

RHWM Process Workshop

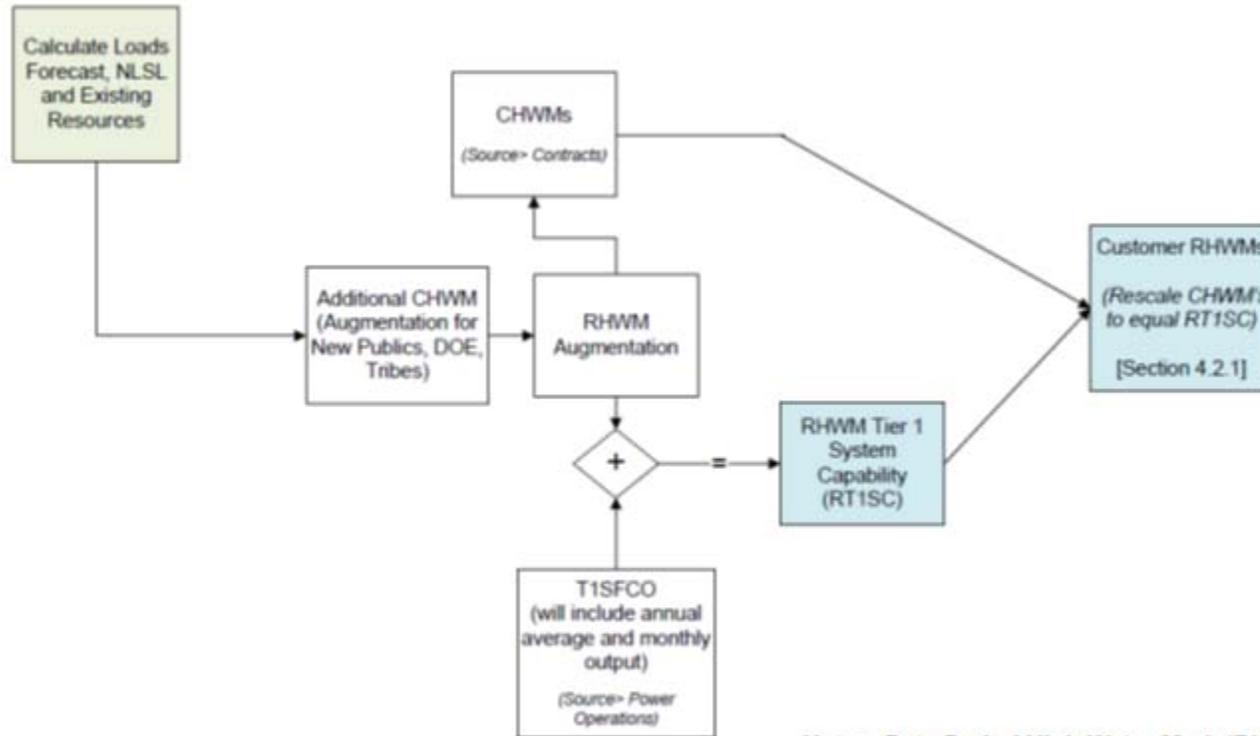
BP-16 Rate Period - Initial Outputs

Rates Hearing Room
August 5, 2014

RHWM Process Workshop Agenda

Topic	Presenter
Intro and Purpose of Workshop, Introductions	Peter Stiffler
Part 1	
Load Forecasts – Overview and General Customer Trends	Reed Davis
Part 2	
Tier 1 System Firm Critical Output (T1SFCO)	
<ul style="list-style-type: none"> Changes from BP-14 - HYDSIM 	Tyler Llewellyn
<ul style="list-style-type: none"> T1SFCO Study Results 	Tim Misley
Part 3	
RHWM Augmentation	Peter Stiffler
Discussion: <ul style="list-style-type: none"> Review Individual Customer Results Other topics? 	All
Next Steps	Peter Stiffler

RHWM Process



Note> Rate Period High Water Mark (RHWM) will include the following outputs (as noted in the Tiered Rate Methodology (TRM) on Page xxi):

