



Generation Interconnection Transition Cluster Study

Scoping Meeting
March 5, 2025



Agenda

Topic	Presenter
Introduction	Jeff Cook
Purpose of the Scoping Meeting	Cherilyn Randall
Obligations of Section 6.2	Cherilyn Randall
Maps and Study Method	Dave Cathcart
Open for Questions	All

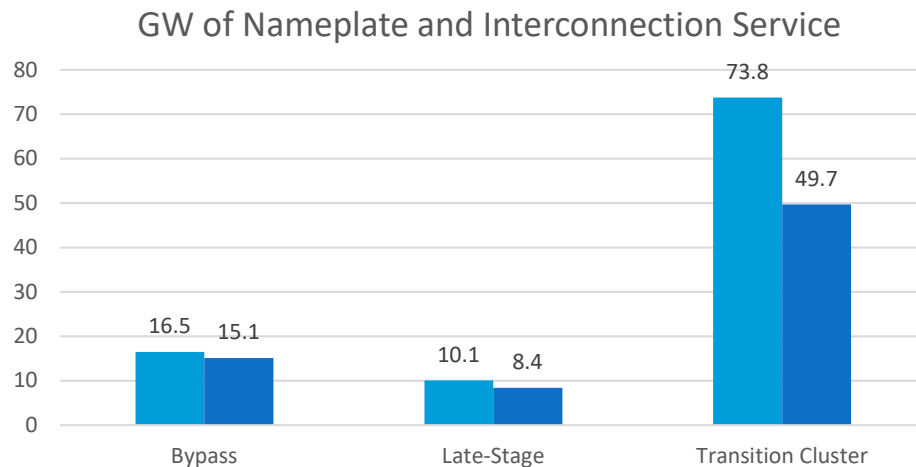
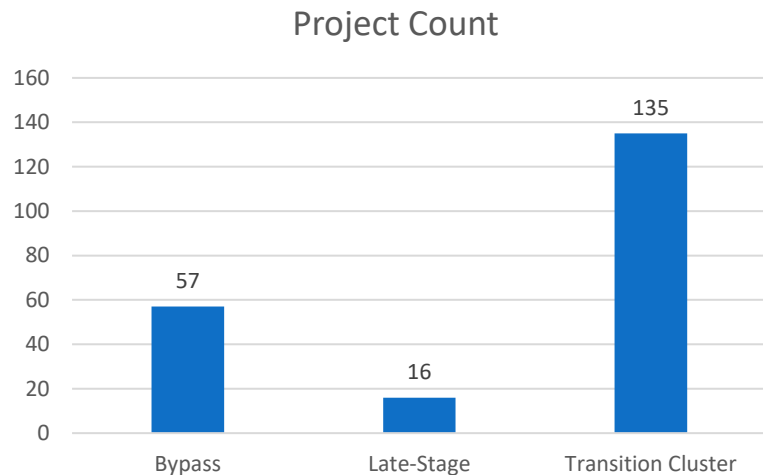
Purpose of the Cluster Scoping Meeting

- The purpose of the Cluster Scoping Meeting shall be to discuss general information regarding the applicable Cluster Study size, provide a general overview of the Cluster Study process, to exchange information that would be reasonably expected to affect the applicable Cluster Study, and to discuss the Cluster materials posted to OASIS pursuant to Section 6.2

Obligations of Section 6.2.1

- Transmission Provider shall post a list of Interconnection Requests for each Cluster. The list shall identify, for each Interconnection Request:
 - (i) the requested amount of Interconnection Service;
 - (ii) the location by county and state;
 - (iii) the station or transmission line or lines where the interconnection is requested;
 - (iv) the requested In-Service Date;
 - (v) the type of Interconnection Service requested; and
 - (vi) the type of Generating Facility to be constructed including fuel type.
- Interconnection Queue

Cluster Study Size (as of February 28, 2024)



