0%	\$8,500	\$4,450	\$0	\$0	\$0
29300	Contact Extender. SEL 2595 or SEL 2505 Rack Mounted System.	(7)	2.00	EACH	0%	\$4,000	\$1,113	\$0	\$0	\$0
29310	Remote Site: RAS Basic Digital Package. GE-UR N-50 relay: includes relay, rack, test & output isolation switch, terminal blocks and breakers.	(7)	1.00	LOT	0%	\$11,500	\$16,272	\$0	\$0	\$0
29311	Remote Site: RAS Basic Digital Package. GE-UR N-50 relay: includes relay mounted on panel, test & output isolation switch, terminal blocks and breakers. NO RACK.	(7)	1.00	LOT	0%	\$11,000	\$8,937	\$0	\$0	\$0
29330	Line Loss Logic (LLL), add to existing UR relay.	(7)	2.00	EACH	0%	\$6,000	\$6,786	\$0	\$0	\$0
29840	Terminal Server, for use with PMUs	(7)	1.00	EACH	0%	\$1,800	\$3,560	\$0	\$0	\$0
29845	Router, for use with Control PMU, and OMET. Includes power supply, firmware, modules and accessories	(7)	2.00	EACH	0%	\$45,200	\$30,000	\$0	\$0	\$0
29850	Ethernet Switch, substation-hardened for PMU applications	(7)	2.00	EACH	0%	\$9,696	\$3,560	\$0	\$0	\$0
30802	CONTROL CABLE, INDOOR, 600 VOLT, COPPER CONDUCTOR.	(7)	5,000.00	LNFT	0%	\$5,500	\$27,800	\$0	\$0	\$0
3270	CONSTRUCTION INSPECTION	(7)	50.00	SFDY	0%	\$0	\$0	\$0	\$32,400	\$0
3270	CONSTRUCTION INSPECTION	(7)	50.00	SFDY	0%	\$0	\$40,500	\$0	\$0	\$0
53125	FIN Package, Field Information Network access server. Includes router, terminal server and switch	(7)	1.00	LOT	0%	\$9,500	\$3,783	\$0	\$0	\$0
53126	Rack 24", secure rack includes - power fuse panel, wire grounding, lockable enclosure for FIN Access, SIS, Open-i.	(7)	1.00	EACH	0%	\$1,600	\$3,560	\$0	\$0	\$0
53507	ORION LX SER/SCADA HMI/RTU, redundant package. For use at NERC CIP Sites. Includes 2 Orion LX units, rack with panels, switches, meter, circuit breakers, computer, terminal blocks, and misc. wiring and items.	(7)	2.00	PKG	0%	\$133,683	\$135,000	\$0	\$0	\$0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
55294	New CISCO ONS 15454 Package. Includes chassis, backplanes, warranties, cross-connect cards, optical cards, optics, and electrical cards.	(7)	1.00	PKG	0%	\$50,000	\$10,000	\$0	\$0	\$0
55425	NEW (DS1 or T1) DIGITAL CIRCUIT ON DIGITAL SYSTEM INCLUDES: All testing, may include staff at some cross-connects of the new circuit. Includes minor material of wire/cable at cross-connect sites.	(7)	3.00	CIRC	0%	\$60	\$25,365	\$0	\$0	\$0
55434	New Channel Bank Package. Includes DSX and IDF blocks, payload cards, and common cards.	(7)	2.00	PKG	0%	\$48,800	\$33,857	\$0	\$0	\$0
55454	PREMISYS IMACS 8-PORT, 2-WIRE FXS	(7)	1.00	EACH	0%	\$940	\$556	\$0	\$0	\$0
55458	PREMISYS, IMACS, 10-PORT, SRU, RS-232C, SYNC/ASYNCSUB-RATE DATA PART # 8220 LOW SPEED 300BPS, MED SPEED 38.4BPS.	(7)	2.00	EACH	0%	\$2,200	\$890	\$0	\$0	\$0
55459	Premisys, IMACS, 4-port OHSU, C37.94, 830 NM ST Connectors, Firmware 1.0.2	(7)	2.00	CARD	0%	\$2,800	\$32	\$0	\$0	\$0
55462	Time Provider GPS Upgrade Package	(7)	1.00	EACH	0%	\$7,800	\$1,558	\$0	\$0	\$0
55545	NMS Package, Open-I. Includes termination panel and cables	(7)	1.00	LOT	0%	\$9,000	\$12,460	\$0	\$0	\$0
55547	NMS Access Server, for use with Open-I (Alarm Server)	(7)	1.00	LOT	0%	\$4,200	\$1,780	\$0	\$0	\$0
55563	48 VDC GPS Receiver System.	(7)	1.00	PKG	0%	\$4,875	\$2,480	\$0	\$0	\$0
58000	BATTERY, 48 VOLT, 720 AMP-HOUR WITH RACK AND SPILL CONTAINMENT.	(7)	1.00	PKG	0%	\$17,518	\$10,500	\$0	\$0	\$0
58610	Basic DC Charger System. Includes: 3 chargers, rack, and other battery and charger accessories.	(7)	1.00	PKG	0%	\$7,000	\$3,700	\$0	\$0	\$0
61107	SIGNALLING UNIT, DIAL LINE, TELLABS OR XELCOMM	(7)	2.00	CARD	0%	\$610	\$1,422	\$0	\$0	\$0
64056	RACK 19", FUSE PANEL/WIRE/GNDING-Telect Filter Fuse pnl, GND KIT, GNDBAR, RACK, Wire/connector, rack mount: top, floor, isolation, 400A gnd bar,ALMBAR	(7)	6.00	EACH	0%	\$11,340	\$23,742	\$0	\$0	\$0
64185	DATS LINE CARD, INSTALL LINE ON ONE OF EIGHT PORTS INCLUDES SOFTWARE 'AUTOMATIC ROUTE SELECTION' ARS TABLE CHANGES	(7)	2.00	EACH	0%	\$400	\$1,780	\$0	\$0	\$0
64551	TELEPHONE TERMINATION WITH HANDSET, INCLUDES WIRING AND TELEPHONE TERMINATION FOR ONE CIRCUIT FROM TYPE 10 KEY SYS. (PHONES TO BE DAISIED CHAINED)	(7)	3.00	LOT	0%	\$150	\$2,670	\$0	\$0	\$0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
64631	LINE SHARING SWITCH, 4 PORTS, AC Transformer, ACCESSED W/O POLLING CONTROLLER, mounted on a panel segment.	(7)	1.00	EACH	0%	\$492	\$223	\$0	\$0	\$0
64679	Basic Telephone Protection Pkg: Positron Isolator 5 Card Shelf w/ Internal Power Supply 125VDC/VAC, Battery Backup Card 24VDC, Modules, and Termina Panel.	(7)	1.00	PKG	0%	\$3,000	\$3,449	\$0	\$0	\$0
66475	Digital or Analog Transfer Trip System (includes 2 units).	(7)	2.00	PKG	0%	\$44,000	\$70,608	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	268.00	\$	0%	\$0	\$268,000	\$0	\$0	\$0
99920	MISC SMALL ITEMS	(7)	50.00	LUMP	0%	\$5,000	\$0	\$0	\$0	\$0

Function Resources & Hours	Totals:	\$468,165	\$760,391	\$0	\$64,800	\$0
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Function Resources & Hours

 CONSINSP 400
 CONSMGMT 400

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Construction - BPA - Electrical Work Items</i>										
1510	FIELD - SUBSTATION OPERATOR: Providing District Integration Services, Consulting Services, Update Station and Standing instructions, and provide switching.	(11)	16.00	SFDY	0%	\$0	\$0	\$0	\$9,472	\$0
1520	FIELD - DISTRICT ENGINEER POWER SYSTEM CONTROL: Providing District Integration Services, Consulting Services, Update District Documents, T&E Services.	(11)	27.25	SFDY	0%	\$0	\$0	\$0	\$19,402	\$0
1525	PSC Craftsman - One staff day of work.	(11)	50.00	SFDY	0%	\$0	\$0	\$0	\$35,600	\$0
1528	PSC Branch - providing support services to design & field	(11)	13.00	SFDY	0%	\$0	\$0	\$0	\$7,696	\$0
1530	FIELD - DISTRICT ENGINEER SYSTEM PROTECTION CONTROL: Providing District Integration Services, Consulting Services, Update District Documents, T&E Services.	(11)	42.25	SFDY	0%	\$0	\$0	\$0	\$30,082	\$0
1535	SPC Craftsman - One staff day of work.	(11)	42.00	SFDY	0%	\$0	\$0	\$0	\$29,904	\$0
1538	SPC Branch - providing support services to design & field	(11)	17.00	SFDY	0%	\$0	\$0	\$0	\$9,520	\$0
2180	TEST AND ENERGIZATION A/B POWER SYSTEMS	(11)	150.00	SFDY	0%	\$0	\$0	\$0	\$91,200	\$0
2185	TEST AND ENERGIZATION A/B COMM. TESTING	(11)	150.00	SFDY	0%	\$0	\$0	\$0	\$85,200	\$0
64170	DATS license, one per site.	(11)	1.00	EACH	0%	\$0	\$0	\$12,000	\$0	\$0
99910	TRAVEL - WINDSHIELD TIME- 15% const. labor coded as Misc. \$	(11)	5.00	\$	0%	\$0	\$0	\$0	\$0	\$5,000

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>		
Function Resources & Hours							Totals:	\$0	\$0	\$12,000	\$318,076	\$5,000
	COMMTEST		1200									
	PCRAFT		400									
	PSCDE		218									
	PWRSYCTR		104									
	PWRSYS		1200									
	SCRAFT		336									
	SPCDE		338									
	SUBOP		128									
	SYSCONTR		136									

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: C3-1170-3-1

Facility Big Eddy Substation

Description Install equipment and controls per PRD

Estimator Davis, Mike
Requestor Ken Roberts
PRD # 285137
Est. Type Com
Estimate Status Final
Capital / Expense Capital
Contract / BPA Contract - Contract
Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$7,280	\$0	\$0	\$0	\$7,280
2 Scoping	\$0	\$0	\$6,200	\$0	\$0	\$0	\$6,200
6 Design	\$40,500	\$0	\$10,984	\$0	\$0	\$0	\$51,484
7 Construction - Contract	\$116,784	\$57,930	\$6,480	\$0	\$0	\$0	\$181,194
11 Construction - BPA - Electrical Work	\$0	\$0	\$17,456	\$0	\$5,000	\$0	\$22,456
Total	\$157,284	\$57,930	\$48,400	\$0	\$5,000	\$0	\$268,614

Estimate Range: \$214,900 to \$349,200

Approved Date 4/6/2018

Valid Through 4/6/2019

Big Eddy Substation

Comments

Install equipment and control per PRD. # 285137

C&C Planning Engr: Karl Knoll
Coordinating Engr: Carol Larvick
Proj Manager: Rasha Kroonen

Notes:

- 1) Based off of final approved PRD #285137 dated 02/08/11
- 2) Based off of CDD prepared by Ken Roberts 12/30/2016
- 3) This estimate figured contract design and construction.
- 4) Per new estimating process, zero contingency has been added to this estimate.

Rev. 1 - Added BPA design resources for review, and added design contract overhead and profit costs.

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	10.00	SFDY	0%	\$0	\$0	\$0	\$7,280	\$0
Function Resources & Hours						Totals:				
PROJMGMT 80						\$0	\$0	\$0	\$7,280	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	3.00	SFDY	0%	\$0	\$0	\$0	\$2,184	\$0
2595	RAS - SCOPING	(2)	5.00	SFDY	0%	\$0	\$0	\$0	\$2,960	\$0
2615	DATA SYSTEMS - DATA SYSTEMS SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$520	\$0
2625	TELECOMMUNICATIONS ENGINEERING - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$536	\$0
Function Resources & Hours						Totals:				
DATASYST 8						\$0	\$0	\$0	\$6,200	\$0
PROJMGMT 24										
RASDSN 40										
TCOMMENG 8										

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Design Items</i>										
2120	RAS DESIGN	(6)	23.00	\$	0%	\$0	\$23,000	\$0	\$0	\$0
2130	RAS DESIGN	(6)	15.00	SFDY	0%	\$0	\$0	\$0	\$8,880	\$0
2140	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	3.00	\$	0%	\$0	\$3,000	\$0	\$0	\$0
2150	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	2.50	SFDY	0%	\$0	\$0	\$0	\$1,300	\$0
2160	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	2.00	\$	0%	\$0	\$2,000	\$0	\$0	\$0
2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	1.50	SFDY	0%	\$0	\$0	\$0	\$804	\$0
2380	Contractor Construction Take-Off Estimate (= 3% of Task 6 total)	(6)	8.30	\$	0%	\$0	\$8,300	\$0	\$0	\$0
99912	DESIGN CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS: INCLUDES TRAVEL AND SERVICES DURING CONSTRUCTION	(6)	4.20	\$	0%	\$0	\$4,200	\$0	\$0	\$0

Totals:	\$0	\$40,500	\$0	\$10,984	\$0
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Function Resources & Hours

DATASYST	20
RASDSN	120
TCOMMENG	12

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Construction - Contract Items</i>										
2440	CONSTRUCTION MANAGEMENT	(7)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,240	\$0
29310	Remote Site: RAS Basic Digital Package. GE-UR N-50 relay: includes relay, rack, test & output isolation switch, terminal blocks and breakers.	(7)	1.00	LOT	0%	\$11,500	\$16,272	\$0	\$0	\$0
29311	Remote Site: RAS Basic Digital Package. GE-UR N-50 relay: includes relay mounted on panel, test & output isolation switch, terminal blocks and breakers. NO RACK.	(7)	1.00	LOT	0%	\$11,000	\$8,937	\$0	\$0	\$0
29330	Line Loss Logic (LLL), add to existing UR relay.	(7)	1.00	EACH	0%	\$3,000	\$3,393	\$0	\$0	\$0
30802	CONTROL CABLE, INDOOR, 600 VOLT, COPPER CONDUCTOR.	(7)	2,000.00	LNFT	0%	\$2,200	\$11,120	\$0	\$0	\$0
3270	CONSTRUCTION INSPECTION	(7)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,240	\$0
3270	CONSTRUCTION INSPECTION	(7)	5.00	SFDY	0%	\$0	\$4,050	\$0	\$0	\$0
55385	Digital Cross-Connect programming by PSC labor, no materials, NTE one staff day. (This item to be used when labor at a com. site is one day or less, labor charges for the minor site to be accounted at a major site, no WO to be created @ minor site.)	(7)	4.00	SFDY	0%	\$0	\$3,560	\$0	\$0	\$0
55450	PREMISYS IMACS, 8-PORT, 2-WIRE FXO	(7)	2.00	EACH	0%	\$2,310	\$1,780	\$0	\$0	\$0
55459	Premisys, IMACS, 4-port OHSU, C37.94, 830 NM ST Connectors, Firmware 1.0.2	(7)	2.00	CARD	0%	\$2,800	\$32	\$0	\$0	\$0
64053	Install/remove Voice Circuit wiring at the drop/insert location: includes tasks (1) wiring pair add/remove from racked equipment to IDF/MDF blocks or demarc point(s), OR (2) change x-connect hard wiring or digital software, OR both tasks 1&2.	(7)	6.00	PAIR	0%	\$120	\$1,335	\$0	\$0	\$0
66475	Digital or Analog Transfer Trip System (includes 2 units)	(7)	1.00	PKG	0%	\$22,000	\$35,304	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	31.00	\$	0%	\$0	\$31,000	\$0	\$0	\$0
99920	MISC SMALL ITEMS	(7)	30.00	LUMP	0%	\$3,000	\$0	\$0	\$0	\$0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc	
Function Resources & Hours						Totals:	\$57,930	\$116,784	\$0	\$6,480	\$0
	CONSINSP		40								
	CONSMGMT		40								

Construction - BPA - Electrical Work Items

1525	PSC Craftsman - One staff day of work.	(11)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,560	\$0	
1535	SPC Craftsman - One staff day of work.	(11)	3.00	SFDY	0%	\$0	\$0	\$0	\$2,136	\$0	
2180	TEST AND ENERGIZATION A/B POWER SYSTEMS	(11)	10.00	SFDY	0%	\$0	\$0	\$0	\$6,080	\$0	
2185	TEST AND ENERGIZATION A/B COMM. TESTING	(11)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,680	\$0	
99910	TRAVEL - WINDSHIELD TIME- 15% const. labor coded as Misc. \$	(11)	5.00	\$	0%	\$0	\$0	\$0	\$0	\$5,000	
Function Resources & Hours						Totals:	\$0	\$0	\$0	\$17,456	\$5,000
	COMMTST		80								
	PCRAFT		40								
	PWHSYS		80								
	SCRAFT		24								

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: C3-1170-4-1

Facility Dittmer Control Center
Description Install new (1) one SRU card.