- RHWM Tier 1 System Capability (including RHWM Augmentation)
- RHWM (by customer)
- Forecast Net Requirement (by customer)
- Above-RHWM load (by customer)

Load Forecasting

Load Forecasting Guidelines

Existing

- Consolidated forecasting in Customer Services Load Forecasting group (KSL) established in 2007
- Same basis and assumptions are used for forecasts provided to Power and to Transmission
- Consistency for all planning processes
 - in accuracy levels
 - in methods
 - in assumptions
- Seamless integration of planning from next day to the next twenty years, all with forecast accuracy

Future

- Start process to share and receive input on fundamental assumptions driving the annual forecast from across the region

Load Forecasting Process

- Bottom-up approach where each customer is individually forecasted
- Statistical based models use 10 or more years of historical data to forecast trend in predicted load changes
- Known changes identified through customer visits to adjust forecast for specific off-trend load changes, such as:
 - New large industrial or commercial loads
 - New large subdivision additions
- Economic assumptions obtained from Global Insight.
- Numerous elements are forecast from these assumptions (i.e., kWh, customer peak, TSP, CA peak, minimum load)
- Updates prepared annually followed with quarterly refinement as necessary
- Final forecast reviewed by customer and other interested parties

Load Forecasting Assumptions Summary

- Forecasts assume normal weather conditions (34 year average value)
- Continuation of recent trends with known changes identified through customer visits
 - Precious metals production (slowing and declining)
 - Food production (increases)
 - Data warehouse additions (increases)
 - Fewer new projects currently in planning stages
- Starting to show slow growth in sales, expect continuation of slow growth into mid-calendar year 2015. We expect the economy to pick up enough steam to show sustainable growth beyond that point. Future average trend growth rate expected to be in 1.75% to 2.5% range, much lower than the historical average growth rate of 3.7% from FY 2003 to FY 2009

Updated Forecast Changes

- In normal course of doing business 11 forecasts have been changed since the initial forecasts were distributed in February/March 2014
 - 7 Slice/Block contract customers
 - 6 Load following contract customers

- Forecast changes have had minimal impact on values
 - 3 of the 11 forecasts had changes greater 10 aMW
 - 2 decreased forecasts, 1 increased forecast
 - Average overall change a decrease of 6 aMW
 - 10 of the 11 forecasts had changes less than 10 aMW
 - 2 decreased forecasts, 6 increased forecasts
 - Average overall change an increase of approximately 1 aMW

Summary of Final Forecast results

- For fiscal year 2016 total average MW decreased by about 200 aMW from the forecasts used in the RHWM Process for BP-14
 - 76.5% of the forecast decreased from the last RHWM forecast
 - Average change a bit over -1 aMW
 - Max change ~ 50 aMW

- For fiscal year 2017 total average MW decreased by about 200 aMW from the forecasts used in the RHWM Process for BP-14
 - 77.3% of the forecast decreased from the last RHWM forecast
 - Average change a bit under -1 aMW
 - Max change ~ 100 aMW

Next Steps

- Review comments on forecasts in the Public Comment Period, ending August 19, 2014
- Based upon comments received, update forecasts for significant changes that are
 - Tied to a specific unanticipated event
 - Greater than 5% change
 - Or otherwise relevant (special causes/cases)
- Release new forecasts in advance of September 9, 2014 final determinations