Light Blue = Nameplate, Dark Blue = Interconnection Service

General Overview of Cluster Study process

- Customer Engagement Window – 45 days
 - Cluster Scoping meeting
 - Cluster Study Agreements (tendered within 5 business days)
 - 15 business days to sign and return study deposit
- Transition Phase One Cluster Study (starts 4/20/2025)
 - Reasonable efforts to complete in 120 days
- Customer Review Period

Large Generation Transition Process - Bonneville Power Administration

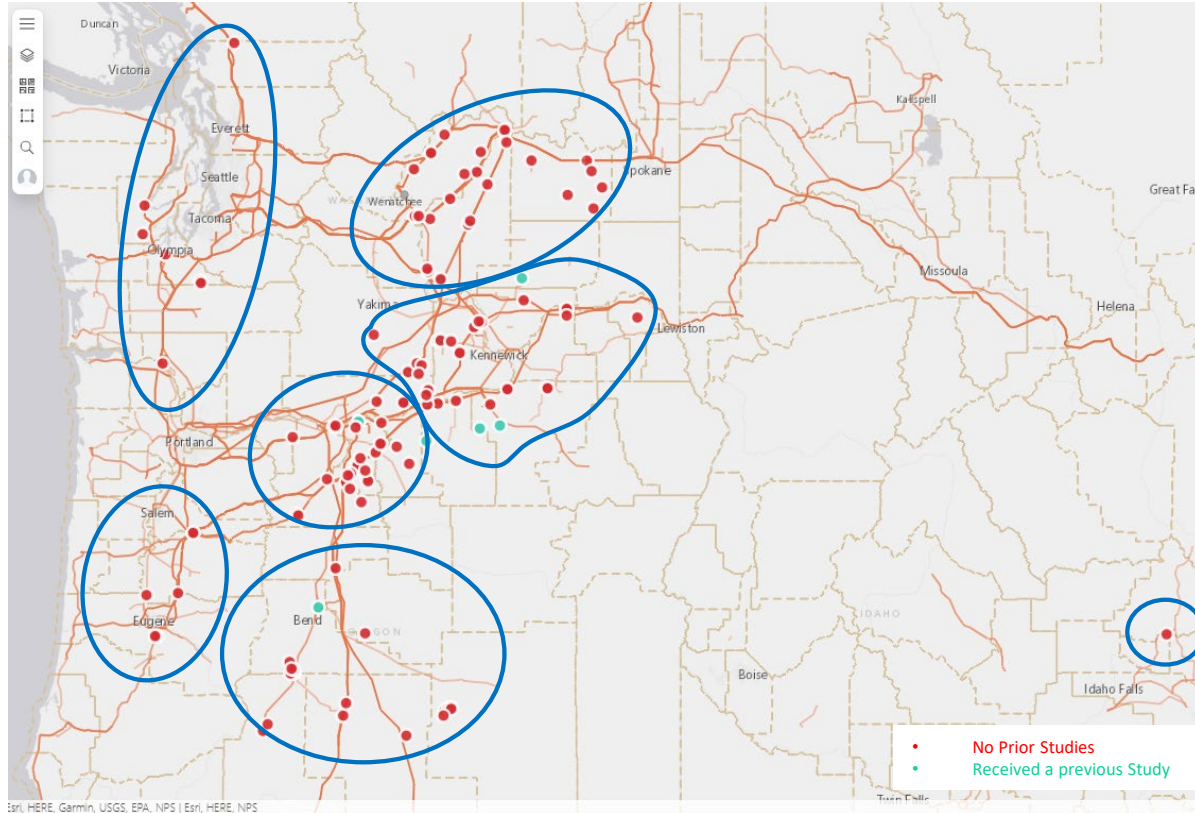
Transition Phase One Study Costs

- BPA good-faith estimated cost of performing the Transition Phase One Study Costs: \$5M
- BPA will share each customers cost within 5 business days
- The required study deposit in the Transition Cluster Agreements is a standard amount based on the Interconnection Requests MW