Estimator Davis, Mike
Requestor Ken Roberts
PRD # 285137
Est. Type Com
Estimate Status Final
Capital / Expense Capital
Contract / BPA BPA - BPA
Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$464	\$0	\$0	\$0	\$464
2 Scoping	\$0	\$0	\$1,784	\$0	\$0	\$0	\$1,784
6 Design	\$0	\$0	\$1,072	\$0	\$0	\$0	\$1,072
11 Construction - BPA - Electrical Work	\$0	\$0	\$3,940	\$1,155	\$0	\$0	\$5,095
Total	\$0	\$0	\$7,260	\$1,155	\$0	\$0	\$8,415

Estimate Range: \$6,700 to \$10,900

Approved Date 4/6/2018

Valid Through 4/6/2019

Dittmer Control Center

Comments

Install new (1) one SRU card and make cross connections as needed.

C&C Planning Engr: Karl Knoll
Coordinating Engr: Carol Larvick
Proj Manager: Rasha Kroonen

Notes:

- 1) Based off of final approved PRD #285137 dated 02/08/11
- 2) Based off of CDD prepared by Ken Roberts 12/30/2016
- 4) Per new estimating process, zero contingency has been added to this estimate.

Rev. 1 - Recalculated to current rates.

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

3144	***(DO NOT USE)*** DITTMER CC PROJECT MANAGER	(1)	1.00	SFDY	0%	\$0	\$0	\$0	\$464	\$0	
Function Resources & Hours						Totals:	\$0	\$0	\$0	\$464	\$0
	DCCPM		8								

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$728	\$0	
2615	DATA SYSTEMS - DATA SYSTEMS SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$520	\$0	
2625	TELECOMMUNICATIONS ENGINEERING - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$536	\$0	
Function Resources & Hours						Totals:	\$0	\$0	\$0	\$1,784	\$0
	DATASYST		8								
	PROJMGMT		8								
	TCOMMENG		8								

Design Items

2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,072	\$0	
Function Resources & Hours						Totals:	\$0	\$0	\$0	\$1,072	\$0
	TCOMMENG		16								

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<i>Construction - BPA - Electrical Work Items</i>										
2185	TEST AND ENERGIZATION A/B COMM. TESTING	(11)	4.00	SFDY	0%	\$0	\$0	\$0	\$2,272	\$0
3140	DITTMER CC PSC CRAFTSMAN	(11)	1.00	SFDY	0%	\$0	\$0	\$0	\$600	\$0
55385	Digital Cross-Connect programming by PSC labor, no materials, NTE one staff day. (This item to be used when labor at a com. site is one day or less, labor charges for the minor site to be accounted at a major site, no WO to be created @ minor site.)	(11)	1.00	SFDY	0%	\$0	\$0	\$0	\$712	\$0
55458	PREMISYS, IMACS, 10-PORT, SRU, RS-232C, SYNC/ASYNCSUB-RATE DATA PART # 8220 LOW SPEED 300BPS, MED SPEED 38.4BPS.	(11)	1.00	EACH	0%	\$0	\$0	\$1,100	\$356	\$0
99920	MISC SMALL ITEMS	(11)	0.55	LUMP	0%	\$0	\$0	\$55	\$0	\$0

Totals:	\$0	\$0	\$1,155	\$3,940	\$0
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Function Resources & Hours

COMMTEST	32
DCCPCRFT	8
ELEC	8
PCRAFT	4

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: C3-1170-5-1

Facility Redmond Substation

Description Install equipment and controls per PRD

Estimator Davis, Mike
Requestor Ken Roberts
PRD # 285137
Est. Type Com
Estimate Status Final
Capital / Expense Capital
Contract / BPA Contract - Contract
Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$3,640	\$0	\$0	\$0	\$3,640
2 Scoping	\$0	\$0	\$4,744	\$0	\$0	\$0	\$4,744
6 Design	\$30,100	\$0	\$10,204	\$0	\$0	\$0	\$40,304
7 Construction - Contract	\$114,277	\$53,363	\$6,480	\$0	\$0	\$0	\$174,120
11 Construction - BPA - Electrical Work	\$0	\$0	\$17,456	\$0	\$3,000	\$0	\$20,456
Total	\$144,377	\$53,363	\$42,524	\$0	\$3,000	\$0	\$243,264

Estimate Range: \$194,600 to \$316,200

Approved Date 4/6/2018

Valid Through 4/6/2019

Redmond Substation

Comments

Install equipment and control per PRD. # 285137

C&C Planning Engr: Karl Knoll
Coordinating Engr: Carol Larvick
Proj Manager: Rasha Kroonen

Notes:

- 1) Based off of final approved PRD #285137 dated 02/08/11
- 2) Based off of CDD prepared by Ken Roberts 12/30/2016
- 3) This estimate figured contract design and contract construction.
- 4) Per new estimating process, zero contingency has been added to this estimate.

Rev. 1 - Added BPA design resources for review, and added design contract overhead and profit costs.

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,640	\$0
Function Resources & Hours						Totals:				
PROJMGMT 40						\$0	\$0	\$0	\$3,640	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$728	\$0
2595	RAS - SCOPING	(2)	5.00	SFDY	0%	\$0	\$0	\$0	\$2,960	\$0
2615	DATA SYSTEMS - DATA SYSTEMS SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$520	\$0
2625	TELECOMMUNICATIONS ENGINEERING - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$536	\$0
Function Resources & Hours						Totals:				
DATASYST 8						\$0	\$0	\$0	\$4,744	\$0
PROJMGMT 8										
RASDSN 40										
TCOMMENG 8										

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Design Items</i>										
2120	RAS DESIGN	(6)	22.00	\$	0%	\$0	\$22,000	\$0	\$0	\$0
2130	RAS DESIGN	(6)	15.00	SFDY	0%	\$0	\$0	\$0	\$8,880	\$0
2140	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	1.50	\$	0%	\$0	\$1,500	\$0	\$0	\$0
2150	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	1.00	SFDY	0%	\$0	\$0	\$0	\$520	\$0
2160	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	2.00	\$	0%	\$0	\$2,000	\$0	\$0	\$0
2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	1.50	SFDY	0%	\$0	\$0	\$0	\$804	\$0
2380	Contractor Construction Take-Off Estimate (= 3% of Task 6 total)	(6)	0.80	\$	0%	\$0	\$800	\$0	\$0	\$0
99912	DESIGN CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS: INCLUDES TRAVEL AND SERVICES DURING CONSTRUCTION	(6)	3.80	\$	0%	\$0	\$3,800	\$0	\$0	\$0

Totals:	\$0	\$30,100	\$0	\$10,204	\$0
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Function Resources & Hours

DATASYST	8
RASDSN	120
TCOMMENG	12

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<u>Construction - Contract Items</u>										
2440	CONSTRUCTION MANAGEMENT	(7)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,240	\$0
29310	Remote Site: RAS Basic Digital Package. GE-UR N-50 relay: includes relay, rack, test & output isolation switch, terminal blocks and breakers.	(7)	1.00	LOT	0%	\$11,500	\$16,272	\$0	\$0	\$0
29311	Remote Site: RAS Basic Digital Package. GE-UR N-50 relay: includes relay mounted on panel, test & output isolation switch, terminal blocks and breakers. NO RACK.	(7)	1.00	LOT	0%	\$11,000	\$8,937	\$0	\$0	\$0
29330	Line Loss Logic (LLL), add to existing UR relay.	(7)	1.00	EACH	0%	\$3,000	\$3,393	\$0	\$0	\$0
3270	CONSTRUCTION INSPECTION	(7)	5.00	SFDY	0%	\$0	\$4,050	\$0	\$0	\$0
3270	CONSTRUCTION INSPECTION	(7)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,240	\$0
55423	NEW DIGITAL CIRCUIT ON DIGITAL SYSTEM INCLUDES: TEST BERT, END TO END, STAFF REQUIRED AT CROSS-CONNECTS FOR TESTING OF CIRCUIT IS INCLUDED.	(7)	0.40	CIRC	0%	\$8	\$3,382	\$0	\$0	\$0
55450	PREMISYS IMACS, 8-PORT, 2-WIRE FXO	(7)	1.00	EACH	0%	\$1,155	\$890	\$0	\$0	\$0
55459	Premisys, IMACS, 4-port OHSU, C37.94, 830 NM ST Connectors, Firmware 1.0.2	(7)	3.00	CARD	0%	\$4,200	\$49	\$0	\$0	\$0
66475	Digital or Analog Transfer Trip System (includes 2 units).	(7)	1.00	PKG	0%	\$22,000	\$35,304	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	42.00	\$	0%	\$0	\$42,000	\$0	\$0	\$0
99920	MISC SMALL ITEMS	(7)	5.00	LUMP	0%	\$500	\$0	\$0	\$0	\$0

Function Resources & Hours

CONSINSP	40
CONSMGMT	40

Totals:	\$53,363	\$114,277	\$0	\$6,480	\$0
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Construction - BPA - Electrical Work Items

1525	PSC Craftsman - One staff day of work.	(11)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,560	\$0
1535	SPC Craftsman - One staff day of work.	(11)	3.00	SFDY	0%	\$0	\$0	\$0	\$2,136	\$0
2180	TEST AND ENERGIZATION A/B POWER SYSTEMS	(11)	10.00	SFDY	0%	\$0	\$0	\$0	\$6,080	\$0
2185	TEST AND ENERGIZATION A/B COMM. TESTING	(11)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,680	\$0
99910	TRAVEL - WINDSHIELD TIME- 15% const. labor coded as Misc. \$	(11)	3.00	\$	0%	\$0	\$0	\$0	\$0	\$3,000

Totals:	\$0	\$0	\$0	\$17,456	\$3,000
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Function Resources & Hours

COMMTEST	80
PCRAFT	40
PWRSYS	80
SCRAFT	24

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: C3-1170-6-1

Facility Munro Control Center

Description Install new (1) one SRU card.

Estimator Davis, Mike
Requestor Ken Roberts
PRD # 285137
Est. Type Com
Estimate Status Final
Capital / Expense Capital
Contract / BPA BPA - BPA
Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$928	\$0	\$0	\$0	\$928
2 Scoping	\$0	\$0	\$1,784	\$0	\$0	\$0	\$1,784
6 Design	\$0	\$0	\$1,072	\$0	\$0	\$0	\$1,072
10 Construction - Retirement Work	\$0	\$0	\$89	\$0	\$0	\$0	\$89
11 Construction - BPA - Electrical Work	\$0	\$0	\$3,940	\$1,155	\$0	\$0	\$5,095
Total	\$0	\$0	\$7,813	\$1,155	\$0	\$0	\$8,968

Estimate Range: \$7,200 to \$11,700

Approved Date 4/6/2018

Valid Through 4/6/2019

Munro Control Center

Comments

Install new (1) one SRU card and make cross connections as needed.

C&C Planning Engr: Karl Knoll
Coordinating Engr: Carol Larvick
Proj Manager: Rasha Kroonen

Notes:

- 1) Based off of final approved PRD #285137 dated 02/08/11
- 2) Based off of CDD prepared by Ken Roberts 12/30/2016
- 3) Per new estimating process, zero contingency has been added to this estimate.

Rev. 1 - Recalculated to current rates.

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

3146	***(DO NOT USE)*** MUNRO CC PROJECT MANAGER	(1)	2.00	SFDY	0%	\$0	\$0	\$0	\$928	\$0	
Function Resources & Hours						Totals:	\$0	\$0	\$0	\$928	\$0
	MCCPM		16								

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$728	\$0	
2615	DATA SYSTEMS - DATA SYSTEMS SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$520	\$0	
2625	TELECOMMUNICATIONS ENGINEERING - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$536	\$0	
Function Resources & Hours						Totals:	\$0	\$0	\$0	\$1,784	\$0
	DATASYST		8								
	PROJMGMT		8								
	TCOMMENG		8								

Design Items

2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,072	\$0	
Function Resources & Hours						Totals:	\$0	\$0	\$0	\$1,072	\$0
	TCOMMENG		16								

Construction - Retirement Work Items

							Cntr LAB %	Bpa Mat %	Bpa LAB %				
55458	PREMISYS, IMACS, 10-PORT, SRU, RS-232C, SYNC/ASYNCSUB-RATE DATA PART # 8220 LOW SPEED 300BPS, MED SPEED 38.4BPS bes# 992514 aup\$1089	(10)	1.00	EACH	0%	\$0	\$0	(0%)	\$0	(0%)	\$89	(25%)	\$0
Function Resources & Hours						Totals:	\$0	\$0	\$0	\$89	\$0		
	PCRAFT		1										

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
2185	TEST AND ENERGIZATION A/B COMM. TESTING	(11)	4.00	SFDY	0%	\$0	\$0	\$0	\$2,272	\$0
3140	DITTMER CC PSC CRAFTSMAN	(11)	1.00	SFDY	0%	\$0	\$0	\$0	\$600	\$0
55385	Digital Cross-Connect programming by PSC labor, no materials, NTE one staff day. (This item to be used when labor at a com. site is one day or less, labor charges for the minor site to be accounted at a major site, no WO to be created @ minor site.)	(11)	1.00	SFDY	0%	\$0	\$0	\$0	\$712	\$0
55458	PREMISYS, IMACS, 10-PORT, SRU, RS-232C, SYNC/ASYNCSUB-RATE DATA PART # 8220 LOW SPEED 300BPS, MED SPEED 38.4BPS.	(11)	1.00	EACH	0%	\$0	\$0	\$1,100	\$356	\$0
99920	MISC SMALL ITEMS	(11)	0.55	LUMP	0%	\$0	\$0	\$55	\$0	\$0

Totals:	\$0	\$0	\$1,155	\$3,940	\$0
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Function Resources & Hours

COMMTEST	32
DCCPCRFT	8
ELEC	8
PCRAFT	4

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: C3-1170-7-1

Facility Maupin Substation

Description Install equipment and controls per PRD

Estimator Davis, Mike
Requestor Ken Roberts
PRD # 285137
Est. Type Com
Estimate Status Final
Capital / Expense Capital
Contract / BPA Contract - Contract
Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$1,456	\$0	\$0	\$0	\$1,456
2 Scoping	\$0	\$0	\$2,376	\$0	\$0	\$0	\$2,376
6 Design	\$14,200	\$0	\$5,916	\$0	\$0	\$0	\$20,116
7 Construction - Contract	\$27,697	\$13,420	\$3,240	\$0	\$0	\$0	\$44,357
11 Construction - BPA - Electrical Work	\$0	\$0	\$5,488	\$0	\$800	\$0	\$6,288
Total	\$41,897	\$13,420	\$18,476	\$0	\$800	\$0	\$74,593

Estimate Range: \$59,700 to \$97,000

Approved Date 4/6/2018

Valid Through 4/6/2019

Maupin Substation

Comments

Install equipment and control per PRD. # 285137

C&C Planning Engr: Karl Knoll
Coordinating Engr: Carol Larvick
Proj Manager: Rasha Kroonen

Notes:

- 1) Based off of final approved PRD #285137 dated 02/08/11
- 2) Based off of CDD prepared by Ken Roberts 12/30/2016
- 3) Per new estimating process, zero contingency has been added to this estimate.