Tier 1 System Firm Critical Output

Updates to HYDSIM Assumptions in the BP-16 T1SFCO Studies

- **Canadian operations** were updated based on the 2016 Assured Operating Plan (Treaty AOP study). AOP17 is a roll-over year. Non-Treaty operations were also updated, similar to BP-14, with the dry year operation and the spring-summer operation. The price-dependent operations from the Non-Treaty Storage Agreement and the Libby Coordination Agreement were not included. In these studies, Canadian projects release less water during 1937.
- **Spill assumptions** were updated based on the 2014 Biological Opinion as shown on the following slide. These assumptions better reflect actual operations from the past few years, and changes are not expected within the rate period.
- **2014 PNCA project data** is used in these studies. The last Rate Case studies were based on 2012 PNCA data. This data includes minor flow requirement and elevation target changes.
- **80-year flood control data** was provided by the Corps. This data is based on the 2010 modified stream flow data and associated forecasts. In the last Rate Case, the Corps provided interim flood control data for the last 10 years of the 80-year HYDSIM studies, and the studies used older data for the first 70 years.
- **Monthly outage assumptions** were developed using a combination of planned outages plus forced outages that are based on historical data, and the project owners also made further adjustments. Using the new method, most projects have similar levels of outages compared to BP-14, but Grand Coulee availability increased several percent to ~70% on average.
- **Reserves** were provided by the Generation Inputs panel.
- **Loads** were updated based on data provided by Agency Load Forecasting. HYDSIM uses regional residual hydro loads in the Rate Case, so assumptions for other resources also affect the loads in HYDSIM. The new HYDSIM loads are about 2000 aMW lower than in BP-14. This reduction is mainly because of the new combustion turbine capacity factor assumption of 90%.

Updates to HYDSIM Assumptions – Spill Table from 2014 BiOp

Project	Proposed 2014 BiOp Spring Spill	Spring Planning Dates	Proposed 2014 BiOp Summer Spill	Summer Planning Dates
Bonneville	100 kcfs	4/10 - 6/15	95 kcfs and 85 kcfs/121 kcfs	6/16 - 8/31
The Dalles	40%	4/10 - 6/15	40%	6/16 - 8/31
John Day	April 10-27: 30% April 27-June 15: 30% and 40%	4/10 - 6/15	June 16-July 20: 30% and 40% July 20-August 31: 30%	6/16 - 8/31
McNary	40%	4/10 - 6/15	50%	6/16 - 8/31
Ice Harbor	April 3-28: 45 kcfs/Gas Cap April 28-May 30: 30% and 45 kcfs/Gas Cap	4/3 - 5/31	June 1-July 13: 30% and 45 kcfs/Gas Cap June 13-August 31: 45 kcfs/Gas Cap	6/1 - 8/31* (8/21)
Lower Monumental	Gas Cap (~27 kcfs, bulk pattern)	4/3 - 5/31	17 kcfs	6/1 - 8/31* (8/19)
Little Goose	30%	4/3 - 5/31	30%	6/1 - 8/31* (8/17)
Lower Granite	20 kcfs	4/3 - 5/31	18 kcfs	6/1 - 8/31* (8/9)

* The Snake River projects end spill in August based on fish passage data. The end dates used in HYDSIM are based on the averages from 2005 through 2013 data.

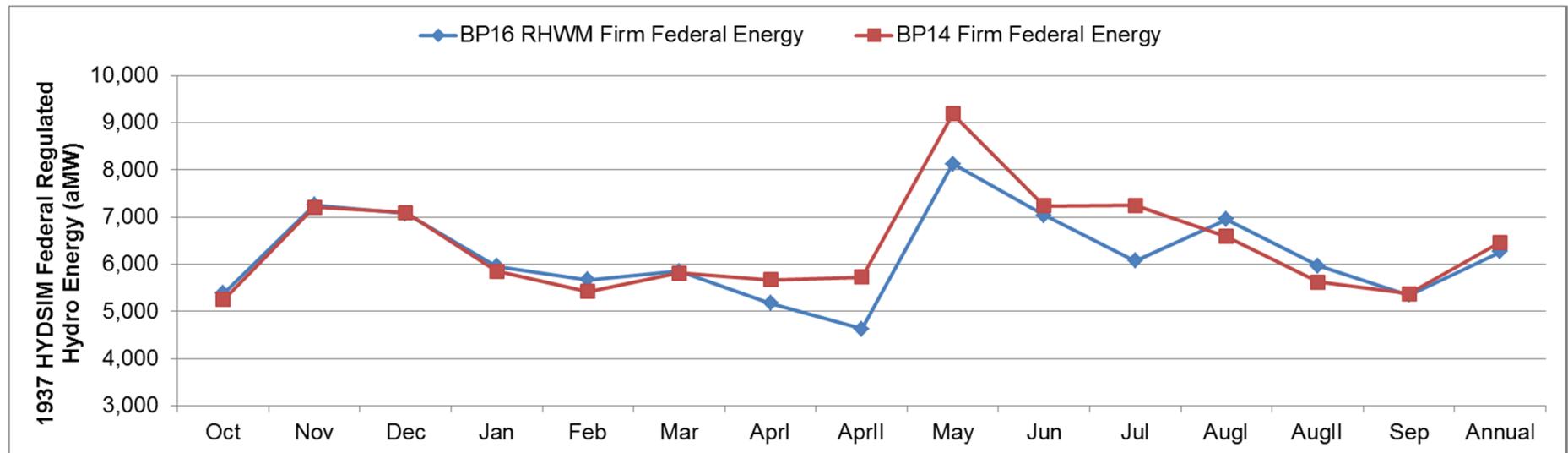
Spring maximum transport operations for two weeks in all years and in dry years are not in the 2014 Biological Opinion.