Maps and Study Method

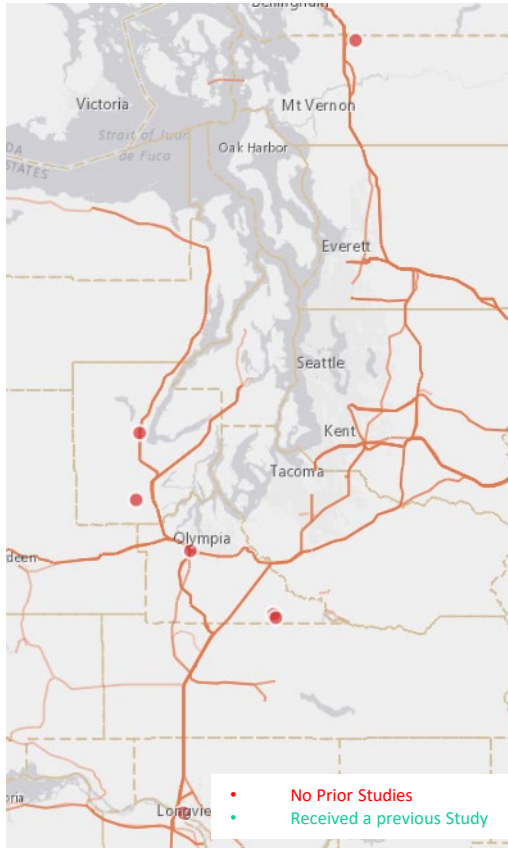


Cluster Study Map and Regions



- 134 Interconnection Requests
- 73.8 GW Nameplate
- ~50 GW Requested Interconnection Service Level
- BPA Facilities are shown in Orange
- Dots are Interconnection Request location

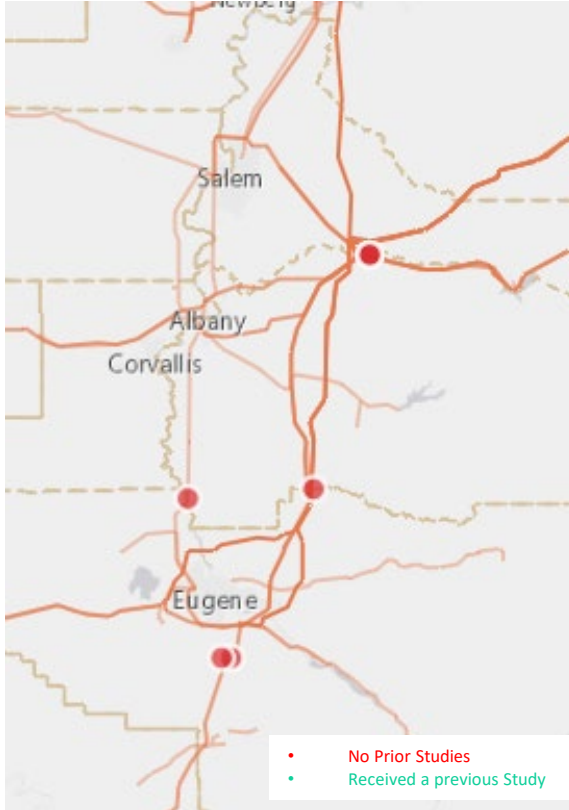
Region 1



Western WA (W.WA) Region 7 GIRs 1,581 MW

Queue Number	Latitude	Longitude	Fuel Source List	MW Total	Rqst MW (max)
G0921	46.793380	-122.551010	Wind Turbine Battery	600	300
G0922	46.140811	-122.981672	Battery	100	100
G0973	47.162072	-123.208461	Wind Turbine	300	300
G0992	48.630765	-122.161101	Wind Turbine	200	131
G1007	46.779555	-122.539230	Battery Wind Turbine	600	300
G1014	46.999740	-122.949439	Battery	250	250
G1048	47.381381	-123.187134	Solar Battery	300	200