Rev. 1 - Updated to contract design and contract construction.

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,456	\$0
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Function Resources & Hours

Totals:	\$0	\$0	\$0	\$1,456	\$0
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PROJMGMT 16

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$728	\$0
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2595	RAS - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$592	\$0
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2615	DATA SYSTEMS - DATA SYSTEMS SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$520	\$0
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2625	TELECOMMUNICATIONS ENGINEERING - SCOPING	(2)	1.00	SFDY	0%	\$0	\$0	\$0	\$536	\$0
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Function Resources & Hours

Totals:	\$0	\$0	\$0	\$2,376	\$0
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DATASYST 8
 PROJMGMT 8
 RASDSN 8
 TCOMMENG 8

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<i>Design Items</i>										
2120	RAS DESIGN	(6)	3.00	\$	0%	\$0	\$3,000	\$0	\$0	\$0
2130	RAS DESIGN	(6)	2.50	SFDY	0%	\$0	\$0	\$0	\$1,480	\$0
2140	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	8.00	\$	0%	\$0	\$8,000	\$0	\$0	\$0
2150	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	7.50	SFDY	0%	\$0	\$0	\$0	\$3,900	\$0
2160	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	1.00	\$	0%	\$0	\$1,000	\$0	\$0	\$0
2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	1.00	SFDY	0%	\$0	\$0	\$0	\$536	\$0
2380	Contractor Construction Take-Off Estimate (= 3% of Task 6 total)	(6)	0.40	\$	0%	\$0	\$400	\$0	\$0	\$0
99912	DESIGN CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS: INCLUDES TRAVEL AND SERVICES DURING CONSTRUCTION	(6)	1.80	\$	0%	\$0	\$1,800	\$0	\$0	\$0

Totals:	\$0	\$14,200	\$0	\$5,916	\$0
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Function Resources & Hours

DATASYST	60
RASDSN	20
TCOMMENG	8

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Construction - Contract Items</i>										
2440	CONSTRUCTION MANAGEMENT	(7)	2.50	SFDY	0%	\$0	\$0	\$0	\$1,620	\$0
3270	CONSTRUCTION INSPECTION	(7)	2.50	SFDY	0%	\$0	\$0	\$0	\$1,620	\$0
3280	Contract Construction Inspection	(7)	1.60	\$	0%	\$0	\$1,600	\$0	\$0	\$0
55459	Premisys, IMACS, 4-port OHSU, C37.94, 830 NM ST Connectors, Firmware 1.0.2	(7)	1.00	CARD	0%	\$1,400	\$223	\$0	\$0	\$0
64053	Install/remove Voice Circuit wiring at the drop/insert location: includes tasks (1) wiring pair add/remove from racked equipment to IDF/MDF blocks or demarc point(s), OR (2) change x-connect hard wiring or digital software, OR both tasks 1&2.	(7)	1.00	PAIR	0%	\$20	\$223	\$0	\$0	\$0
66475	Digital or Analog Transfer Trip System (includes 2 units).	(7)	0.50	PKG	0%	\$11,000	\$17,652	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	8.00	\$	0%	\$0	\$8,000	\$0	\$0	\$0
99920	MISC SMALL ITEMS	(7)	10.00	LUMP	0%	\$1,000	\$0	\$0	\$0	\$0

Totals:	\$13,420	\$27,697	\$0	\$3,240	\$0
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Function Resources & Hours	
CONSINSP	20
CONSMGMT	20

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Construction - BPA - Electrical Work Items</i>										
1525	PSC Craftsman - One staff day of work.	(11)	3.00	SFDY	0%	\$0	\$0	\$0	\$2,136	\$0
1535	SPC Craftsman - One staff day of work.	(11)	3.00	SFDY	0%	\$0	\$0	\$0	\$2,136	\$0
2180	TEST AND ENERGIZATION A/B POWER SYSTEMS	(11)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,216	\$0
99910	TRAVEL - WINDSHIELD TIME- 15% const. labor coded as Misc. \$	(11)	0.80	\$	0%	\$0	\$0	\$0	\$0	\$800
Function Resources & Hours						Totals:				
						\$0	\$0	\$0	\$5,488	\$800
<i>PCRAFT</i>	<i>24</i>									
<i>PWRSYS</i>	<i>16</i>									
<i>SCRAFT</i>	<i>24</i>									

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: L3-1170-1-1

Facility Big Eddy-Redmond No 1

Description G0345 a new 230 kV substation(Boyd Ridge) line loop-in_Contractor Construction

Estimator McClemens, Laura
Requestor Ken Roberts
PRD # 285137
Est. Type Line
Estimate Status Final
Capital / Expense Capital
Contract / BPA Contract - Contract
Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$18,200	\$0	\$0	\$0	\$18,200
2 Scoping	\$0	\$0	\$21,144	\$0	\$0	\$0	\$21,144
3 Environmental	\$15,000	\$0	\$7,872	\$0	\$720	\$0	\$23,592
4 Survey/Mapping/Photo&RS/GIS	\$60,000	\$0	\$39,336	\$0	\$600	\$0	\$99,936
6 Design	\$50,000	\$0	\$23,088	\$0	\$0	\$0	\$73,088
7 Construction - Contract	\$789,408	\$598,545	\$33,696	\$0	\$0	\$0	\$1,421,648
Total	\$914,408	\$598,545	\$143,336	\$0	\$1,320	\$0	\$1,657,608

Estimate Range: \$1,326,000 to \$2,155,000

Approved Date 4/11/2018

Valid Through 4/11/2019

Big Eddy-Redmond No 1

Comments

This project is for the interconnection of G0345, a 201 MW wind project, located in Wasco County, Oregon.
The requested point of interconnection (POI) is on BPA's Big Eddy – Redmond No 1 230 kV line via a new 230 kV substation near tower 11/2.
This estimate request pertains to construction associated with the new 230 kV substation AND the line loop-in portion.
Structure 11/2 will be transition to a new vertical phase double deadend tower.
Costs of the loop should be split 50/50 Big Eddy-Boyd Ridge/Boyd Ridge-Redmond.

STRUCTURES: SC LATTICE STEEL
CONDUCTOR: PHEASANT
VOLTAGE: 230-KV
RIGHT-OF-WAY: EXISTING AND NEW

NOTES:
115 SERIES TOWERS ARE USED.
ASSUME THAT THE EXISTING LINES ARE PHEASANT.
ENVIRONMENTAL PLACEHOLDERS INCLUDED.
ASSUME CONTRACTOR CONSTRUCTION AND DESIGN.
FOR FIBER COSTS REFERENCE ESTIMATE O3-1170-1.

REV 1, ADDED 1 MILE OF CONDUCTOR PER RE-SCOPE.

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	25.00	SFDY	0%	\$0	\$0	\$0	\$18,200	\$0
Function Resources & Hours						Totals:				
PROJMGMT 200						\$0	\$0	\$0	\$18,200	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	13.00	SFDY	0%	\$0	\$0	\$0	\$9,464	\$0
2525	ENVIRONMENT - SCOPING	(2)	4.00	SFDY	0%	\$0	\$0	\$0	\$2,080	\$0
2535	SURVEY/MAPPING - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$4,560	\$0
2635	PROJECT ENGINEERING - SCOPING	(2)	9.00	SFDY	0%	\$0	\$0	\$0	\$5,040	\$0
Function Resources & Hours						Totals:				
ENVI 32						\$0	\$0	\$0	\$21,144	\$0
PROJMGMT 104										
SURVEY 80										
TRANSENG 72										

Environmental Items

1025	ENVIRONMENTAL IMPLEMENTATION	(3)	15.00	\$	0%	\$0	\$15,000	\$0	\$0	\$0
1026	ENVIRONMENTAL IMPLEMENTATION	(3)	12.00	SFDY	0%	\$0	\$0	\$0	\$7,872	\$0
1027	ENVIRONMENTAL IMPLEMENTATION PER DIEM	(3)	6.00	SFDY	0%	\$0	\$0	\$0	\$0	\$720
Function Resources & Hours						Totals:				
ENVIRIMP 96						\$0	\$15,000	\$0	\$7,872	\$720

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Survey/Mapping/Photo&RS/GIS Items</i>										
3240	GEOSPATIAL SERVICES	(4)	40.00	\$	0%	\$0	\$40,000	\$0	\$0	\$0
3250	MAPPING	(4)	50.00	SFDY	0%	\$0	\$0	\$0	\$22,800	\$0
3251	MAPPING	(4)	20.00	\$	0%	\$0	\$20,000	\$0	\$0	\$0
3253	PHOTOGRAMMETRY AND REMOTE SENSING	(4)	7.00	SFDY	0%	\$0	\$0	\$0	\$2,856	\$0
3257	SURVEY	(4)	30.00	SFDY	0%	\$0	\$0	\$0	\$13,680	\$0
3259	GEOMATICS PER DIEM	(4)	5.00	SFDY	0%	\$0	\$0	\$0	\$0	\$600

Totals:	\$0	\$60,000	\$0	\$39,336	\$600
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Function Resources & Hours	
MAPPING	400
PHOTOGRA	56
SURVEY	240

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<i>Design Items</i>										
2040	SUBSTATION DESIGN	(6)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,024	\$0
2080	TRANSMISSION LINE DESIGN - TRANSMISSION ELECTRICAL ENGINEERING	(6)	3.00	\$	0%	\$0	\$3,000	\$0	\$0	\$0
2090	TRANSMISSION LINE DESIGN - TRANSMISSION ELECTRICAL ENGINEERING	(6)	3.00	SFDY	0%	\$0	\$0	\$0	\$1,584	\$0
2094	TRANSMISSION LINE DESIGN - CONDUCTOR DESIGN	(6)	10.00	\$	0%	\$0	\$10,000	\$0	\$0	\$0
2096	TRANSMISSION LINE DESIGN - CONDUCTOR DESIGN	(6)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,280	\$0
2310	PROJECT ENGINEERING	(6)	14.00	\$	0%	\$0	\$14,000	\$0	\$0	\$0
2320	PROJECT ENGINEERING	(6)	14.00	SFDY	0%	\$0	\$0	\$0	\$7,840	\$0
2400	CIVIL DESIGN	(6)	5.00	\$	0%	\$0	\$5,000	\$0	\$0	\$0
2410	CIVIL DESIGN	(6)	5.00	SFDY	0%	\$0	\$0	\$0	\$2,400	\$0
2420	STRUCTURAL DESIGN	(6)	10.00	\$	0%	\$0	\$10,000	\$0	\$0	\$0
2430	STRUCTURAL DESIGN	(6)	10.00	SFDY	0%	\$0	\$0	\$0	\$4,960	\$0
99912	DESIGN CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS: INCLUDES TRAVEL AND SERVICES DURING CONSTRUCTION	(6)	8.00	\$	0%	\$0	\$8,000	\$0	\$0	\$0

Function Resources & Hours

CIVILENG	40
LINEDSN	80
STRENG	80
SUBDSN	16
TRANSENG	112
TRANSMEE	24

Totals:	\$0	\$50,000	\$0	\$23,088	\$0
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<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Construction - Contract Items</i>										
2439	CONSTRUCTION MANAGEMENT	(7)	500.00	\$	0%	\$0	\$50,000	\$0	\$0	\$0
2440	CONSTRUCTION MANAGEMENT	(7)	52.00	SFDY	0%	\$0	\$0	\$0	\$33,696	\$0
3270	CONSTRUCTION INSPECTION	(7)	145.00	SFDY	0%	\$0	\$117,450	\$0	\$0	\$0
74303	FOUNDATION, CONCRETE 1-50	(7)	15.00	CUYD	0%	\$3,300	\$28,369	\$0	\$0	\$0
74850	TOWER STEEL, SINGLE CIRCUIT SUSPENSION TOWERS - QUANTITY OF 1 TO 4 TOWERS AT \$2.0885/LB, PRICE INCLUDES DELIVERY AND DULLING	(7)	75.00	TON	0%	\$313,275	\$0	\$0	\$0	\$0
74918	TOWER STEEL ERECTION	(7)	75.00	TON	0%	\$0	\$285,356	\$0	\$0	\$0
79136	SAFETY WATCHER (Electrician)	(7)	50.00	SFDY	0%	\$0	\$50,000	\$0	\$0	\$0
80285	PHEASANT, SINGLE CIRCUIT	(7)	3.00	MILE	0%	\$108,936	\$0	\$0	\$0	\$0
86270	CONDUCTOR HARDWARE, SC SGL SUSP 115-230KV, PHEASANT, BITTERN	(7)	9.00	EACH	0%	\$4,688	\$0	\$0	\$0	\$0
86280	CONDUCTOR HARDWARE, SC DEAD END 115-230KV, PHEASANT, BITTERN	(7)	9.00	EACH	0%	\$16,387	\$0	\$0	\$0	\$0
88020	INSULATOR, 25 KIP	(7)	536.00	EACH	0%	\$28,869	\$0	\$0	\$0	\$0
88600	VIBRATION DAMPER, PHEASANT, BITTERN	(7)	110.00	EACH	0%	\$4,937	\$0	\$0	\$0	\$0
92403	OHGW, CONTINUOUS W/ COUNTERPOISE 1-1/2" STEEL GW	(7)	3.00	MILE	0%	\$10,438	\$20,526	\$0	\$0	\$0
92420	OHGW, HARDWARE, SUSPENSION, 1/2" STEEL	(7)	3.00	\$	0%	\$228	\$0	\$0	\$0	\$0
92425	OHGW, HARDWARE, DEADEND, 1/2" STEEL	(7)	3.00	\$	0%	\$495	\$0	\$0	\$0	\$0
93570	STRUCTURE REMARKING(COMPLETE) STEEL STR'S ONLY. SER. NO. , STR.NO.,AERIAL MARKER	(7)	100.00	EACH	0%	\$2,020	\$11,125	\$0	\$0	\$0
93580	STRUCTURE REMARKING(NAME & NO) STEEL STR'S ONLY.	(7)	572.00	EACH	0%	\$6,521	\$36,272	\$0	\$0	\$0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
93630	CRANE TIME, WORKING 90 TON	(7)	90.00	HRS	0%	\$0	\$36,000	\$0	\$0	\$0
93650	CRANE TIME, MOVE IN, SET UP, AND MOVE OUT	(7)	1.00	LUMP	0%	\$0	\$8,125	\$0	\$0	\$0
93680	MOBILIZATION/DEMOBILIZATION	(7)	4.00	\$	0%	\$0	\$8,900	\$0	\$0	\$0
99911	CONTRACT MATERIAL COST INCREASE (10%)	(7)	98.45	LUMP	0%	\$98,452	\$0	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	137.29	\$	0%	\$0	\$137,285	\$0	\$0	\$0

Totals:	\$598,545	\$789,408	\$0	\$33,696	\$0
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Function Resources & Hours

 CONSMGMT 416

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: L3-1170-2-1

Facility Big Eddy-Redmond No 1 at Boyd Ridge

Description TERMINATE THE LINE ON THE SUBSTATION DEADEND TOWER

Estimator McClemens, Laura
Requestor Ken Roberts
PRD # 285137
Est. Type Line
Estimate Status Final
Capital / Expense Capital
Contract / BPA Contract - Contract
Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$1,456	\$0	\$0	\$0	\$1,456
4 Survey/Mapping/Photo&RS/GIS	\$3,000	\$0	\$1,368	\$0	\$0	\$0	\$4,368
6 Design	\$3,750	\$0	\$2,800	\$0	\$0	\$0	\$6,550
7 Construction - Contract	\$71,271	\$700	\$0	\$0	\$0	\$0	\$71,971
11 Construction - BPA - Electrical Work	\$0	\$0	\$1,776	\$0	\$0	\$0	\$1,776
Total	\$78,021	\$700	\$7,400	\$0	\$0	\$0	\$86,121

Estimate Range: \$69,000 to \$112,000

Approved Date 4/10/2018

Valid Through 4/10/2019

Big Eddy-Redmond No 1 at Boyd Ridge

Comments

This project is for the interconnection of G0345, a 201 MW wind project, located in Wasco County, Oregon.
The requested point of interconnection (POI) is on BPA's Big Eddy – Redmond No 1 230 kV line via a new 230 kV substation near tower 11/2.
This estimate request pertains to connecting of the last span into the substation associated with the POI line.