HYDSIM Results from BP-16 T1SFCO Studies

- The new estimate of firm average annual regulated hydro energy is 200 aMW lower than the last Rate Case.
- This loss is primarily caused by the increased spill for fish and the decreased stream flow releases from Canadian projects in 1937.

Firm Federal Regulated Hydro Energy (Average MW)

1937	Oct	Nov	Dec	Jan	Feb	Mar	Aprl	Aprll	May	Jun	Jul	Augl	Augll	Sep	Annual
BP16 RHWM Studies	5,379	7,258	7,072	5,953	5,669	5,849	5,173	4,632	8,122	7,036	6,073	6,948	5,961	5,348	6,265
BP14	5,246	7,211	7,095	5,846	5,425	5,813	5,673	5,726	9,188	7,239	7,244	6,585	5,624	5,371	6,465
difference	133	47	-23	107	244	35	-499	-1,094	-1,066	-203	-1,171	363	337	-23	-200



BP-16 RHWM - Federal Tier 1 System Firm Critical Output

- **BPA staff incorporated HYDSIM studies and updated Federal system resources, obligation forecasts; and contract purchases and sales for the BP-16 Rate High Watermark (RHWM) process for FY16 & FY17.**
 - These studies will be used to determine the RHWM Tier1 System Firm Critical Output (T1SFCO) for the Rate Period High Water Mark (RHWM) Process. The T1SFCO used in the RHWM process is the 2-year average for FY16 & FY17 of a set Federal system resources, contract purchases and contract sales specified in the TRM.
 - The RHWM process determines the overall amount of Tier 1 energy that BPA will offer in the FY16 – FY17 Rate Period.

BP-16 RHWMM - Federal Tier 1 System Firm Critical Output

Resource and Contract Comparison

BP-16 RHWMM Process for FY2016-17 versus the BP-14 Final Rate for FY2015-16

- Updated HYDSIM hydro regulation studies that decreased the 2-year averaged regulated hydro generation by about 198 aMW under 1937 critical water conditions.
- Updated CGS generation and maintenance schedule to reflect recent work at the project. This increased CGS 2-year averaged generation estimates for FY16 & FY17 by about 42 aMW.
- The expiration of the Georgia-Pacific (Wauna) acquisition contract on 3/31/2016. This decreased the 2-year averaged generation estimates for FY16 & FY17 by about 14 aMW.
- The expiration of the BPA/PASA contract 4/30/2015 and BPA/RVSD contract 4/30/2016. These contracts had both Federal system deliveries and receipts:
 - The expiration of the receipts from these contracts decreased Federal contract purchases over the 2-year average for FY16 & FY17 by about 18 aMW. (The contracts are mainly capacity/energy exchanges and the difference in energy between these contract deliveries and receipts is the exchange payment).
 - The expiration of the contract deliveries associated with these contracts decreased the 2-year averaged Federal contract obligations for FY16 & FY17 by about 13 aMW.
- Updated forecast delivery contracts for:
 - CER to Canada which reduced the 2-year averaged Federal contract obligations for FY16 & FY17 by about 6 aMW.
 - BPA/BCHA LCA which increased the 2-year averaged Federal contract obligations for FY16 & FY17 by about 8 aMW
- Updated critical Wind forecasts which had minimal impacts in wind generation forecasts.