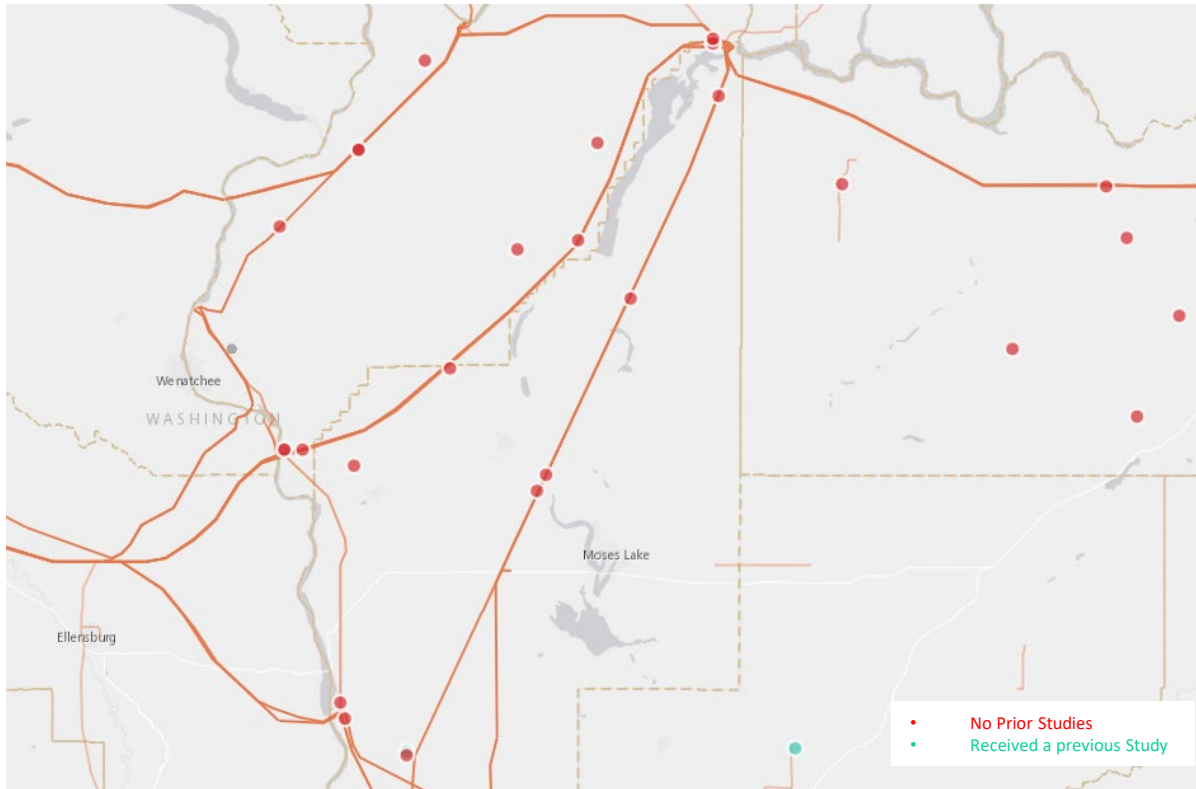
Region 2



Western OR (W.OR) Region 7 GIRs 1,020 MW

Queue Number	Latitude	Longitude	Fuel Source List	MW Total	Rqst MW (max)
G0879	43.929850	-123.043960	Solar	80	80
G0880	43.930200	-123.067000	Solar Battery	160	80
G0886	44.774100	-122.633000	Biofuel Battery	160	80
G0904	44.774100	-122.633000	Biofuel Battery	400	200
G0905	44.774100	-122.633000	Biofuel Battery	400	200
G0918	44.285500	-122.801100	Wind Turbine	300	300
G0971	44.265400	-123.166200	Biofuel Battery	160	80