TERMINATE THE LINE ON THE SUBSTATION DEADEND TOWER

Rev 1, Recalculated to to current costs.

STRUCTURES: SC LATTICE STEEL
CONDUCTOR: PHEASANT
VOLTAGE: 230-KV

NOTES:

ASSUMES LAND OR ENVIRONMENTAL COSTS IS ASSOCIATED WITH NEW SUBSTATION ESTIMATE.
REQUESTOR WILL DESIGN AND CONSTRUCT THE TRANSMISSION LINE FROM THE COLLECTOR STATION TO LAST SPAN AT THE NEW SUBSTATION.
NO CONTINGENCY INCLUDED IN THIS ESTIMATE.
Conductor and OHGW is included
For fiber costs reference estimate O3-1170-1-0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,456	\$0
Function Resources & Hours						Totals:				
PROJMGMT 16						\$0	\$0	\$0	\$1,456	\$0

Survey/Mapping/Photo&RS/GIS Items

3240	GEOSPATIAL SERVICES	(4)	1.00	\$	0%	\$0	\$1,000	\$0	\$0	\$0
3250	MAPPING	(4)	3.00	SFDY	0%	\$0	\$0	\$0	\$1,368	\$0
3251	MAPPING	(4)	2.00	\$	0%	\$0	\$2,000	\$0	\$0	\$0
Function Resources & Hours						Totals:				
MAPPING 24						\$0	\$3,000	\$0	\$1,368	\$0

Design Items

2310	PROJECT ENGINEERING	(6)	3.00	\$	0%	\$0	\$3,000	\$0	\$0	\$0
2320	PROJECT ENGINEERING	(6)	5.00	SFDY	0%	\$0	\$0	\$0	\$2,800	\$0
99912	DESIGN CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS: INCLUDES TRAVEL AND SERVICES DURING CONSTRUCTION	(6)	0.75	\$	0%	\$0	\$750	\$0	\$0	\$0
Function Resources & Hours						Totals:				
TRANSENG 40						\$0	\$3,750	\$0	\$2,800	\$0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<i>Construction - Contract Items</i>										
55228	DEADEND ASSEMBLY, SUBSTATION, INSULATED, SINGLE, STEEL STR., (TYPE O-DN)	(7)	3.00	EACH	0%	\$630	\$1,856	\$0	\$0	\$0
93670	CLEANUP	(7)	12.00	HRS	0%	\$0	\$1,335	\$0	\$0	\$0
95120	6-MAN CREW, CONDUCTOR STRINGING, MISCELLANEOUS, INCLUDES PER DIEM & EQUIPMENT	(7)	5.00	CRDY	0%	\$0	\$64,080	\$0	\$0	\$0
99911	CONTRACT MATERIAL COST INCREASE (10%)	(7)	0.07	LUMP	0%	\$70	\$0	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	4.00	\$	0%	\$0	\$4,000	\$0	\$0	\$0
Totals:						\$700	\$71,271	\$0	\$0	\$0

Construction - BPA - Electrical Work Items

1510	FIELD - SUBSTATION OPERATOR: Providing District Integration Services, Consulting Services, Update Station and Standing instructions, and provide switching.	(11)	3.00	SFDY	0%	\$0	\$0	\$0	\$1,776	\$0
Totals:						\$0	\$0	\$0	\$1,776	\$0

Function Resources & Hours

SUBOP 24

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: 03-1170-1-1

Facility BOYD RIDGE SUBSTATION

Description INSTALL 72 -FIBER CABLE

Estimator Gutierrez, Arnold
Requestor KEN ROBERTS
PRD # 285137
Est. Type Fiber Optics
Estimate Status Final
Capital / Expense Capital
Contract / BPA Contract - Contract
Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$7,280	\$0	\$0	\$0	\$7,280
3 Environmental	\$7,000	\$240	\$5,348	\$180	\$0	\$0	\$12,768
4 Survey/Mapping/Photo&RS/GIS	\$0	\$600	\$6,840	\$0	\$0	\$0	\$7,440
6 Design	\$0	\$0	\$16,760	\$0	\$0	\$0	\$16,760
11 Construction - BPA - Electrical Work	\$0	\$0	\$32,855	\$7,474	\$7,000	\$0	\$47,329
Total	\$7,000	\$840	\$69,083	\$7,654	\$7,000	\$0	\$91,577

Estimate Range: \$73,000 to \$119,000

Approved Date 4/6/2018

Valid Through 4/6/2019

BOYD RIDGE SUBSTATION

Comments

INSTALL 72 FIBER CABLE FROM THE BPA WV'S TO THE CONTROL HOUSE AND ALSO ADD A 24 POSIITION FIBER PANEL IN THE CONTROL HOUSE.
THIS WORK IS FOR THE FIBER WITHIN THE SUBSTATION YARD.

REVISION 1 UPDATES ESTIMATE PER INPUT FROM KEN ROBERTS.

PROJECT MANAGER : RASHA KROONEN

PROJECT ENGINEER : KEN ROBERTS

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Design Items

2040	SUBSTATION DESIGN	(6)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,120	\$0
2075	TRANSMISSION LINE MAINTENANCE SUPPORT (TELM)	(6)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,360	\$0
2170	TELECOMMUNICATIONS ENGINEERING - TELECOMMUNICATIONS DESIGN	(6)	5.00	SFDY	0%	\$0	\$0	\$0	\$2,680	\$0
2320	PROJECT ENGINEERING	(6)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,600	\$0

Totals:	\$0	\$0	\$0	\$16,760	\$0
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Function Resources & Hours

SUBDSN	80
TCOMMENG	40
TLMSUPP	40
TRANSENG	80

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Construction - BPA - Electrical Work Items</i>										
1510	FIELD - SUBSTATION OPERATOR: Providing District Integration Services, Consulting Services, Update Station and Standing instructions, and provide switching.	(11)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,184	\$0
1520	FIELD - DISTRICT ENGINEER POWER SYSTEM CONTROL: Providing District Integration Services, Consulting Services, Update District Documents, T&E Services.	(11)	6.00	SFDY	0%	\$0	\$0	\$0	\$4,272	\$0
2185	TEST AND ENERGIZATION A/B COMM. TESTING	(11)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,680	\$0
55054	ADSS, 72 FIBER CABLE, BS=9000# (SS), SINGLE MODE, NON-DISPERSION SHIFTED (N-DS) TRACKING RESISTANT	(11)	0.12	MILE	0%	\$0	\$0	\$1,771	\$0	\$0
55143	LABOR TO INSTALL FIBER OPTIC CABLE (ALL INCLUSIVE).	(11)	0.12	MILE	0%	\$0	\$0	\$1,200	\$1,978	\$0
55169	BURIED FIBER OPTIC PROTECTION: 2" inner duct smooth wall, FIBER OPTIC WARNING TAPE.	(11)	6.00	LNFT	0%	\$0	\$0	\$2	\$10	\$0
55258	Fiber optic route marking: post, survey, yellow with sign, safety, "Buried Fiber Optic Cable below "	(11)	4.00	EACH	0%	\$0	\$0	\$39	\$89	\$0
55402	DIGITAL RACK, 24" FOR FIBER OPTIC PATCH PANEL TERMINATION.	(11)	1.00	EACH	0%	\$0	\$0	\$500	\$712	\$0
55403	FIBER OPTIC PATCH PANEL, WITH COVER, PIGTAILS, AND ACCESSORIES	(11)	2.00	EACH	0%	\$0	\$0	\$2,000	\$4,272	\$0
62905	INSTALLATION LABOR FOR inner duct NON-METALLIC corrugated flexible raceway 1.25 T orange with 1/4inch rope	(11)	600.00	LNFT	0%	\$0	\$0	\$222	\$3,524	\$0
62951	FIBER OPTIC PATCH CONNECTORS TYPE ST/ST OR ST/FC	(11)	4.00	EACH	0%	\$0	\$0	\$140	\$98	\$0
62960	FIBER OPTIC SPLICE CASE, FOR MANHOLE SPLICE APPLICATIONS, EQUIPPED WITH FUSION SPLICE ORGANIZER FOR SPLICING UP TO 12 FIBERS.	(11)	2.00	EACH	0%	\$0	\$0	\$1,000	\$7,476	\$0
79136	SAFETY WATCHER (Electrician)	(11)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,560	\$0
99910	TRAVEL - WINDSHIELD TIME- 15% const. labor coded as Misc. \$	(11)	7.00	\$	0%	\$0	\$0	\$0	\$0	\$7,000
99920	MISC SMALL ITEMS	(11)	6.00	LUMP	0%	\$0	\$0	\$600	\$0	\$0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>		
Function Resources & Hours							Totals:	\$0	\$0	\$7,474	\$32,855	\$7,000
	COMMTEST		80									
	ELEC		149.808									
	LINEMAN		70.224									
	PCRAFT		24									
	PSCDE		48									
	SUBOP		16									

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: S3-1170-1-1

Facility BOYD RIDGE SUBSTATION G0345

Description A NEW 230KV SUBSTATION, WITH 4 230KV PCBS AND 8 DISCONNECTS

Estimator Gutierrez, Arnold
Requestor KEN ROBERTS TECP
PRD # 285137
Est. Type Subst
Estimate Status Final
Capital / Expense Capital
Contract / BPA Contract - Contract
Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$72,800	\$0	\$0	\$0	\$72,800
2 Scoping	\$0	\$0	\$42,000	\$0	\$0	\$0	\$42,000
3 Environmental	\$21,000	\$0	\$14,168	\$960	\$480	\$0	\$36,608
4 Survey/Mapping/Photo&RS/GIS	\$50,870	\$0	\$9,084	\$4,020	\$120	\$0	\$64,094
5 Land	\$0	\$0	\$440	\$0	\$0	\$0	\$440
6 Design	\$668,012	\$0	\$574,740	\$0	\$0	\$0	\$1,242,752
7 Construction - Contract	\$8,038,121	\$3,317,741	\$0	\$0	\$0	\$0	\$11,355,862
11 Construction - BPA - Electrical Work	\$0	\$0	\$174,984	\$53,700	\$0	\$0	\$228,684
Total	\$8,778,003	\$3,317,741	\$888,216	\$58,680	\$600	\$0	\$13,043,240

Estimate Range: \$10,435,000 to \$16,956,000

Approved Date 4/6/2018

Valid Through 4/6/2019

BOYD RIDGE SUBSTATION G0345

Comments

This project is for the interconnection of G0345, a 201 MW wind project, located in Wasco County, Oregon. The requested point of interconnection (POI) is on BPA's Big Eddy – REDMOND 230 kV line via a new 230 kV substation near tower 11/1.

1. Build new 230 kV substation near tower 11/1 to loop in the Big Eddy – REDMOND 230 kV line. The 230 kV substation will be laid out as a ring bus substation that can be expanded to a breaker and a half configuration.
2. Install three new 230 kV breakers rated 2000 A, 40 kAIC and 2000 A disconnect switches at the new 230 kV substation.
3. Install relay protection as required including transfer trip equipment at the new 230 kV substation and dead line check relaying.
4. Install redundant line loss logic at new 230 kV substation and Redmond substation for local RAS schemes.

REBISION 1 UPDATES ESTIMATE PER INPUT FROM KEN ROBERTS.

Assumpions:

- A. New Substation - Control house & yard will be designed to accommodate the 230Kv yard (expanable to breaker and a half)
 - B. CONTRACT DESIGN AND CONTRACT CONSTRUCTION IS ASSUMED IN THIS ESTIMATE.
 - C. GROUNDING GRID, BASED ON 30 FOOT GRIDS.
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	100.00	SFDY	0%	\$0	\$0	\$0	\$72,800	\$0
Function Resources & Hours						Totals:				
PROJMGMT		800				\$0	\$0	\$0	\$72,800	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$7,280	\$0
2525	ENVIRONMENT - SCOPING	(2)	14.00	SFDY	0%	\$0	\$0	\$0	\$7,280	\$0
2535	SURVEY/MAPPING - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$4,560	\$0
2635	PROJECT ENGINEERING - SCOPING	(2)	22.00	SFDY	0%	\$0	\$0	\$0	\$12,320	\$0
3010	CUSTOMER SERVICE ENGINEERING	(2)	20.00	SFDY	0%	\$0	\$0	\$0	\$10,560	\$0
Function Resources & Hours						Totals:				
CUSTENG		160								
ENVI		112								
PROJMGMT		80								
SURVEY		80								
TRANSENG		176								

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Environmental Items

100031	(NR)POLLUTION PREV & TECH SERVICE (WP)		68.00		0%	\$0	\$0	\$0	\$5,032	\$0
1005	ENVIRONMENT ANALYSIS	(3)	20.00	\$	0%	\$0	\$20,000	\$0	\$0	\$0
1006	ENVIRONMENT ANALYSIS	(3)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,200	\$0
1007	ENVIRONMENT ANALYSIS PER DIEM	(3)	8.00	SFDY	0%	\$0	\$0	\$960	\$0	\$0
1025	ENVIRONMENTAL IMPLEMENTATION	(3)	1.00	\$	0%	\$0	\$1,000	\$0	\$0	\$0
1026	ENVIRONMENTAL IMPLEMENTATION	(3)	6.00	SFDY	0%	\$0	\$0	\$0	\$3,936	\$0
1027	ENVIRONMENTAL IMPLEMENTATION PER DIEM	(3)	4.00	SFDY	0%	\$0	\$0	\$0	\$0	\$480

Function Resources & Hours

ENVI	80
ENVIRIMP	48

Totals:	\$0	\$21,000	\$960	\$14,168	\$480
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<u>Survey/Mapping/Photo&RS/GIS Items</u>										
3241	GEOSPATIAL SERVICES - CUSTOMER SUPPORT	(4)	8.00	SFDY	0%	\$0	\$0	\$0	\$3,264	\$0
3250	MAPPING	(4)	6.50	SFDY	0%	\$0	\$0	\$0	\$2,964	\$0
3251	MAPPING	(4)	5.50	\$	0%	\$0	\$5,500	\$0	\$0	\$0
3252	SURVEY AND MAPPING PER DIEM	(4)	21.00	SFDY	0%	\$0	\$0	\$2,520	\$0	\$0
3255	GIS	(4)	7.00	SFDY	0%	\$0	\$0	\$0	\$2,856	\$0
3257	SURVEY	(4)	26.50	SFDY	0%	\$0	\$15,370	\$0	\$0	\$0
3258	SURVEY	(4)	30.00	\$	0%	\$0	\$30,000	\$0	\$0	\$0
3259	GEOMATICS PER DIEM	(4)	1.00	SFDY	0%	\$0	\$0	\$0	\$0	\$120
3265	Misc. Cost (Consumable)	(4)	1.50	\$	0%	\$0	\$0	\$1,500	\$0	\$0

Function Resources & Hours	Totals:	\$0	\$50,870	\$4,020	\$9,084	\$120
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GIS	120
MAPPING	52