BP-16 RHWM - Federal Tier 1 System Firm Critical Output

RHWM Comparison from BP-14

2-Year Average Comparison BP-16 Final BP-14 Final (Energy in aMW)	BP-16 Prelim Proposal	BP-14 Final Proposal	Difference 2-Year Average	Comment
<i>T1SFCO Projections</i>				
1. Federal System Hydro Generation	6,664	6,862	-198	Changes in spill criteria on Lower Snake projects in the 2014 BiOp Implementation Plan that highlights spill even in low water conditions
2. Designated Non-Fed Owned Res.	1,050	1,022	28	Resource changes: CGS (+42 aMW), GP-Paper (Wauna) (-14 aMW)
3. Designated BPA Cont. Purchases	177	195	-18	Expiration of BPA/PASA contract 4/30/2015 and BPA/RVSD contract 4/30/2016 (-18 aMW)
4. Designated System Obligations	-1,005	-1,021	16	Obligation changes: CER to Canada (-6 aMW), LCA (8 aMW), Expiration of BPA/PASA contract 4/30/2015 and BPA/RVSD contract 4/30/2016 (-13 aMW)
5. Federal T1SFCO Output	6,886	7,058	-172	

RHWM Augmentation

RHWM Augmentation

- The TRM provides for two types of RHWM Augmentation
 - Augmentation for DOE Richland and tribal load growth
 - Augmentation for new publics
- For the BP-16 period, these augmentation amounts will be 59.107 aMW
 - 6.395 aMW for DOE Richland; 6.865 aMW for Yakima and Umpqua
 - 45.847 aMW for Jefferson County PUD
- This results in an RHWM Tier 1 System Capability of:
 - $T1SFCO + RHWM\ Aug = 6886.210 + 59.107 = 6945.317\ aMW$

Next Steps

- Public Comment Period August 6-19, 2015
- August 8, 2014 is the deadline to provide notice of intent to preserve right to dispute
- BPA reviews public comments, and August 26th workshop tentatively scheduled to address customer concerns raised in the public comment period.
- September 9th, BPA posts the Administrator's final determinations
- Forecast Net Requirement posting in early November (following October 31st Deadline for certain adjustments to customer Above RHWM load service elections).

Appendix

Appendix: Updates to HYDSIM Spill Assumptions

- **John Day & Ice Harbor Spill**: These operations will eventually be determined based on BiOp juvenile dam passage survival performance standards, but this will not likely occur before the rate period. Current HYDSIM study includes the test operations shown in the 2014 BiOp spill table.
- **Early August Spill Curtailment**: This operation is in the 2014 BiOp. Current HYDSIM study includes this spill assumption similar to the last Rate Case studies but updated to reflect August spill end dates provided by the Corps last fall.
- **Spring Maximum Transport for 2 Weeks in All Years**: This operation is not in the 2014 BiOp. Current HYDSIM study removes this no-spill assumption.
- **Spring Maximum Transport in Dry Years**: This operation is not in the 2014 BiOp. Current HYDSIM study removes this no-spill assumption.
- **April Spill Start Dates at Snake River Projects**: The operation in the 2014 BiOp shows April 3rd, but the last Rate Case study used April 5th at Little Goose and April 7th at Lower Monumental and Ice Harbor. Current HYDSIM study starts spill April 3rd.