Region 3

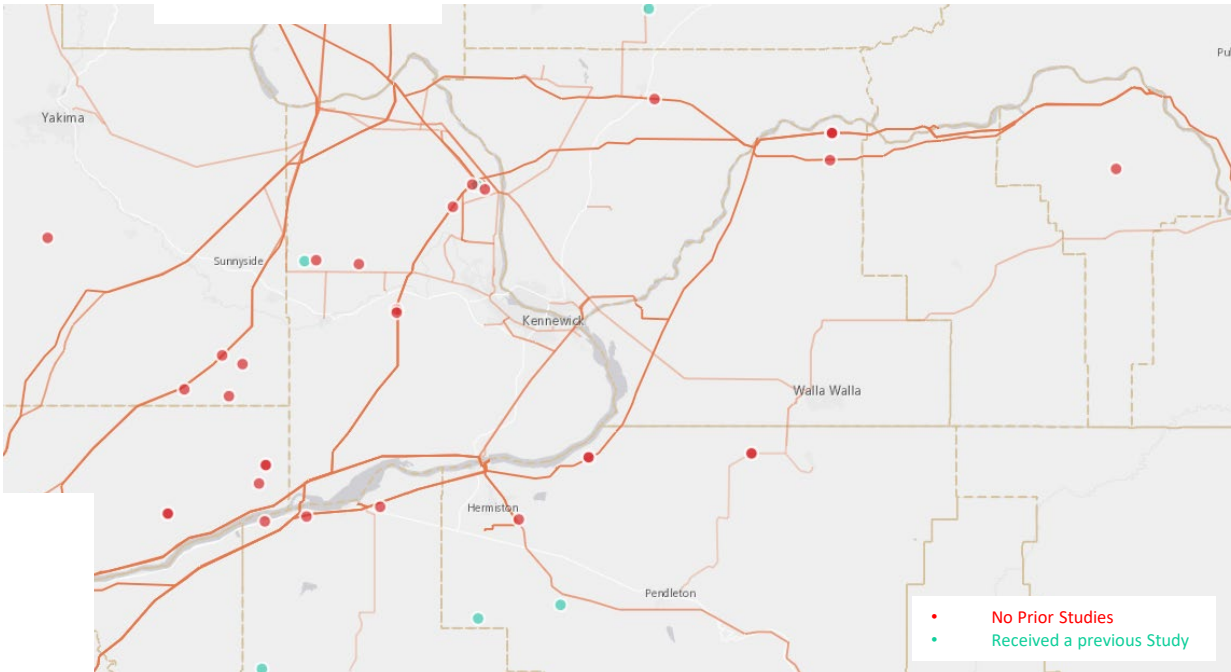


Mid-Columbia (MIDC) Region

30 GIRs 9,580 MW

Queue Number	Latitude	Longitude	Fuel Source List	MW Total	Rqst MW (max)
G0639	47.467130	-120.200865	Solar	200	200
G0744	46.809000	-119.780000	Solar Battery	400	200
G0753	47.277843	-119.908046	Solar Battery	515	300
G0760	46.864146	-119.928428	Battery Natural Gas	990	590
G0761	46.804524	-119.779834	Wind Turbine	290	290
G0819	47.643190	-119.369389	Wind Turbine	200	200
G0820	47.627861	-119.514139	Solar	200	200
G0828	46.889411	-119.939186	Battery	100	100
G0829	47.303269	-120.075428	Battery	20	20
G0840	47.790000	-119.897000	Solar Battery	600	300
G0853	47.790000	-119.897000	Solar Battery	600	300
G0858	47.303269	-120.075428	Battery	130	130
G0860	47.731003	-118.099355	Wind Turbine	300	300
G0914	47.960833	-119.044722	Battery	1,000	1000
G0915	47.960833	-119.044722	Battery	500	500
G0916	47.967333	-119.044117	Battery	500	500
G0953	47.520928	-117.924900	Wind Turbine	600	600
G0954	47.647631	-118.049653	Wind Turbine	350	350
G0955	47.358275	-118.025936	Wind Turbine	350	350
G0956	47.467819	-118.324558	Wind Turbine	400	400
G0985	47.734000	-118.735000	Solar Battery	300	150
G0996	47.800300	-119.321600	Solar	400	400
G1001	47.237000	-119.469300	Solar	150	150
G1016	47.664836	-120.086378	Solar	400	400
G1025	47.304053	-120.031831	Wind Turbine Solar Battery	1,554	250
G1030	47.261676	-119.444799	Solar Battery	300	200
G1032	47.875484	-119.031167	Solar	500	500
G1035	47.933508	-119.738573	Solar	400	400
G1043	47.548400	-119.243300	Battery Solar	300	150
G1047	47.435400	-119.675600	Battery Solar	300	150