Land Items

3230	REAL PROPERTY FIELD SERVICES	(5)	1.00	SFDY	0%	\$0	\$0	\$0	\$440	\$0
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Function Resources & Hours	Totals:	\$0	\$0	\$0	\$440	\$0
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REALFS	8
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<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Design Items</i>										
2030	SUBSTATION DESIGN	(6)	120.00	\$	0%	\$0	\$120,000	\$0	\$0	\$0
2040	SUBSTATION DESIGN	(6)	40.00	SFDY	0%	\$0	\$0	\$0	\$20,480	\$0
2100	PROTECTION ENGINEERING	(6)	170.00	\$	0%	\$0	\$170,000	\$0	\$0	\$0
2110	PROTECTION ENGINEERING	(6)	50.00	SFDY	0%	\$0	\$0	\$0	\$24,000	\$0
2140	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	90.00	\$	0%	\$0	\$90,000	\$0	\$0	\$0
2150	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	30.00	SFDY	0%	\$0	\$0	\$0	\$15,600	\$0
2370	FACILITIES ENGINEERING	(6)	60.00	SFDY	0%	\$0	\$0	\$0	\$30,720	\$0
2380	Contractor Construction Take-Off Estimate (- 3% of Task 6 total)	(6)	140.00	\$	0%	\$0	\$140,000	\$0	\$0	\$0
2385	Constructability Review (BPA) (= 10 % of Task 6 total)	(6)	651.00	SFDY	0%	\$0	\$0	\$0	\$468,720	\$0
2400	CIVIL DESIGN	(6)	33.60	\$	0%	\$0	\$33,600	\$0	\$0	\$0
2410	CIVIL DESIGN	(6)	17.50	SFDY	0%	\$0	\$0	\$0	\$8,400	\$0
2420	STRUCTURAL DESIGN	(6)	27.28	\$	0%	\$0	\$27,280	\$0	\$0	\$0
2430	STRUCTURAL DESIGN	(6)	13.75	SFDY	0%	\$0	\$0	\$0	\$6,820	\$0
99912	DESIGN CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS: INCLUDES TRAVEL AND SERVICES DURING CONSTRUCTION	(6)	87.13	\$	0%	\$0	\$87,132	\$0	\$0	\$0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>		
Function Resources & Hours							Totals:	\$0	\$668,012	\$0	\$574,740	\$0
	CIVILENG		140									
	DATASYST		240									
	ENG		5208									
	FACILENG		480									
	PROTRLY		400									
	STRENG		110									
	SUBDSN		320									

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Construction - Contract Items</i>										
13260	POWER CIRCUIT BREAKER, 230 KV, 2000 AMP., 40 KA, 3 CYCLE. INCLUDES SF6 GAS	(7)	3.00	EACH	0%	\$417,000	\$136,838	\$0	\$0	\$0
17255	DISCONNECT SWITCH, 230 KV, 2000AMP W/INSULATORS, FACTORY ASSEMBLED, GROUP OPERATED.	(7)	4.00	EACH	0%	\$58,000	\$31,595	\$0	\$0	\$0
17305	DISCONNECT SWITCH, 230 KV, 2000AMP WITH GROUND BLADES AND INSULATORS, FACTORY ASSEMBLED, GROUP OPERATED.	(7)	4.00	EACH	0%	\$57,600	\$40,050	\$0	\$0	\$0
22250	SURGE ARRESTER, 230 KV	(7)	9.00	EACH	0%	\$31,500	\$10,013	\$0	\$0	\$0
24000	GROUNDING SYSTEM, INCLUDING 4/0 CABLE, GROUND RODS, ETC.	(7)	28,000.00	LNFT	0%	\$112,000	\$934,640	\$0	\$0	\$0
24010	OVERHEAD GROUND WIRE, 7 #8.	(7)	2,000.00	LNFT	0%	\$700	\$12,020	\$0	\$0	\$0
27010	VOLTAGE TRANSFORMER, 230/138 KV-120/69 VOLT (CCVT).	(7)	9.00	EACH	0%	\$72,000	\$74,093	\$0	\$0	\$0
27020	VOLTAGE TRANSFORMER, POWER (PVT), 230 KV, 100 KVA	(7)	3.00	EACH	0%	\$210,000	\$24,698	\$0	\$0	\$0
27051	VOLTAGE TRANSFORMER, JUNCTION BOX, WITH ACB'S, HEATER	(7)	3.00	EACH	0%	\$4,877	\$5,868	\$0	\$0	\$0
27350	PCB INSTRUMENTS METER PACKAGE	(7)	3.00	EACH	0%	\$13,200	\$89,199	\$0	\$0	\$0
28000	LINE DIFFERENTIAL	(7)	1.00	SET	0%	\$35,000	\$62,894	\$0	\$0	\$0
28110	BREAKER FAILURE / BREAKER DIFFERENTIAL RELAY PACKAGE PER BREAKER, 230 KV AND BELOW (3 POLE)	(7)	3.00	EACH	0%	\$18,000	\$75,788	\$0	\$0	\$0
28210	'DEAD LINE CHECK' SCHEME	(7)	1.00	PNL	0%	\$9,000	\$17,438	\$0	\$0	\$0
28542	115 kV OR 230 kV LINE TERMINAL RELAY PACKAGE, REDUNDANT RELAYS	(7)	2.00	PKG	0%	\$70,000	\$73,133	\$0	\$0	\$0
29170	RACK FRAME, FREE STANDING, W/O PANELS	(7)	20.00	EACH	0%	\$8,000	\$12,450	\$0	\$0	\$0
29180	BREAKER CONTROL PACKAGE, PER BREAKER	(7)	3.00	EACH	0%	\$36,000	\$109,058	\$0	\$0	\$0
29530	CONTROL-DC DISTRIBUTION FRAME FOR TERMINATION OF OUTSIDE CABLE QUANTITIES TO INSIDE CONTROL HOUSE CABLES	(7)	2.00	EACH	0%	\$8,010	\$25,428	\$0	\$0	\$0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
30760	YARD TELEPHONE STATION, BOX OR JACK.	(7)	4.00	EACH	0%	\$800	\$3,115	\$0	\$0	\$0
30800	CONTROL CABLE, OUTDOOR, DUAL JACKETED, 10 MIL SHIELD, 600 VOLTS, COPPER CONDUCTOR.	(7)	20,000.00	LNFT	0%	\$50,000	\$111,200	\$0	\$0	\$0
30855	WIRING, INTER-PANEL AND TO VARIOUS OTHER DEMARCATION TERMINATIONS WITH MINOR MATERIALS. USE WITH TELEMETER, TELEPHONE, AC POWER INSTALLS.	(7)	4.00	LOT	0%	\$400	\$3,560	\$0	\$0	\$0
30860	ANNUNCIATOR CABLE, INDOOR, 15 PAIR, TELEPHONE, SHIELDED, #22 AWG.	(7)	4,000.00	LNFT	0%	\$4,120	\$22,240	\$0	\$0	\$0
30870	ANNUNCIATOR CABLE, OUTDOOR, 15 PAIR, TELEPHONE, SHIELDED, #22 AWG.	(7)	2,000.00	LNFT	0%	\$4,500	\$11,120	\$0	\$0	\$0
31100	POWER CABLE, 15 KV, 3 CC, #1/0, WITH CONCENTRIC NEUTRAL, DIRECT BURIAL.	(7)	500.00	LNFT	0%	\$2,500	\$11,125	\$0	\$0	\$0
31184	STATION SERVICE PANEL, 120/240V, 400AMP, 3PH, 4W	(7)	4.00	EACH	0%	\$8,000	\$2,000	\$0	\$0	\$0
32151	STATION SERVICE TRANSFORMER, 225 KVA, 480V-120/240 VOLT, 3 PHASE, PAD MOUNTED	(7)	1.00	EACH	0%	\$4,200	\$668	\$0	\$0	\$0
32200	STATION SERVICE CONNECTION FROM LOCAL POWER SOURCE	(7)	20.00	EACH	0%	\$40,000	\$22,250	\$0	\$0	\$0
32750	BATTERY, 125 VOLT, 577 AMP.HOUR., LD-CAL.	(7)	1.00	EACH	0%	\$17,000	\$13,350	\$0	\$0	\$0
32835	BATTERY SPILL CONTAINMENT	(7)	1.00	EACH	0%	\$1,518	\$2,559	\$0	\$0	\$0
33050	BATTERY CHARGER, 125 VOLT, 50 AMP.	(7)	2.00	EACH	0%	\$7,000	\$4,401	\$0	\$0	\$0
33250	BATTERY CHARGER PANEL.	(7)	1.00	EACH	0%	\$200	\$6,468	\$0	\$0	\$0
34550	BUS, ALUMINUM TUBE/FITTINGS, 5.00" IPS. SCHEDULE 40	(7)	3,600.00	LNFT	0%	\$82,800	\$293,922	\$0	\$0	\$0
34858	SEISMIC JUMPER ASSEMBLY, 230 KV AND BELOW, SURGE ARRESTER/CCVT BUS TEE CONNECTION	(7)	18.00	EACH	0%	\$18,000	\$25,218	\$0	\$0	\$0
34859	SEISMIC JUMPER ASSEMBLY, 230 KV & BELOW, 2000A AND ABOVE, CONNECTION FROM PCB TO SWITCH	(7)	18.00	EACH	0%	\$14,400	\$2,003	\$0	\$0	\$0
34890	STRAIN BUS, JEFFERSON, 2406MCM W/ FITTINGS	(7)	700.00	LNFT	0%	\$3,990	\$9,345	\$0	\$0	\$0
34892	230/500 KV SEISMIC RISERS FOR 3 PHASES, INCLUDES JEFFERSON CONDUCTOR AND ALL HARDWARE.	(7)	4.00	SET	0%	\$40,000	\$49,395	\$0	\$0	\$0

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35460	INSULATOR, POST TYPE, 230 KV, 5" BOLT CIRCLE.	(7)	72.00	EACH	0%	\$36,000	\$9,612	\$0	\$0	\$0
37750	CONDUIT, PLASTIC, 4.0" IPS.	(7)	5,200.00	LNFT	0%	\$29,734	\$104,130	\$0	\$0	\$0
38255	CONTROL CABLE BOOT	(7)	3.00	EACH	0%	\$1,500	\$3,338	\$0	\$0	\$0
38570	MANHOLE, 6' X 6' X 8', WITH 7 GOVERNMENT FURNISHED COVER AND FRAME.	(7)	4.00	EACH	0%	\$12,193	\$27,590	\$0	\$0	\$0
38620	TRENCH, PRE-FABRICATED, 30" (USE EAST OF CASCADES).	(7)	300.00	LNFT	0%	\$16,272	\$8,010	\$0	\$0	\$0
38710	CABLE TRAY, GENERIC INDOOR FOR NEW CONSTRUCTION-ALL TYPE OF RCK EQUIPMENT/CABLING SYSTEMS	(7)	1.00	LOT	0%	\$10,000	\$2,559	\$0	\$0	\$0
50860	SWITCHYARD LIGHTING (HIGH- PRESSURE SODIUM) INCLUDING JUNCTION BOX AND PLUG RECEPTACLES.	(7)	8.00	EACH	0%	\$10,848	\$8,900	\$0	\$0	\$0
53520	INDICATION POINT ADDITION TO SNW 8600 OR 8550 WIRING ONLY #22 AWG TW PR STRANDED COPPER	(7)	24.00	EACH	0%	\$1,380	\$7,920	\$0	\$0	\$0
59887	D.C. BREAKER PANEL, 48 VDC, WALL MOUNT.	(7)	1.00	EACH	0%	\$4,633	\$4,450	\$0	\$0	\$0
70015SI	CONSTRUCT EROSION CONTROL FEATURES	(7)	1.00	ACRE	0%	\$0	\$10,000	\$0	\$0	\$0
70017	INSTALL EROSION CONTROL FEATURES: MAY INCLUDE DETENTION POND, OFF-SITE DISPOSAL OF DUFF AND CONSTRUCTION SURVEY STAKING	(7)	35.75	\$	0%	\$35,750	\$35,750	\$0	\$0	\$0
70017SI	INSTALL EROSION CONTROL FEATURES: MAY INCLUDE DETENTION POND, OFF-SITE DISPOSAL OF DUFF AND CONSTRUCTION SURVEY STAKING	(7)	20.00	\$	0%	\$0	\$20,000	\$0	\$0	\$0
70115	CLEAR MEDIUM BRUSH AND SMALL TREES, GRUB ROOTS	(7)	15.00	ACRE	0%	\$0	\$108,469	\$0	\$0	\$0
70140	STRIP AND DISPOSE OF DUFF ON SITE, 6 INCH DEPTH	(7)	15.00	ACRE	0%	\$0	\$15,019	\$0	\$0	\$0
70230	EXCAVATING & GRADING 10K - 100K	(7)	150,000.00	CUYD	0%	\$0	\$1,419,000	\$0	\$0	\$0
70270	HAULING BORROW, 10 MILE ROUND TRIP 12 CUYD DUMP TRUCK	(7)	30,000.00	CUYD	0%	\$0	\$1,350,000	\$0	\$0	\$0
70301SI	INSTALL AND COMPACT BACKFILL MATERIAL IN PLACE	(7)	1.00		0%	\$0	\$20,000	\$0	\$0	\$0

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70303SI	GEOTECHNICAL FIELD TESTING (DURING CONSTRUCTION)	(7)	1.00		0%	\$0	\$6,000	\$0	\$0	\$0
70304SI	DISPOSE OFF-SITE EXCESS TOPSOIL	(7)	1.00		0%	\$0	\$20,000	\$0	\$0	\$0
70325	SW'YD. SURF. CRUSHED ROCK, 1-1/2" TO 1/4" - LT 500	(7)	2,440.00	CUYD	0%	\$69,540	\$32,940	\$0	\$0	\$0
70490	SIGN, REDWOOD PLANK, NO. 200933A INCLUDES POST AND DIGGING HOLE	(7)	2.00	EACH	0%	\$1,353	\$651	\$0	\$0	\$0
70510	COVER CROP, HYDRO OR AIR SEEDING W/MULCH & FERTILIZER	(7)	10.00	ACRE	0%	\$13,383	\$10,715	\$0	\$0	\$0
70540	SOIL PROTECTIVE FABRIC, 30 MIL, PLACED BY HAND	(7)	200.00	SQYD	0%	\$6,102	\$3,006	\$0	\$0	\$0
70685	RIPRAP LOOSE, LT, HAND PLACED (TRANSMISSION ACCESS ROADS)	(7)	200.00	TON	0%	\$6,400	\$5,800	\$0	\$0	\$0
70686SI	(NR)RIPRAP, MED. (TRANSMISSION ACCESS ROAD)	(7)	500.00	TON	0%	\$14,000	\$16,000	\$0	\$0	\$0
70730	Do Not Use CRUSHED ROCK, FINE 250-1000 (ROADS)	(7)	780.00	CUYD	0%	\$13,073	\$21,694	\$0	\$0	\$0
70745	Do Not Use CRUSHED ROCK, MEDIUM 250-1000 (ROADS)	(7)	940.00	CUYD	0%	\$12,963	\$25,098	\$0	\$0	\$0
70760	CRUSHED ROCK, COARSE 2K-5K (ROADS)	(7)	2,400.00	CUYD	0%	\$39,000	\$64,080	\$0	\$0	\$0
70775	ASPHALT PAVEMENT - GT 100 (PLANT MIX)	(7)	15.00	TON	0%	\$6,375	\$2,925	\$0	\$0	\$0
70782	PARKING BUMPER, PRECAST CONC., INCLUDES DOWELS	(7)	4.00	EACH	0%	\$158	\$68	\$0	\$0	\$0
70825	Do Not Use CULVERT, 18" CMP, INCLUDES: EXCAVATION AND BACKFILL, 2.5' DEEP, 1/2:1 SLOPE	(7)	80.00	LNFT	0%	\$13,200	\$5,200	\$0	\$0	\$0
70910	CATCH BASIN, DRAINAGE, 4' DEEP PRECAST CONCRETE	(7)	34.00	EACH	0%	\$53,843	\$44,000	\$0	\$0	\$0
71141SI	FURN AND INSTALL 6 " ADS N-12 PERF. PIPE IN OPEN TRENCH (INCLUDES BACKFILL)	(7)	2,350.00		0%	\$11,750	\$19,975	\$0	\$0	\$0
71142SI	FURN. AND INSTALL 8 " ADS N-12 PERF. PIPE IN OPEN TRENCH (INCLUDES BACKFILL)	(7)	460.00		0%	\$2,760	\$4,140	\$0	\$0	\$0
71144SI	FURN. AND INSTALL 12 " ADS N-12 PERF. PIPE IN OPEN TRENCH (INCLUDES BACKFILL)	(7)	360.00		0%	\$3,600	\$3,240	\$0	\$0	\$0
71146SI	FURN. AND INSTALL 18" ADS N-12 NON-PERF. PIPE IN OPEN TRENCH (INCLUDES BACKFILL)	(7)	760.00		0%	\$9,120	\$6,840	\$0	\$0	\$0