Appendix: HYDSIM Results from BP-16 T1SFCO Studies

- **Grand Coulee**: Generation reduced ~20 aMW, mostly due to reductions in Canadian releases. The Grand Coulee generation reduces in April-July, and this is mostly offset by gains in August-November and January-March.
- **Chief Joseph**: Generation reduced ~20 aMW, mostly due to reductions in Canadian releases. The Chief Joseph generation reduces in April-July, and this is mostly offset by gains in August-November and January-March.
- **Lower Snake**: Generation reduced ~120 aMW due to spill changes.
- **Lower Columbia**: Generation reduced ~30 aMW due to reductions in Canadian releases and due to spill changes.
- **Libby**: Annual average generation is unchanged, but Libby produces less energy in May and more in June due to the delayed sturgeon pulse start from mid-May to June 1st.
- **Hungry Horse**: No changes to generation.
- **Albeni Falls**: Annual average generation is unchanged.
- **Dworshak**: No changes to generation.

BP-16 RHW M - Federal Tier 1 System Firm Critical Output

Table 2.12.1				
Federal Tier 1 System Firm Critical Output Projection - 2-Year Average				
2016 RHW M Process for BP-16 Rate Period				
PNW Loads and Resources Study				
Study: S113-RC-20140724-130549				
1.	T1SFCO Projections Energy in aMW	2016	2017	Average ^{1/}
2.	Total Federal System Hydro Generation (Table 2.12.2)	6,663.32	6,665.51	6,664.41
3.	Total Designated Non-Federally Owned Resources (Table 2.12.3)	1,134.40	964.55	1,049.59
4.	Total Designated BPA Contract Purchases (Table 2.12.4)	183.55	170.76	177.16
5.	Total Designated System Obligations (Table 3.12.5)	-1,006.32	-1,003.60	-1,004.96
6.	Federal Tier 1 System Firm Critical Output	6,974.95	6,797.22	6,886.21
^{1/} 2-year average calculated hourly to take into account leap year FY 2016.				

BP-16 RHWMM - Federal Tier 1 System Firm Critical Output

Table 2.12.2				
Federal System Hydro Generation for use in the T1SFCO Calculation				
2016 RHWMM Process for BP-16 Rate Period				
PNW Loads and Resources Study				
Study: S113-RC-20140724-130549				
1.	Regulated Hydro	2016	2017	Average ^{1/}
2.	Albeni Falls	24.3	24.4	24.3
3.	Bonneville Hydro	392.6	392.4	392.5
4.	Chief Joseph Hydro	1,110.1	1,110.5	1,110.3
5.	Dworshak Hydro	141.3	141.6	141.4
6.	Grand Coulee Hydro	1,939.3	1,940.0	1,939.7
7.	Hungry Horse	83.8	83.8	83.8
8.	Ice Harbor Hydro	107.9	107.8	107.8
9.	John Day Hydro	790.1	790.2	790.1
10.	Libby	186.5	186.8	186.6
11.	Little Goose Hydro	156.5	156.6	156.6
12.	Lower Granite Hydro	146.5	146.6	146.5
13.	Lower Monumental Hydro	147.1	147.1	147.1
14.	Mc Nary Hydro	481.0	481.0	481.0
15.	The Dalles Hydro	603.5	603.5	603.5

