

**TRANSMISSION SYSTEM STANDARD  
SUPPORTING DOCUMENT**

**Bonneville**  
POWER ADMINISTRATION



**Generation Commissioning Task Checklist Required for  
Commercial Operations**

**STD-N-000001    Number 03    REVISION 00**

**Standard/Technical Content Owner: TOOC/TOII**

**DISTRIBUTION STATEMENT: Approved for public release**

**DESCRIPTION:**

This document is a supporting document to the BPA STD-N-000001 “Technical Requirements for Interconnection to the BPA Grid”. It details a process required by BPA for a generator commencing approximately 180 days prior to Commercial Operations. This document’s content does not pertain to contractual matters.

Questions should be directed to the BPA Technical Operations (TO) Control Center Coordinator to facilitate better communications and coordination during this phase of construction.

For additional information reference supporting documents:

- STD-N-000001 Number 02 (Generation Commissioning Milestones Required for Commercial Operation)
- STD-N-000001 Number 04 (Generation Commissioning Process Flow for Commercial Operation)





# Commissioning

[Enter Generator Project Name Here]

Category	Task	Date Initiated	Date Completed	Days from Initial	Date To Complete By	Org	Person Responsible	Notes
Prior to In-Service Date	Evaluation and posting of the design model is complete			180	08/14/21	PM	Project Manager	
	RC modeling is submitted			180	08/14/21	TTSE, TPMG	SCADA RC Modeling Team, Transmission Grid Modeling	
	Initial BPA TOO, AE, Customer Kickoff Meeting			90	11/12/21	TOII	Control Center Corodinator (CCC)	
	SCADA RTU points list is published in OPI			90	11/12/21	TTSE	SCADA Modeling Team	
	Generator one lines and communication block diagram are provided			90	11/12/21	GO/TOII	Generator Operator Contact Point/CCC	
	Power studies, voltage schedules are complete and applicable DSO's are updated			90	11/12/21	TOOP	TOOP Study Engineer	
	Coordinate with Project Management, and Field Construction if needed			60	12/12/21	TEP	Project Manager	
	Determine the MW limit for the trial operations period			60	12/12/21	TOOP/TOOC	TOOP Enginner/TOOC AGC Engineer	
	Provide signed agreement(s) (BAASA and/or LGIA or SGIA) to TOO			60	12/12/21	TSE	Account Executive (AE)	
	All RAS NERC/WECC Requirements met			60	12/12/21	TOOC	TOOC RAS/Disturbance	
	Generator Supplies all Technical Plant Data to TOO			60	12/12/21	TPCX	Customer Service Executives (CSE)	
	30 Day Communication Systems Tune-Up Begins			60	12/12/21	TFXX, TTC	Field PSC Craftsman, CC PSC	
	Generation 3 letter acronym is created for the generation			42	12/30/21	TSRS	Richard Stone, Katie Wood	
	Generation 3 letter acronym is registered in EIR (Electric Industry Registry)			42	12/30/21	TSRS	Sue Butler	
	Github request is initially submitted			42	12/30/21	TOOC	TOOC AGC Engineer	
	Customer connected to iCRS			42	12/30/21	TTST	iCRS Tech Support	
	PSC communication equipment released to BPA Operations (30 day tune-up complete)			30	01/11/22	TFXX, TICO, TTCT	Field PSC Craftsman, CC PSC	
	* Determine if an emergency operations threshold is necessary, if the 30 day tune-up is unsuccessful			30				
	Customer supplied 24/7 contact list from Generator Operator supplied to BPA			30	01/11/22	GO	Generator Operator Contact Point	
	Call the provided GO phone numbers to ensure they are correct			30	01/11/22	TOII	CCC	
Send 24/7 contact list out to appropriate groups in BPA			30	01/11/22	TORD/TO RM/TSRS	<a href="#">See DSO-Control Center-Responsibilities.pdf</a> ( <a href="#">OPI &gt; DSO Assignments &gt; CC Responsibilities</a> )		
Notify Control Center teams, Field and any Generation related orgs of upcoming backfeed date			30					
All site equipment installed and initial field tests passed (Includes relays, RTU's, Gen Breakers Trip controls, CTs, PTs, meters and communication equipment)			14	01/27/22	TFXX, TETD	Field Craftsman, Field T&E, CC T&E		
RAS installed, tested and released to BPA Operations			14	01/27/22	RAS	TOOC-RAS		
Initial meter test successful on Generation Meter			14	01/27/22	TFXX	Field SPC Craftman		
<b>Milestone 1:</b> In-Service Date (backfeed has been performed)	In-Service Date (backfeed has been performed)			14	01/27/22	GO, TFXX	GO, BPA Field	
	Notify Control Center teams, Field and any Generation related orgs of Back feed completion and upcoming Initial			7	02/07/22	TFXX, TETD	BPA Field, Field T&E, CC T&E	
	SCADA control of high-side breaker successful			3	02/07/22	TFXX, TETD	BPA Field, Field T&E, CC T&E	
	All BPA EMS systems updated:			3	02/07/22			