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71150	PIPE, 6" PLASTIC, PERFORATED, W/DRAIN ROCK	(7)	900.00	LNFT	0%	\$6,798	\$2,349	\$0	\$0	\$0
71321SI	SEPTIC TANK SYSTEM, COMPLETE WITH DRAIN FIELDS, TANK, CONTROLS AND PUMPS.	(7)	1.00		0%	\$55,000	\$35,000	\$0	\$0	\$0
71322SI	RESTROOM, COMPLETE WITH ELECTRICAL, FIXTURES AN HOT AND COLD WATER PIPING	(7)	1.00		0%	\$18,000	\$27,000	\$0	\$0	\$0
71415SI	WELL, COMPLETE WITH PUMP MOTOR AND CONTROLS	(7)	1.00		0%	\$35,000	\$65,000	\$0	\$0	\$0
71830	FENCE, 7' FABRIC, W/ BARBED WIRE TOP, 9 GA. GALVANIZED STEEL, LINE POSTS 10' O.C.	(7)	2,200.00	LNFT	0%	\$26,389	\$12,386	\$0	\$0	\$0
71876	GATE, 4' WIDE, 7' FABRIC FENCE ALUMINUM COATED STEEL, INCLUDES POSTS AND HARDWARE	(7)	1.00	EACH	0%	\$248	\$73	\$0	\$0	\$0
71885	GATE, 20' WIDE, DOUBLE SWING, 7' FABRIC FENCE, GALVANIZED STEEL, POSTS AND HARDWARE	(7)	1.00	EACH	0%	\$2,484	\$170	\$0	\$0	\$0
72180	CONTROL HOUSE, 1000 TO 5000 SQUARE FEET, CMU BLOCK, INCLUDES FOUNDATION, HVAC, POWER AND LIGHTS	(7)	2,100.00	SQFT	0%	\$472,500	\$451,500	\$0	\$0	\$0
73425	GEOTEXTILE FABRIC (1 LAYER) SQ. YD. = 16 OZ PER LAYER	(7)	9,400.00	SQYD	0%	\$287,076	\$141,000	\$0	\$0	\$0
73430SI	GEOTEXTILE FABRIC (1 LAYERS) SQ. YD. = 6 OZ PER LAYER	(7)	1,000.00	SQYD	0%	\$9,500	\$0	\$0	\$0	\$0
73435SI	GEOWEB CELLULAR CONFINEMENT SYSTEM, 8'	(7)	2,400.00	SQFT	0%	\$5,820	\$11,481	\$0	\$0	\$0
73560	DRAINAGE ROCK, FOR OIL SPILL CONTAINMENT	(7)	520.00	CUYD	0%	\$16,440	\$11,570	\$0	\$0	\$0
74312	FOUNDATION, CONCRETE GT. 500	(7)	430.00	CUYD	0%	\$94,600	\$813,238	\$0	\$0	\$0
74378	230 KV M.D.E. TOWER BODY, LATTICE TYPE.	(7)	8.00	EACH	0%	\$157,952	\$134,390	\$0	\$0	\$0
74381	230 KV M.D.E. TOWER BRIDGE, 48 FT., LATTICE TYPE	(7)	4.00	EACH	0%	\$52,476	\$66,750	\$0	\$0	\$0
74546	230 KV DISCONNECT SWITCH SUPPORT, 19 FT. 10 IN., (HIGH)	(7)	8.00	EACH	0%	\$31,000	\$44,500	\$0	\$0	\$0
74639	230 KV BUS PEDESTAL, HIGH, 21 FT. 2 IN.	(7)	72.00	EACH	0%	\$57,384	\$24,030	\$0	\$0	\$0
74786	SURGE ARRESTER SUPPORT, ROUND, 8 FT	(7)	9.00	EACH	0%	\$4,050	\$6,408	\$0	\$0	\$0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
74789	EQUIPMENT SUPPORT, 8 FT., LATTICE	(7)	9.00	EACH	0%	\$13,500	\$8,210	\$0	\$0	\$0
74837	GROUND WIRE POLE, 100', STEEL	(7)	4.00	EACH	0%	\$72,180	\$14,240	\$0	\$0	\$0
79136	SAFETY WATCHER (Electrician)	(7)	25.00	SFDY	0%	\$0	\$25,000	\$0	\$0	\$0
93680	MOBILIZATION/DEMOBILIZATION	(7)	14.00	\$	0%	\$0	\$31,150	\$0	\$0	\$0
95020	5-MAN CREW, LABOR ONLY	(7)	15.00	CRDY	0%	\$0	\$160,200	\$0	\$0	\$0
99910	TRAVEL - WINDSHIELD TIME- 15% const. labor coded as Misc. \$	(7)	31.00	\$	0%	\$0	\$31,000	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	145.22	\$	0%	\$0	\$145,220	\$0	\$0	\$0
99920	MISC SMALL ITEMS	(7)	41.00	LUMP	0%	\$4,100	\$0	\$0	\$0	\$0
Totals:						\$3,317,741	\$8,038,121	\$0	\$0	\$0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Construction - BPA - Electrical Work Items

1510	FIELD - SUBSTATION OPERATOR: Providing District Integration Services, Consulting Services, Update Station and Standing instructions, and provide switching.	(11)	34.00	SFDY	0%	\$0	\$0	\$0	\$20,128	\$0
1520	FIELD - DISTRICT ENGINEER POWER SYSTEM CONTROL: Providing District Integration Services, Consulting Services, Update District Documents, T&E Services.	(11)	25.00	SFDY	0%	\$0	\$0	\$0	\$17,800	\$0
1530	FIELD - DISTRICT ENGINEER SYSTEM PROTECTION CONTROL: Providing District Integration Services, Consulting Services, Update District Documents, T&E Services.	(11)	30.00	SFDY	0%	\$0	\$0	\$0	\$21,360	\$0
2180	TEST AND ENERGIZATION A/B POWER SYSTEMS	(11)	51.00	SFDY	0%	\$0	\$0	\$0	\$31,008	\$0
2185	TEST AND ENERGIZATION A/B COMM. TESTING	(11)	40.00	SFDY	0%	\$0	\$0	\$0	\$22,720	\$0
2187	TEST AND ENERGIZATION - LABORATORY AND FIELD SERVICES	(11)	31.00	SFDY	0%	\$0	\$0	\$0	\$17,112	\$0
31125	POWER CABLE, 1/0 CU., 1 PHASE	(11)	600.00	LNFT	0%	\$0	\$0	\$3,000	\$10,680	\$0
31166	BREAKER, ENCLOSED, 240V, 400AMP	(11)	2.00	EACH	0%	\$0	\$0	\$6,400	\$11,392	\$0
31194	SINGLE CONDUCTOR, 500 MCM, 15KV	(11)	600.00	LNFT	0%	\$0	\$0	\$9,300	\$16,020	\$0
31255	STATION SERVICE TRANSFER SWITCH, 480V, 1200 AMP., NO ENCLOSURE.	(11)	1.00	EACH	0%	\$0	\$0	\$35,000	\$6,764	\$0

Function Resources & Hours	Totals:	\$0	\$0	\$53,700	\$174,984	\$0
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CARPNT	16
COMMTEST	320
ELEC	472
EQUIPOP	16
PSCDE	200
PWRSYS	408
SPCDE	240
SUBOP	272
TRANSPRO	248

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: L3-1170-3-0

Facility Big Eddy-Remond No 1

Description Remediation for ground impairments for interconnecting Boyd Ridge Substation

Estimator McClemens, Laura

Requestor Ken Roberts

PRD # 285137

Est. Type Line

Estimate Status Final

Capital / Expense Capital

Contract / BPA

Bundle P00627

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$7,280	\$0	\$0	\$0	\$7,280
2 Scoping	\$3,000	\$0	\$3,640	\$0	\$0	\$0	\$6,640
3 Environmental	\$30,300	\$0	\$0	\$0	\$0	\$0	\$30,300
4 Survey/Mapping/Photo&RS/GIS	\$22,240	\$0	\$7,296	\$0	\$0	\$0	\$29,536
5 Land	\$0	\$0	\$15,096	\$0	\$3,000	\$0	\$18,096
6 Design	\$27,600	\$0	\$12,448	\$0	\$0	\$0	\$40,048
7 Construction - Contract	\$746,804	\$45,329	\$16,200	\$0	\$0	\$0	\$808,332
10 Construction - Retirement Work	\$44,856	\$0	\$0	\$0	\$0	\$0	\$44,856
Total	\$874,799	\$45,329	\$61,960	\$0	\$3,000	\$0	\$985,088

Estimate Range: \$788,000 to \$1,281,000

Approved Date 6/27/2018

Valid Through 6/27/2019

Big Eddy-Remond No 1

Comments

Work assumes 26 ground impairments to be remediated with 3 adjusted attachment points, ground removal and 11 intermediate structures.

Structures: Lattice Steel/H-Frame Wood

Conductor: Pheasant

Groundwire: OPGW

Voltage: 230kV

Notes:

Land and Access Road cost are excluded

Assume Contractor design and construction

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	10.00	SFDY	0%	\$0	\$0	\$0	\$7,280	\$0
Function Resources & Hours						Totals:				
PROJMGMT 80						\$0	\$0	\$0	\$7,280	\$0

Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	5.00	SFDY	0%	\$0	\$0	\$0	\$3,640	\$0
2630	PROJECT ENGINEERING - SCOPING	(2)	3.00	\$	0%	\$0	\$3,000	\$0	\$0	\$0
Function Resources & Hours						Totals:				
PROJMGMT 40						\$0	\$3,000	\$0	\$3,640	\$0

Environmental Items

1025	ENVIRONMENTAL IMPLEMENTATION	(3)	18.00	\$	0%	\$0	\$18,000	\$0	\$0	\$0
1026	ENVIRONMENTAL IMPLEMENTATION	(3)	15.00	SFDY	0%	\$0	\$12,300	\$0	\$0	\$0
Function Resources & Hours						Totals:				
						\$0	\$30,300	\$0	\$0	\$0

Survey/Mapping/Photo&RS/GIS Items

3250	MAPPING	(4)	15.00	SFDY	0%	\$0	\$8,700	\$0	\$0	\$0
3255	GIS	(4)	6.00	SFDY	0%	\$0	\$3,540	\$0	\$0	\$0
3257	SURVEY	(4)	16.00	SFDY	0%	\$0	\$0	\$0	\$7,296	\$0
3258	SURVEY	(4)	10.00	\$	0%	\$0	\$10,000	\$0	\$0	\$0
Function Resources & Hours						Totals:				
SURVEY 128						\$0	\$22,240	\$0	\$7,296	\$0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
<i>Land Items</i>										
3219	Real Property Services Projects	(5)	18.00	SFDY	0%	\$0	\$0	\$0	\$8,496	\$0
3225	MISC COST (TITLE POLICIES, FILING FEES, ETC)	(5)	3.00	\$	0%	\$0	\$0	\$0	\$0	\$3,000
3230	REAL PROPERTY FIELD SERVICES	(5)	15.00	SFDY	0%	\$0	\$0	\$0	\$6,600	\$0
Function Resources & Hours						Totals:				
REALFS						\$0				
REALPROP						\$0				
						\$15,096				
						\$3,000				

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
2094	TRANSMISSION LINE DESIGN - CONDUCTOR DESIGN	(6)	2.00	\$	0%	\$0	\$2,000	\$0	\$0	\$0
2096	TRANSMISSION LINE DESIGN - CONDUCTOR DESIGN	(6)	2.00	SFDY	0%	\$0	\$0	\$0	\$1,056	\$0
2310	PROJECT ENGINEERING	(6)	10.00	\$	0%	\$0	\$10,000	\$0	\$0	\$0
2320	PROJECT ENGINEERING	(6)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,600	\$0
2400	CIVIL DESIGN	(6)	10.00	\$	0%	\$0	\$10,000	\$0	\$0	\$0
2410	CIVIL DESIGN	(6)	10.00	SFDY	0%	\$0	\$0	\$0	\$4,800	\$0
2420	STRUCTURAL DESIGN	(6)	2.00	\$	0%	\$0	\$2,000	\$0	\$0	\$0
2430	STRUCTURAL DESIGN	(6)	2.00	SFDY	0%	\$0	\$0	\$0	\$992	\$0
99912	DESIGN CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS: INCLUDES TRAVEL AND SERVICES DURING CONSTRUCTION	(6)	3.60	\$	0%	\$0	\$3,600	\$0	\$0	\$0

Function Resources & Hours

CIVILENG	80
LINEDSN	16
STRENG	16
TRANSENG	80

Totals:	\$0	\$27,600	\$0	\$12,448	\$0
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<i>Construction - Contract Items</i>										
2440	CONSTRUCTION MANAGEMENT	(7)	25.00	SFDY	0%	\$0	\$0	\$0	\$16,200	\$0
3280	Contract Construction Inspection	(7)	16.00	\$	0%	\$0	\$16,000	\$0	\$0	\$0
70016SI	HAUL OFF	(7)	4,000.00		0%	\$0	\$160,000	\$0	\$0	\$0
70018SI	SILT FENCE	(7)	2,500.00		0%	\$0	\$4,400	\$0	\$0	\$0
70235	EXCAVATING & GRADING GT. 100K	(7)	4,000.00	CUYD	0%	\$0	\$31,840	\$0	\$0	\$0
75045	GRAVEL FOR POLE BACKFILL	(7)	22.00	CUYD	0%	\$475	\$857	\$0	\$0	\$0
75231	WOOD POLE, DOUGLAS FIR, 70 FOOT, CLASS 1	(7)	22.00	EACH	0%	\$28,490	\$40,629	\$0	\$0	\$0
77350	CROSSARM & HARDWARE, CROSSBRACE	(7)	11.00	EACH	0%	\$4,387	\$5,996	\$0	\$0	\$0
79135	SAFETY WATCHER (Lineman)	(7)	25.00	SFDY	0%	\$0	\$25,000	\$0	\$0	\$0
85700	CONDUCTOR HARDWARE, STEEL WF, MA1, MA1DB, MA1W, MA3, MB, PHEASANT, BITTERN	(7)	11.00	EACH	0%	\$2,867	\$0	\$0	\$0	\$0
88020	INSULATOR, 25 KIP	(7)	132.00	EACH	0%	\$7,110	\$0	\$0	\$0	\$0
93690	MOBILIZATION/DEMOBILIZATION	(7)	26.00	\$	0%	\$0	\$57,850	\$0	\$0	\$0
95040	7-MAN CREW, LABOR ONLY	(7)	16.00	CRDY	0%	\$0	\$239,232	\$0	\$0	\$0
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	165.00	\$	0%	\$0	\$165,000	\$0	\$0	\$0
99920	MISC SMALL ITEMS	(7)	20.00	LUMP	0%	\$2,000	\$0	\$0	\$0	\$0
Function Resources & Hours						Totals:				
CONSMGMT 200						\$45,329	\$746,804	\$0	\$16,200	\$0

<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>		<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>		
<i>Construction - Retirement Work Items</i>													
								<i>Cntr LAB %</i>	<i>Bpa Mat %</i>		<i>Bpa LAB %</i>		
95040	7-MAN CREW, LABOR ONLY	(10)	5.00	CRDY	0%	\$0	\$44,856	(60%)	\$0	(0%)	\$0	(0%)	\$0
						Totals:	\$0	\$44,856	\$0	\$0	\$0	\$0	

TPWE Estimate Report

Stage Gate 3 Level

Accuracy: -20%/+30%

Estimate #: S3-1170-1-0

Facility BOYD RIDGE SUBSTATION G0345

Description A NEW 230KV SUBSTATION, WITH 4 230KV PCBS AND 8 DISCONNECTS

Estimator Gutierrez, Arnold
Requestor KEN ROBERTS TECP
PRD # 285137
Est. Type Subst
Estimate Status Final
Capital / Expense
Contract / BPA
Bundle

Estimate Summary

FUNCTION	Contract		BPA		Misc	Contingency	Total
	Labor	Material	Labor	Material			
1 Project Management	\$0	\$0	\$72,800	\$0	\$0	\$0	\$72,800
2 Scoping	\$0	\$0	\$42,000	\$0	\$0	\$0	\$42,000
3 Environmental	\$21,000	\$0	\$14,168	\$1,440	\$0	\$0	\$36,608
4 Survey/Mapping/Photo&RS/GIS	\$50,870	\$0	\$9,084	\$4,020	\$120	\$0	\$64,094
5 Land	\$0	\$0	\$440	\$0	\$0	\$0	\$440
6 Design	\$668,012	\$0	\$574,740	\$0	\$0	\$0	\$1,242,752
7 Construction - Contract	\$9,462,677	\$3,111,381	\$0	\$0	\$0	\$0	\$12,574,058
11 Construction - BPA - Electrical Work	\$0	\$0	\$174,984	\$53,700	\$0	\$0	\$228,684
Total	\$10,202,559	\$3,111,381	\$888,216	\$59,160	\$120	\$0	\$14,261,436

Estimate Range: \$\$11,409,148.73 to \$\$18,539,86

Approved Date 5/18/2017

Valid Through 5/18/2018

BOYD RIDGE SUBSTATION G0345

Comments

This project is for the interconnection of G0345, a 201 MW wind project, located in Wasco County, Oregon. The requested point of interconnection (POI) is on BPA's Big Eddy – REDMOND 230 kV line via a new 230 kV substation near tower 11/1.