BP-16 RHW M - Federal Tier 1 System Firm Critical Output

Table 2.12.2 (continued)				
Federal System Hydro Generation for use in the T1SFCO Calculation				
2016 RHW M Process for BP-16 Rate Period				
PNW Loads and Resources Study				
Study: S113-RC-20140724-130549				
16.	Independent Hydro	2016	2017	Average ^{1'}
17.	Anderson Ranch	12.2	12.2	12.2
18.	Big Cliff	9.7	9.7	9.7
19.	Black Canyon	6.2	6.2	6.2
20.	Boise River Diversion	1.2	1.2	1.2
21.	Chandler	6.1	6.1	6.1
22.	Cougar	19.0	19.0	19.0
23.	Cowlitz Falls	26.5	26.5	26.5
24.	Detroit	33.8	33.8	33.8
25.	Dexter	9.4	9.4	9.4
26.	Foster	12.2	12.2	12.2
27.	Green Peter	26.8	26.9	26.8
28.	Green Springs - USBR	7.3	7.3	7.3
29.	Hills Creek	17.9	18.0	17.9
30.	Idaho Falls - City Plant	4.2	4.2	4.2
31.	Idaho Falls - Lower Plants #1 & #2	5.8	5.8	5.8
32.	Idaho Falls - Upper Plant	4.2	4.2	4.2
33.	Lookout Point	35.7	35.8	35.8
34.	Lost Creek	30.0	30.1	30.0
35.	Minidoka	10.7	10.7	10.7
36.	Palisades	67.3	67.4	67.4
37.	Roza	6.9	6.9	6.9
38.	Total Federal System Hydro Generation	352.9	353.4	6,664.4

BP-16 RHWMM - Federal Tier 1 System Firm Critical Output

Table 2.12.3				
Designated Non-Federally Owned Resources for use in the T1SFCO Calculation				
2016 RHWMM Process for BP-16 Rate Period				
PNW Loads and Resources Study				
Study: S113-RC-20140724-130549				
1.	Project	2016	2017	Average ^{1/}
2.	Ashland Solar Project	0.0	0.0	0.0
3.	Columbia Generating Station	1,075.0	916.0	995.6
4.	Condon Wind Project	9.6	9.7	9.6
5.	Dworshak/Clearwater Small Hydropower	2.6	2.6	2.6
6.	Foote Creek 1	4.0	4.0	4.0
7.	Foote Creek 2	0.5	0.5	0.5
8.	Foote Creek 4	4.4	4.4	4.4
9.	Fourmile Hill Geothermal (Not included)	0.0	0.0	0.0
10.	Georgia-Pacific Paper (Wauna) <i>(Acquisition Expires 3/31/2016)</i>	10.9	0.0	5.4
11.	Klondike I	6.8	6.8	6.8
12.	Stateline Wind Project	20.7	20.7	20.7
13.	White Bluffs Solar	0.0	0.0	0.0
14.	Total Designated Non-Federally Owned Resources	1,134.4	964.6	1,049.6

^{1/} 2-year average calculated hourly to take into account leap year FY 2016.

BP-16 RHWMM - Federal Tier 1 System Firm Critical Output

Table 2.12.4					
Designated BPA Contract Purchases for use in the T1SFCO Calculation					
2016 RHWMM Process for BP-16 Rate Period					
PNW Loads and Resources Study					
Study: S113-RC-20140724-130549					
1.	Contract Purchases	Contract #	2016	2017	Average ^{1/}
2.	Priest Rapids CER for Canada	97PB-10099	29.4	29.3	29.3
3.	Rock Island #1 CER for Canada	97PB-10102	18.1	18.1	18.1
4.	Rock Reach CER for Canada	97PB-10103	37.6	37.5	37.5
5.	Wanapum CER for Canada	97PB-10100	28.4	28.0	28.2
6.	Wells CER for Canada	97PB-10101	24.0	24.0	24.0
7.	BCHP to BPA PwrS	99PB-22685	1.0	1.0	1.0
8.	BCHP to BPA LCA	99PB-22685	28.9	32.9	30.9
9.	PASA to BPA Pk Repl	94BP-93658	0.0	0.0	0.0
10.	PASA to BPA S/NX	94BP-93658	0.0	0.0	0.0
11.	PASA to BPA Xchg Nrg	94BP-93658	0.0	0.0	0.0
12.	RVSD to BPA Pk Repl	94BP-93958	2.3	0.0	1.1
13.	RVSD to BPA Seas Xchg	94BP-93958	6.7	0.0	3.3
14.	RVSD to BPA Xchg Nrg	94BP-93958	7.3	0.0	3.7
15.	PPL to BPA SNX (Spring Return)	94BP-94332	0.0	0.0	0.0
16.	PPL to BPA SPX (Summer Return)	94BP-94332	0.0	0.0	0.0
17.	Total Designated BPA Contract Purchases		183.6	170.8	177.2

^{1/} 2-year average calculated hourly to take into account leap year FY 2016.