	• SCADA (metering values, gen trip commands)			3	02/07/22	TTSE	SCADA Modeling Team (on lines)
	• AGC			3	02/07/22	TTSE	AGC Modeling Team
	• Energy Accounting			3	02/07/22	TTSD	Energy Accounting Technical Team
	• OCBR/OSM (Limit Generation to Schedule Testing)			3	02/07/22	TOOC	AGC Renewables Team
	• Persistent Scheduling Calculation in PI			3	02/07/22	JCD	Charles Meeker
	• Gen ICCP (if required)			3	02/07/22	TTSE	Gen ICCP Steward
<b>Milestone 2:</b> Initial Sync	Plant calls BPA Dispatch and syncs to grid				02/10/22	GO, TFXX	GO, BPA Field
	Verify Final Relay In-Service Test				After Initial Sync	TFXX/TETD	Field Craftsman/T&E
	Verify Final Meter In-Service Test				After Initial Sync	TOOC/TFXX/TETD	TOOC AGC Engineer/SPC Craftsman/T&E
	The plant output is coordinated - The GO is aware of their generation MW limit during trial operations. As the GO is performing their testing in conjunction with BPA, coordination with the control center and/or the project manager (e.g. - voltage and frequency control) is required. GO has been made aware:				After Initial Sync	TOOP/TOOC	TOOP Enginner/TOOC AGC Engineer
	• How to call on Contingency Reserves				After Initial Sync	TSE	Account Executive (AE)
	• How to schedule				After Initial Sync	TSE	Account Executive (AE)
	• Points of contact for BPA operational requirements				After Initial Sync	TSE	Account Executive (AE)
	Successful validation of meter to control center systems				After Initial Sync	TOOC	TOOC AGC Engineer
<b>Milestone 3:</b> Trial Operations	Successful test of the OCBR/OSM response				After Initial Sync	TOOC, TTSE	AGC Renewables Team, AGC Modeling Team
	All field equipment has been released to BPA Operations				After Final Testing	TFXX, TETD	BPA Field Craftsman, T&E
	Voltage and Frequency Control testings is completed and approved per "Required Voltage and Frequency Control Performance Commissioning Tests" supplemental document to Standard N-000001				After Final Testing	GO, TOOC, TPXX	TOOC AGC Engineer, Plng Engineer, Customer Service Engineer (CSE)
	Voltage and Frequency Control tests are submitted to and validated by BPA Ops & Transmission Planning. Unsuccessful test results could require software and/or equipment changes. Follow up testing will be required.				After Final Testing	TOOC, TPXX	TOOC AGC Engineer, Plng Engineer, Customer Service Engineer (CSE)
	Any other project specific requirements				After Final Testing	TOII	CCC
	Close out meeting				After Final Testing	TOII	CCC
<b>Milestone 4:</b> Commercial Operations	Commercial Operations letter is sent to the customer from the AE. GO is allowed to schedule power for sale.				After Final Testing	TSE	Account Executive (AE)