1. Build new 230 kV substation near tower 11/1 to loop in the Big Eddy – REDMOND 230 kV line. The 230 kV substation will be laid out as a ring bus substation that can be expanded to a breaker and a half configuration.
2. Install three new 230 kV breakers rated 2000 A, 40 kAIC and 2000 A disconnect switches at the new 230 kV substation.
3. Install relay protection as required including transfer trip equipment at the new 230 kV substation and dead line check relaying.
4. Install redundant line loss logic at new 230 kV substation and Redmond substation for local RAS schemes.

Assumptions:

- A. New Substation - Control house & yard will be designed to accommodate the 230Kv yard (expanable to breaker and a half)
 - B. CONTRACT DESIGN AND CONTRACT CONSTRUCTION IS ASSUMED IN THIS ESTIMATE.
 - C. GROUNDING GRID, BASED ON 30 FOOT GRIDS.
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Project Management Items

2020	SENIOR PROJECT MANAGEMENT	(1)	100.00	SFDY	0%	\$0	\$0	\$0	\$72,800	\$0
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Function Resources & Hours	
PROJMGMT	800

Totals:	\$0	\$0	\$0	\$72,800	\$0
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Scoping Items

2515	PROJECT MANAGEMENT - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$7,280	\$0
2525	ENVIRONMENT - SCOPING	(2)	14.00	SFDY	0%	\$0	\$0	\$0	\$7,280	\$0
2535	SURVEY/MAPPING - SCOPING	(2)	10.00	SFDY	0%	\$0	\$0	\$0	\$4,560	\$0
2635	PROJECT ENGINEERING - SCOPING	(2)	22.00	SFDY	0%	\$0	\$0	\$0	\$12,320	\$0
3010	CUSTOMER SERVICE ENGINEERING	(2)	20.00	SFDY	0%	\$0	\$0	\$0	\$10,560	\$0

Function Resources & Hours	
CUSTENG	160
ENVI	112
PROJMGMT	80
SURVEY	80
TRANSENG	176

Totals:	\$0	\$0	\$0	\$42,000	\$0
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Environmental Items

100031	(NR)POLLUTION PREV & TECH SERVICE (WP)		68.00		0%	\$0	\$0	\$0	\$5,032	\$0
1005	ENVIRONMENT ANALYSIS	(3)	20.00	\$	0%	\$0	\$20,000	\$0	\$0	\$0
1006	ENVIRONMENT ANALYSIS	(3)	10.00	SFDY	0%	\$0	\$0	\$0	\$5,200	\$0
1007	ENVIRONMENT ANALYSIS PER DIEM	(3)	8.00	SFDY	0%	\$0	\$0	\$960	\$0	\$0
1025	ENVIRONMENTAL IMPLEMENTATION	(3)	1.00	\$	0%	\$0	\$1,000	\$0	\$0	\$0
1026	ENVIRONMENTAL IMPLEMENTATION	(3)	6.00	SFDY	0%	\$0	\$0	\$0	\$3,936	\$0
1027	ENVIRONMENTAL IMPLEMENTATION PER DIEM	(3)	4.00	SFDY	0%	\$0	\$0	\$480	\$0	\$0

Function Resources & Hours

ENVI	80
ENVIRIMP	48
PPTS	68

Totals:	\$0	\$21,000	\$1,440	\$14,168	\$0
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Survey/Mapping/Photo&RS/GIS Items

3241	GEOSPATIAL SERVICES - CUSTOMER SUPPORT	(4)	8.00	SFDY	0%	\$0	\$0	\$0	\$3,264	\$0
3250	MAPPING	(4)	6.50	SFDY	0%	\$0	\$0	\$0	\$2,964	\$0
3251	MAPPING	(4)	5.50	\$	0%	\$0	\$5,500	\$0	\$0	\$0
3252	SURVEY AND MAPPING PER DIEM	(4)	21.00	SFDY	0%	\$0	\$0	\$2,520	\$0	\$0
3255	GIS	(4)	7.00	SFDY	0%	\$0	\$0	\$0	\$2,856	\$0
3257	SURVEY	(4)	26.50	SFDY	0%	\$0	\$15,370	\$0	\$0	\$0
3258	SURVEY	(4)	30.00	\$	0%	\$0	\$30,000	\$0	\$0	\$0
3269	GEOMATICS PER DIEM	(4)	1.00	SFDY	0%	\$0	\$0	\$0	\$0	\$120
3265	Misc. Cost (Consumable)	(4)	1.50	\$	0%	\$0	\$0	\$1,500	\$0	\$0

Function Resources & Hours	
GIS	120
MAPPING	52

Totals:	\$0	\$50,870	\$4,020	\$9,084	\$120
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Land Items

3230	REAL PROPERTY FIELD SERVICES	(5)	1.00	SFDY	0%	\$0	\$0	\$0	\$440	\$0
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Function Resources & Hours	
REALFS	8

Totals:	\$0	\$0	\$0	\$440	\$0
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Design Items

2030	SUBSTATION DESIGN	(6)	120.00	\$	0%	\$0	\$120,000	\$0	\$0	\$0
2040	SUBSTATION DESIGN	(6)	40.00	SFDY	0%	\$0	\$0	\$0	\$20,480	\$0
2100	PROTECTION ENGINEERING	(6)	170.00	\$	0%	\$0	\$170,000	\$0	\$0	\$0
2110	PROTECTION ENGINEERING	(6)	50.00	SFDY	0%	\$0	\$0	\$0	\$24,000	\$0
2140	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	90.00	\$	0%	\$0	\$90,000	\$0	\$0	\$0
2150	DATA SYSTEMS - DATA SYSTEMS DESIGN	(6)	30.00	SFDY	0%	\$0	\$0	\$0	\$15,600	\$0
2370	FACILITIES ENGINEERING	(6)	60.00	SFDY	0%	\$0	\$0	\$0	\$30,720	\$0
2380	Contractor Construction Take-Off Estimate (= 3% of Task 6 total)	(6)	140.00	\$	0%	\$0	\$140,000	\$0	\$0	\$0
2385	Constructability Review (BPA) (= 10 % of Task 6 total)	(6)	651.00	SFDY	0%	\$0	\$0	\$0	\$468,720	\$0
2400	CIVIL DESIGN	(6)	33.60	\$	0%	\$0	\$33,600	\$0	\$0	\$0
2410	CIVIL DESIGN	(6)	17.50	SFDY	0%	\$0	\$0	\$0	\$8,400	\$0
2420	STRUCTURAL DESIGN	(6)	27.28	\$	0%	\$0	\$27,280	\$0	\$0	\$0
2430	STRUCTURAL DESIGN	(6)	13.75	SFDY	0%	\$0	\$0	\$0	\$6,820	\$0
99912	DESIGN CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS: INCLUDES TRAVEL AND SERVICES DURNING CONSTRUCTION	(6)	87.13	\$	0%	\$0	\$87,132	\$0	\$0	\$0

Function Resources & Hours

CIVILENG	140
DATASYST	240
ENG	5208
FACILENG	480
PROTRLY	400
STRENG	110
SUBDSN	320

Totals:	\$0	\$668,012	\$0	\$574,740	\$0
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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
<i>Construction - Contract Items</i>										
13260	POWER CIRCUIT BREAKER, 230 KV, 2000 AMP., 40 KA, 3 CYCLE. INCLUDES SF6 GAS	(7)	3.00	EACH	0%	\$417,000	\$136,838	\$0	\$0	\$0
17255	DISCONNECT SWITCH, 230KV, 2000AMP W/INSULATORS, FACTORY ASSEMBLED, GROUP OPERATED.	(7)	4.00	EACH	0%	\$58,000	\$31,595	\$0	\$0	\$0
17305	DISCONNECT SWITCH, 230KV, 2000AMP WITH GROUND BLADES AND INSULATORS, FACTORY ASSEMBLED, GROUP OPERATED.	(7)	4.00	EACH	0%	\$57,600	\$40,050	\$0	\$0	\$0
22250	SURGE ARRESTER, 230 KV	(7)	9.00	EACH	0%	\$31,500	\$10,013	\$0	\$0	\$0
24000	GROUNDING SYSTEM, INCLUDING 4/0 CABLE, GROUND RODS, ETC.	(7)	28,000.00	LNFT	0%	\$112,000	\$934,640	\$0	\$0	\$0
24010	OVERHEAD GROUND WIRE, 7 #8.	(7)	2,000.00	LNFT	0%	\$700	\$12,020	\$0	\$0	\$0
27010	VOLTAGE TRANSFORMER, 230/138 KV-120/69 VOLT (CCVT).	(7)	9.00	EACH	0%	\$72,000	\$74,093	\$0	\$0	\$0
27020	VOLTAGE TRANSFORMER, POWER (PVT), 230 KV, 100 KVA	(7)	3.00	EACH	0%	\$210,000	\$24,698	\$0	\$0	\$0
27051	VOLTAGE TRANSFORMER, JUNCTION BOX, WITH ACB'S, HEATER	(7)	3.00	EACH	0%	\$4,877	\$5,868	\$0	\$0	\$0
27350	PCB INSTRUMENTS METER PACKAGE	(7)	3.00	EACH	0%	\$13,200	\$89,199	\$0	\$0	\$0
28000	LINE DIFFERENTIAL	(7)	1.00	SET	0%	\$35,000	\$62,894	\$0	\$0	\$0
28110	BREAKER FAILURE / BREAKER DIFFERENTIAL RELAY PACKAGE PER BREAKER, 230KV AND BELOW (3 POLE)	(7)	3.00	EACH	0%	\$18,000	\$75,788	\$0	\$0	\$0
28210	'DEAD LINE CHECK' SCHEME	(7)	1.00	PNL	0%	\$9,000	\$17,438	\$0	\$0	\$0
28542	115KV OR 230KV LINE TERMINAL RELAY PACKAGE, REDUNDANT RELAYS	(7)	2.00	PKG	0%	\$70,000	\$73,133	\$0	\$0	\$0
29170	RACK FRAME, FREE STANDING, W/O PANELS	(7)	20.00	EACH	0%	\$8,000	\$12,450	\$0	\$0	\$0
29180	BREAKER CONTROL PACKAGE, PER BREAKER	(7)	3.00	EACH	0%	\$36,000	\$109,058	\$0	\$0	\$0
29530	CONTROL-DC DISTRIBUTION FRAME FOR TERMINATION OF OUTSIDE CABLE QUANTITIES TO INSIDE CONTROL HOUSE CABLES	(7)	2.00	EACH	0%	\$8,010	\$25,428	\$0	\$0	\$0
30760	YARD TELEPHONE STATION, BOX OR JACK.	(7)	4.00	EACH	0%	\$800	\$3,115	\$0	\$0	\$0

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntg %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
30800	CONTROL CABLE, OUTDOOR, DUAL JACKETED, 10 MIL SHIELD, 600 VOLTS, COPPER CONDUCTOR.	(7)	20,000.00	LNFT	0%	\$50,000	\$111,200	\$0	\$0	\$0
30855	WIRING, INTER-PANEL AND TO VARIOUS OTHER DEMARCATION TERMINATIONS WITH MINOR MATERIALS. USE WITH TELEMETER, TELEPHONE, AC POWER INSTALLS.	(7)	4.00	LOT	0%	\$400	\$3,560	\$0	\$0	\$0
30860	ANNUNCIATOR CABLE, INDOOR, 15 PAIR, TELEPHONE, SHIELDED, #22 AWG.	(7)	4,000.00	LNFT	0%	\$4,120	\$22,240	\$0	\$0	\$0
30870	ANNUNCIATOR CABLE, OUTDOOR, 15 PAIR, TELEPHONE, SHIELDED, #22 AWG.	(7)	2,000.00	LNFT	0%	\$4,500	\$11,120	\$0	\$0	\$0
31100	POWER CABLE, 15 KV, 3 CC, #1/0, WITH CONCENTRIC NEUTRAL, DIRECT BURIAL.	(7)	500.00	LNFT	0%	\$2,500	\$11,125	\$0	\$0	\$0
31184	STATION SERVICE PANEL, 120/240V, 400AMP, 3PH, 4W	(7)	4.00	EACH	0%	\$8,000	\$2,000	\$0	\$0	\$0
32151	STATION SERVICE TRANSFORMER, 225 KVA, 480V-120/240 VOLT, 3 PHASE, PAD MOUNTED	(7)	1.00	EACH	0%	\$4,200	\$668	\$0	\$0	\$0
32200	STATION SERVICE CONNECTION FROM LOCAL POWER SOURCE.	(7)	20.00	EACH	0%	\$40,000	\$22,250	\$0	\$0	\$0
32750	BATTERY, 125 VOLT, 577 AMP.HOUR., LD-CAL.	(7)	1.00	EACH	0%	\$17,000	\$13,350	\$0	\$0	\$0
32835	BATTERY SPILL CONTAINMENT	(7)	1.00	EACH	0%	\$1,518	\$2,559	\$0	\$0	\$0
33050	BATTERY CHARGER, 125 VOLT, 50 AMP.	(7)	2.00	EACH	0%	\$7,000	\$4,401	\$0	\$0	\$0
33250	BATTERY CHARGER PANEL.	(7)	1.00	EACH	0%	\$200	\$6,468	\$0	\$0	\$0
34550	BUS, ALUMINUM TUBE/FITTINGS, 5.00" IPS, SCHEDULE 40	(7)	3,600.00	LNFT	0%	\$82,800	\$293,922	\$0	\$0	\$0
34858	SEISMIC JUMPER ASSEMBLY, 230KV AND BELOW, SURGE ARRESTER/CCVT BUS TEE CONNECTION	(7)	18.00	EACH	0%	\$18,000	\$25,218	\$0	\$0	\$0
34859	SEISMIC JUMPER ASSEMBLY, 230KV & BELOW, 2000A AND ABOVE, CONNECTION FROM PCB TC SWITCH	(7)	18.00	EACH	0%	\$14,400	\$2,003	\$0	\$0	\$0
34890	STRAIN BUS, JEFFERSON, 2406MCM W/ FITTINGS	(7)	700.00	LNFT	0%	\$3,990	\$9,345	\$0	\$0	\$0
34892	230/500 KV SEISMIC RISERS FOR 3 PHASES, INCLUDES JEFFERSON CONDUCTOR AND ALL HARDWARE.	(7)	4.00	SET	0%	\$40,000	\$49,395	\$0	\$0	\$0
35460	INSULATOR, POST TYPE, 230 KV, 5" BOLT CIRCLE.	(7)	72.00	EACH	0%	\$36,000	\$9,612	\$0	\$0	\$0
37750	CONDUIT, PLASTIC, 4.0" IPS.	(7)	5,200.00	LNFT	0%	\$29,734	\$104,130	\$0	\$0	\$0