BP-16 RHW M - Federal Tier 1 System Firm Critical Output

Table 2.12.5					
Designated BPA System Obligations for use in the T1SFCO Calculation					
2016 RHW M Process for BP-16 Rate Period					
PNW Loads and Resources Study					
Study: S113-RC-20140724-130549					
1.	System Obligation	Contract #	2016	2017	Average ^{1/}
2.	BPA to BRCJ Chief Joseph	14-03-17506; 14-03-49151	7.4	7.4	7.4
3.	BPA to BRCB Columbia Basin Project	lbp-4512; 14-03-001-12160	139.1	139.5	139.3
4.	BPA to BR CR Crooked River Project	14-03-73152	0.8	0.8	0.8
5.	BPA to BROP Owyhee Project	EW-78-Y-83-00019	3.4	3.4	3.4
6.	BPA to BRRP Rathdrum Prairie Project	14-03-49151	0.6	0.6	0.6
7.	BPA to BRSID Southern Idaho Projects	EW-78-Y-83-00019	19.8	19.8	19.8
8.	BPA to BRSIN Spokane Indian Develop.	14-03-49151	0.3	0.3	0.3
9.	BPA to BRSV Spokane Valley	14-03-63656	0.7	0.7	0.7
10.	BPA to BRTD The Dallas Reclamation Proj	14-03-32210	2.0	2.0	2.0
11.	BPA to BRTV Tualatin Project	14-03-49151	0.7	0.7	0.7
12.	BPA to BRUB Umatilla Basin Project	10GS-75345	2.2	2.2	2.2
13.	BPA to BRYK Yakima Project	DE-MS79-88BP92591	1.8	1.8	1.8
14.	BPA to BHP LCA	99PB-22685	32.1	32.2	32.2
15.	BPA to BCHA Can Ent	99EO-40003	471.3	467.9	469.6
16.	BPA to BCHA NTSA (from Kim)	12PG-10002	9.4	9.4	9.4
17.	BPA to BHEC 2012PSC	97PB-10051	7.5	7.5	7.5
18.	BPA to PASA C/N/X	94BP-93658	0.0	0.0	0.0
19.	BPA to PASA S/N/X	94BP-93658	0.0	0.0	0.0
20.	BPA to RVSD C/N/X	94BP-93958	2.2	0.0	1.1
21.	BPA to RVSD Seas Xchg	94BP-93958	0.0	0.0	0.0
22.	Federal Intertie Losses (Calculated: 3.0% of Intertie Sales Table 2.12.5 lines 18-21)	n/a	0.1	0.0	0.0

BP-16 RHWM - Federal Tier 1 System Firm Critical Output

Table 2.12.5 (continued)
Designated BPA System Obligations for use in the T1SFCO Calculation
2016 RHWM Process for BP-16 Rate Period
PNW Loads and Resources Study
 Study: S113-RC-20140724-130549

	System Obligation	Contract #	2016	2017	Average ^{1/}
23.	BPA to AVWP WP3 S	85BP-92186	41.8	41.7	41.7
24.	BPA to PPL SNX (Spring Delivery)	94BP-94332	0.0	0.0	0.0
25.	BPA to PPL SPX (Summer Delivery)	94BP-94332	0.0	0.0	0.0
26.	BPA to PSE WP3 S	85BP-92185	41.8	41.7	41.7
27.	BPA to PSE Upper Baker 2	09PB-12126	1.3	1.3	1.3
28.	BPAP to BPAT (Dittmer/Substation Service)	09PB-12128	9.4	9.4	9.4
29.	Federal Power Trans. Losses	n/a	245.8	247.7	246.8
30.	Slice Transmission Loss Returns	n/a	-35.2	-34.3	-34.7
31.	Total Designated System Obligations		305.0	307.5	306.2

^{1/} 2-year average calculated hourly to take into account leap year FY 2016.