TERM	DEFINITION
24/7 Contact List	A document that contains both BPA and Customer Contact information (includes phone numbers, website links, and email addresses for plant operators or dispatchers with the capacity to perform immediate operational actions )
3 Letter Acronym	Represents the current plant owner and/or plant name associated with the EIR. Note: this value is used in multiple EMS systems (e.g. AGC and TSAS).
30 Day Turn Up	Power System Control (PSC) requires 30 days from the time that central alarm monitoring is in place for new radio or fiber equipment to be in operation and monitored until that equipment can be declared operational.
Automatic Generation Control (AGC)	A system that measures instantaneous loads at interchange points (boundaries with adjacent control area) and adjusts generation to follow load. It consists of continuous, real time load signals (kW), telemetered to AGC computers at a transmission control center.
Balancing Authority Area Service Agreement (BAASA)	Is required for a generator with a nameplate capacity greater than 200 kW that is not directly interconnected to the BPA Transmission System and does not have any other type of interconnection agreement with BPA but is generating power within the BPA BAA.
Commercial Operations (CO)	Shall mean the status of a Generating Facility that has commenced generating electricity for sale, excluding electricity generated during Trial Operation.
Commercial Operations Date (COD)	COD of a unit shall mean the date on which the Generating Facility commences Commercial Operation as agreed to by the Parties pursuant appropriate Interconnection Agreement.
Commercial Release	The point when all BPA Operations requirements and Required Voltage and Frequency Control Performance Commissioning Tests are complete. At this point, the customer is scheduling power.
Electric Industry Registry (EIR)	A NAESB (North American Energy Standards Board) product.
Energy Accounting (EA)	Tracks the KWH produced by generation and interchange. The data used in provisioning other BPA systems and external utilities/BA.
Energy Management System (EMS)	A control system (often computerized) designed to regulate the balance of generation and load in a control area by controlling the operation of generation, transmission, loads consistent with scheduled system frequency and voltages.
Failure to Comply	Addresses the consequences of non-compliance and how the Failure to Comply Penalty is determined.
Initial Synchronization (Sync) Date	Shall mean the date upon which the Generating Facility is initially synchronized and upon which Trial Operation begins.
In-Service Date	Shall mean the date upon which the Interconnection Customer reasonably expects it will be ready to begin use of the Transmission Provider's Interconnection Facilities to obtain back feed power.
Integrated Curtailment and Re-dispatch System (iCRS)	BPA's integrated Curtailment and Redispatch System (iCRS) hosts tools for state awareness (Generation Advisor) and for managing congestion on most of BPAT's internal Network paths by Dispatch (Curtailment Advisor). All generators subject to OCBR or OSM will submit an iCRS application for "Security Officer" and "Generation Advisor Users" (or update its existing applications with the new generator)
Interconnection Date	The estimated date for interconnection to an Interconnection Party as agreed to by the Interconnection Party and Transmission Services after all necessary studies have been completed. More realistic dates are determined as the project gets closer to energization.
Inter-Control Center Communications Protocol (ICCP)	ICCP is an international standard communications protocol for real time data exchange.
Operational Controls for Balancing Reserves (OCBR)	OCBR is used to prevent generation imbalance from creating an over deployment of balancing reserves in BPA. Balancing reserves is the capacity necessary to balance the load and generation in the BA and is comprised of regulation, load following, and generation imbalance. <b>Limiting Generation to Schedule</b> - Limiting variable generation to the scheduled value when there is insufficient DEC balancing reserves available to offset the over-generation. OCBR testing will consist of checking the limit generation to schedule signal from BPA's AGC/SCADA to the plant EMS. <b>Curtailing Schedules to actual generation</b> - Curtailing generator's schedules/e-Tags when their actual generation output is less than the amount scheduled and there are insufficient INC balancing reserves available to offset the under-generation. Curtailments will come through the plant's
Over Supply Management (OSM)	OSM will be implemented in oversupply conditions when the Transmission Provider must displace non-federal generation with generation from the federal hydro system in order to mitigate total dissolved gas levels in the Columbia River.
Plant Data	Includes, but not limited to one-line diagrams, breaker name and numbers, equipment and model identification etc.

Remedial Action Scheme (RAS)	A protection system that automatically initiates one or more control actions following electrical disturbances. Also referred to as 'Special Protection System.' Typical examples include tripping generators or loads and switching of series capacitors, shunt capacitors or shunt reactors.
Small Generator Interconnection Agreement (SGIA)	Is the form of interconnection agreement applicable to an Interconnection Request pertaining to a Small Generating Facility that is included in the Transmission Provider's Tariff. SGIA's are applicable to generators that are greater than 0.2MW and up to 20MW.
Standard Large Generator Interconnection Agreement (LGIA)	Shall mean the form of interconnection agreement applicable to an Interconnection Request pertaining to a Large Generating Facility that is included in the Transmission Provider's Tariff. LGIA's are applicable to generators that are greater 20MW.
Standard Large Generator Interconnection Procedure (LGIP)	Shall mean the interconnection procedures applicable to an Interconnection Request pertaining to a Large Generating Facility that are included in the Transmission Provider's Tariff.
Station Backfeed	Is when BPA energizes the new power plant to allow the transformer to start a 24hr soak and the plant will now have station power.
Supervisory Control and Data Acquisition (SCADA)	A system of remote control and telemetering used to monitor and control the transmission system.
Test Energy	Is pre-arranged generation from the Generating Facility that is produced during the Trial Operation of the Facility in order to complete tests that require the plant to be generating. The MW level of the test energy will be agreed upon between the Transmission Provider and Interconnection
Trial Operations	Shall mean the period during which Interconnection Customer is engaged in on-site test operations and commissioning of the Generating Facility prior to Commercial Operations.

<b>PERSONNEL</b>	<b>DEFINITION</b>
Account Executive (AE)	BPA's authorized representative to sign the SGIA/LGIA and enforce the contract.
BPA Dispatcher	The BPA Dispatcher or system operator is the ultimate authority on all operations, switching, etc. that can affect the BPA Grid. The BPA Dispatchers work 24/7 in two control centers located at Mead and Vancouver, Washington.
Commissioning and Testing (T&E)	TETD performs Commissioning and Testing on Communications equipment on the BPA system, including laboratory testing, fiber verification and field installation to achieve project timeline, consistency, cost and scope.
Customer Service Engineer (CSE)	BPA technical representative to assist the Account Executives.
Power System Control (PSC)	BPA department oversees the communication equipment installation and testing.
System Protection & Control (SPC)	BPA department oversees the protection, metering, and RAS installations and testing.