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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
38255	CONTROL CABLE BOOT	(7)	3.00	EACH	0%	\$1,500	\$3,338	\$0	\$0	\$0
38570	(NR)MANHOLE, 6' X 6' X 8', WITH 7' GOVERNMENT FURNISHED COVER AND FRAME.	(7)	4.00	EACH	0%	\$12,193	\$27,590	\$0	\$0	\$0
38620	TRENCH, PRE-FABRICATED, 30" (USE EAST OF CASCADES).	(7)	300.00	LNFT	0%	\$16,272	\$8,010	\$0	\$0	\$0
38710	CABLE TRAY, GENERIC INDOOR FOR NEW CONSTRUCTION-ALL TYPE OF RCK EQUIPMENT/CABLING SYSTEMS	(7)	1.00	LOT	0%	\$10,000	\$2,559	\$0	\$0	\$0
50860	SWITCHYARD LIGHTING (HIGH- PRESSURE SODIUM) INCLUDING JUNCTION BOX AND PLUG RECEPTACLES.	(7)	8.00	EACH	0%	\$10,848	\$8,900	\$0	\$0	\$0
53520	INDICATION POINT ADDITION TO SNW 8600 OR 8550 WIRING ONLY #22 AWG TW PR STRANDED COPPER 54-6325 1 PR, 54-6392 6 PR 54-9315 15 PR, 54-9527 27 PR	(7)	24.00	EACH	0%	\$1,380	\$7,920	\$0	\$0	\$0
59887	(NR)D.C. BREAKER PANEL, 48 VDC, WALL MOUNT.	(7)	1.00	EACH	0%	\$4,633	\$4,450	\$0	\$0	\$0
70015SI	CONSTRUCT EROSION CONTROL FEATURES	(7)	1.00	ACRE	0%	\$0	\$10,000	\$0	\$0	\$0
70017	INSTALL EROSION CONTROL FEATURES: MAY INCLUDE DETENTION POND, OFF-SITE DISPOSAL OF DUFF AND CONSTRUCTION SURVEY STAKING	(7)	35.75	\$	0%	\$35,750	\$35,750	\$0	\$0	\$0
70017SI	INSTALL EROSION CONTROL FEATURES: MAY INCLUDE DETENTION POND, OFF-SITE DISPOSAL OF DUFF AND CONSTRUCTION SURVEY STAKING	(7)	20.00	\$	0%	\$0	\$20,000	\$0	\$0	\$0
70115	CLEAR MEDIUM BRUSH AND SMALL TREES, GRUB ROOTS	(7)	15.00	ACRE	0%	\$0	\$108,469	\$0	\$0	\$0
70140	STRIP AND DISPOSE OF DUFF ON SITE, 6 INCH DEPTH	(7)	15.00	ACRE	0%	\$0	\$15,019	\$0	\$0	\$0
70230	EXCAVATING & GRADING 10K - 100K	(7)	150,000.00	CUYD	0%	\$0	\$3,170,625	\$0	\$0	\$0
70270	HAULING BORROW, 10 MILE ROUND TRIP 12 CUYD DUMP TRUCK	(7)	30,000.00	CUYD	0%	\$0	\$1,101,375	\$0	\$0	\$0
70301SI	INSTALL AND COMPACT BACKFILL MATERIAL IN PLACE	(7)	1.00		0%	\$0	\$20,000	\$0	\$0	\$0
70303SI	GEOTECHNICAL FIELD TESTING (DURING CONSTRUCTION)	(7)	1.00		0%	\$0	\$6,000	\$0	\$0	\$0
70304SI	DISPOSE OFF-SITE EXCESS TOPSOIL	(7)	1.00		0%	\$0	\$20,000	\$0	\$0	\$0
70325	SWYD. SURF. CRUSHED ROCK, 1-1/2" TO 1/4" - LT 500	(7)	2,440.00	CUYD	0%	\$117,403	\$54,290	\$0	\$0	\$0

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BOYD RIDGE SUBSTATION G0345

ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntg %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
70490	SIGN, REDWOOD PLANK, NO. 200933A INCLUDES POST AND DIGGING HOLE	(7)	2.00	EACH	0%	\$1,353	\$651	\$0	\$0	\$0
70510	COVER CROP, HYDRO OR AIR SEEDING W/MULCH & FERTILIZER	(7)	10.00	ACRE	0%	\$13,383	\$19,869	\$0	\$0	\$0
70540	(NR)SOIL PROTECTIVE FABRIC, 30 MIL, PLACED BY HAND	(7)	200.00	SQYD	0%	\$209	\$111	\$0	\$0	\$0
70685	RIPRAP LOOSE, LT, HAND PLACED (TRANSMISSION ACCESS ROADS)	(7)	200.00	TON	0%	\$4,801	\$5,200	\$0	\$0	\$0
70686SI	(NR)RIPRAP, MED, (TRANSMISSION ACCESS ROAD)	(7)	500.00	TON	0%	\$14,000	\$16,000	\$0	\$0	\$0
70730	CRUSHED ROCK, FINE 250-1000 (ROADS)	(7)	780.00	CUYD	0%	\$13,073	\$21,694	\$0	\$0	\$0
70745	CRUSHED ROCK, MEDIUM 250-1000 (ROADS)	(7)	940.00	CUYD	0%	\$12,963	\$25,098	\$0	\$0	\$0
70760	CRUSHED ROCK, COARSE 2K-5K (ROADS)	(7)	2,400.00	CUYD	0%	\$39,000	\$64,080	\$0	\$0	\$0
70775	ASPHALT PAVEMENT - GT 100 (PLANT MIX)	(7)	15.00	TON	0%	\$1,204	\$0	\$0	\$0	\$0
70782	(NR)PARKING BUMPER, PRECAST CONC., INCLUDES DOWELS	(7)	4.00	EACH	0%	\$158	\$134	\$0	\$0	\$0
70825	CULVERT, 18" CMP, INCLUDES: EXCAVATION AND BACKFILL, 2.5' DEEP, 1/2:1 SLOPE	(7)	80.00	LNFT	0%	\$1,160	\$1,566	\$0	\$0	\$0
70910	CATCH BASIN, DRAINAGE, 4' DEEP PRECAST CONCRETE	(7)	34.00	EACH	0%	\$53,843	\$86,619	\$0	\$0	\$0
71141SI	FURN AND INSTALL 6" ADS N-12 PERF. PIPE IN OPEN TRENCH (INCLUDES BACKFILL)	(7)	2,350.00		0%	\$11,750	\$19,975	\$0	\$0	\$0
71142SI	FURN. AND INSTALL 8" ADS N-12 PERF. PIPE IN OPEN TRENCH (INCLUDES BACKFILL)	(7)	460.00		0%	\$2,760	\$4,140	\$0	\$0	\$0
71144SI	FURN. AND INSTALL 12" ADS N-12 PERF. PIPE IN OPEN TRENCH (INCLUDES BACKFILL)	(7)	360.00		0%	\$3,600	\$3,240	\$0	\$0	\$0
71146SI	FURN. AND INSTALL 18" ADS N-12 NON-PERF. PIPE IN OPEN TRENCH (INCLUDES BACKFILL)	(7)	760.00		0%	\$9,120	\$6,840	\$0	\$0	\$0
71150	PIPE, 6" PLASTIC, PERFORATED, W/DRAIN ROCK	(7)	900.00	LNFT	0%	\$6,798	\$4,506	\$0	\$0	\$0
71321SI	SEPTIC TANK SYSTEM, COMPLETE WITH DRAIN FIELDS, TANK, CONTROLS AND PUMPS.	(7)	1.00		0%	\$55,000	\$35,000	\$0	\$0	\$0
71322SI	RESTROOM, COMPLETE WITH ELECTRICAL, FIXTURES AN HOT AND COLD WATER PIPING	(7)	1.00		0%	\$18,000	\$27,000	\$0	\$0	\$0
71415SI	WELL, COMPLETE WITH PUMP MOTOR AND CONTROLS	(7)	1.00		0%	\$35,000	\$65,000	\$0	\$0	\$0
71830	FENCE, 7' FABRIC, W/ BARBED WIRE TOP, 9 GA. GALVANIZED STEEL, LINE POSTS 10' O.C.	(7)	2,200.00	LNFT	0%	\$26,389	\$21,049	\$0	\$0	\$0

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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
71876	GATE, 4' WIDE, 7' FABRIC FENCE ALUMINUM COATED STEEL, INCLUDES POSTS AND HARDWARE	(7)	1.00	EACH	0%	\$248	\$125	\$0	\$0	\$0
71885	GATE, 20' WIDE, DOUBLE SWING, 7' FABRIC FENCE, GALVANIZED STEEL, POSTS AND HARDWARE	(7)	1.00	EACH	0%	\$2,484	\$289	\$0	\$0	\$0
72180	CONTROL HOUSE, 1000 TO 5000 SQUARE FEET, INCLUDES FOUNDATION, HVAC, POWER AND LIGHTS	(7)	2,100.00	SQFT	0%	\$472,500	\$451,500	\$0	\$0	\$0
73425	GEOTEXTILE FABRIC (1 LAYER) SQ. YD. = 16 OZ. PER LAYER	(7)	9,400.00	SQYD	0%	\$57,556	\$0	\$0	\$0	\$0
73430SI	GEOTEXTILE FABRIC (1 LAYERS) SQ. YD. = 6 OZ. PER LAYER	(7)	1,000.00	SQYD	0%	\$9,500	\$0	\$0	\$0	\$0
73435SI	GEOWEB CELLULAR CONFINEMENT SYSTEM, 8'	(7)	2,400.00	SQFT	0%	\$5,820	\$11,481	\$0	\$0	\$0
73560	DRAINAGE ROCK, FOR OIL SPILL CONTAINMENT	(7)	520.00	CUYD	0%	\$16,440	\$0	\$0	\$0	\$0
74312	FOUNDATION, CONCRETE GT. 500	(7)	430.00	CUYD	0%	\$94,600	\$813,238	\$0	\$0	\$0
74378	230 KV M.D.E. TOWER BODY, LATTICE TYPE.	(7)	8.00	EACH	0%	\$157,952	\$134,390	\$0	\$0	\$0
74381	230 KV M.D.E. TOWER BRIDGE, 48 FT., LATTICE TYPE	(7)	4.00	EACH	0%	\$52,476	\$66,750	\$0	\$0	\$0
74546	230 KV DISCONNECT SWITCH SUPPORT, 19 FT. 10 IN., (HIGH)	(7)	8.00	EACH	0%	\$31,000	\$44,500	\$0	\$0	\$0
74639	230 KV BUS PEDESTAL, HIGH, 21 FT. 2 IN.	(7)	72.00	EACH	0%	\$57,384	\$24,030	\$0	\$0	\$0
74786	SURGE ARRESTER SUPPORT, ROUND, 8 FT	(7)	9.00	EACH	0%	\$4,050	\$6,408	\$0	\$0	\$0
74789	EQUIPMENT SUPPORT, 8 FT., LATTICE.	(7)	9.00	EACH	0%	\$13,500	\$8,210	\$0	\$0	\$0
74837	GROUND WIRE POLE, 100', STEEL.	(7)	4.00	EACH	0%	\$72,180	\$14,240	\$0	\$0	\$0
79136	SAFETY WATCHER (Electrician)	(7)	25.00	SFDY	0%	\$0	\$25,000	\$0	\$0	\$0
93680	MOBILIZATION/DEMOBILIZATION	(7)	14.00	\$	0%	\$0	\$31,150	\$0	\$0	\$0
95020	5-MAN CREW, LABOR ONLY	(7)	15.00	CRDY	0%	\$0	\$160,200	\$0	\$0	\$0
99910	TRAVEL - WINDSHIELD TIME- 15% const. labor coded as Misc. \$	(7)	31.00	\$	0%	\$0	\$31,000	\$0	\$0	\$0

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<i>ITEM #</i>	<i>ITEM DESCRIPTION</i>	<i>Task(s)</i>	<i>Quantity</i>	<i>Units</i>	<i>Cntgy %</i>	<i>Cntr Matl</i>	<i>Cntr Labor</i>	<i>BPA Matl</i>	<i>BPA Labor</i>	<i>BPA Misc</i>
99913	CONSTRUCTION CONTRACT OVERHEAD, PROFIT & GENERAL CONDITIONS	(7)	145.22	\$	0%	\$0	\$145,220	\$0	\$0	\$0
99920	MISC SMALL ITEMS	(7)	41.00	LUMP	0%	\$4,100	\$0	\$0	\$0	\$0
Totals:						\$3,111,381	\$9,462,677	\$0	\$0	\$0

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ITEM #	ITEM DESCRIPTION	Task(s)	Quantity	Units	Cntgy %	Cntr Matl	Cntr Labor	BPA Matl	BPA Labor	BPA Misc
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Construction - BPA - Electrical Work Items

1510	FIELD - SUBSTATION OPERATOR: Providing District Integration Services, Consulting Services, Update Station and Standing instructions, and provide switching.	(11)	34.00	SFDY	0%	\$0	\$0	\$0	\$20,128	\$0
1520	FIELD - DISTRICT ENGINEER POWER SYSTEM CONTROL: Providing District Integration Services, Consulting Services, Update District Documents, T&E Services.	(11)	25.00	SFDY	0%	\$0	\$0	\$0	\$17,800	\$0
1530	FIELD - DISTRICT ENGINEER SYSTEM PROTECTION CONTROL: Providing District Integration Services, Consulting Services, Update District Documents, T&E Services.	(11)	30.00	SFDY	0%	\$0	\$0	\$0	\$21,360	\$0
2180	TEST AND ENERGIZATION A/B POWER SYSTEMS	(11)	51.00	SFDY	0%	\$0	\$0	\$0	\$31,008	\$0
2185	TEST AND ENERGIZATION A/B COMM. TESTING	(11)	40.00	SFDY	0%	\$0	\$0	\$0	\$22,720	\$0
2187	TEST AND ENERGIZATION - LABORATORY AND FIELD SERVICES	(11)	31.00	SFDY	0%	\$0	\$0	\$0	\$17,112	\$0
31125	(NR)POWER CABLE, 1/0 CU., 1 PHASE	(11)	600.00	LNFT	0%	\$0	\$0	\$3,000	\$10,680	\$0
31166	BREAKER, ENCLOSED, 240V, 400AMP	(11)	2.00	EACH	0%	\$0	\$0	\$6,400	\$11,392	\$0
31194	SINGLE CONDUCTOR, 500 MCM, 15KV	(11)	600.00	LNFT	0%	\$0	\$0	\$9,300	\$16,020	\$0
31255	STATION SERVICE TRANSFER SWITCH, 480V, 1200 AMP., NO ENCLOSURE	(11)	1.00	EACH	0%	\$0	\$0	\$35,000	\$6,764	\$0

Function Resources & Hours

CARPNT	16
COMMTEST	320
ELEC	472
EQUIPOP	16
PSCDE	200
PWRSYS	408
SPCDE	240
SUBOP	272
TRANSPRO	248

Totals:	\$0	\$0	\$53,700	\$174,984	\$0
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