Region 4

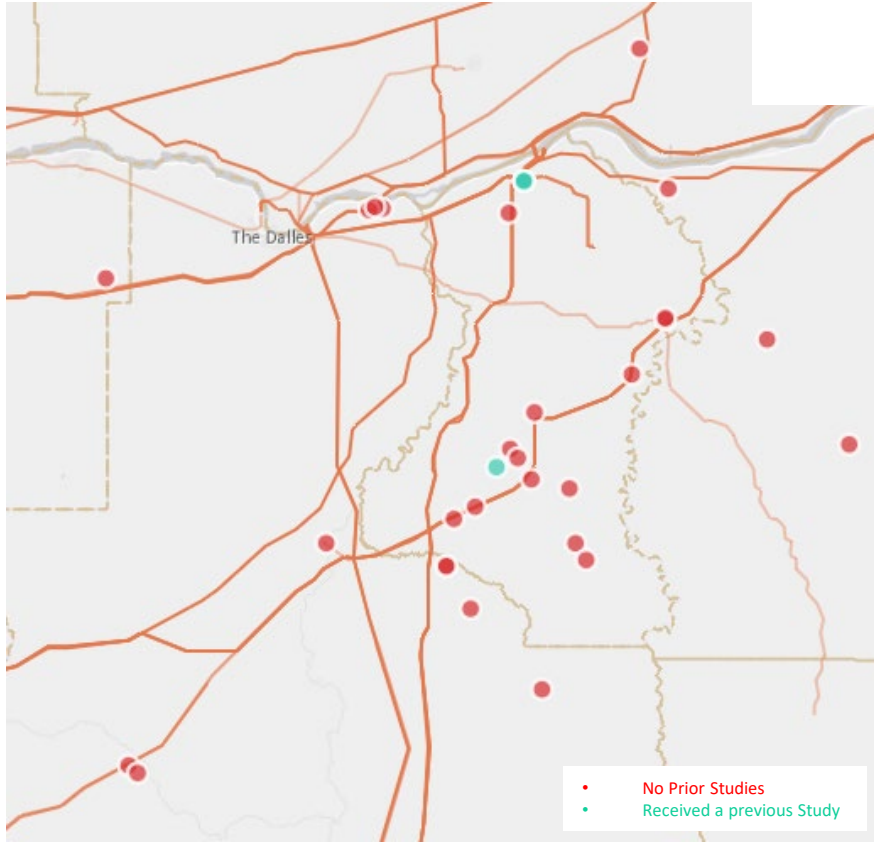


Eastern WA/OR (E.WA/E.OR) Region

37 GIRs 13,116 MW

Queue Number	Latitude	Longitude	Fuel Source List	MW Total	Rqst MW (max)
G0688	46.324000	-119.822000	Solar Battery	1,000	500
G0708	45.823000	-119.816419	Battery	60	60
G0732	46.326319	-119.789325	Solar Battery	400	200
G0745	46.815879	-118.848199	Solar Battery	200	100
G0752	45.841420	-119.608277	Battery Natural Gas	670	340
G0817	46.072704	-120.162588	Solar Battery	325	215
G0822	46.430561	-119.401984	Solar Battery	4,000	2000
G0834	45.938772	-119.018208	Solar Battery Wind Turbine	450	450
G0843	45.829586	-120.208694	Solar Battery	180	120
G0844	45.829586	-120.208694	Solar Battery	420	280
G0854	45.647870	-119.098278	Wind Turbine Solar	600	600
G0855	45.938772	-119.018208	Solar Battery Wind Turbine	450	450
G0872	46.504975	-117.523850	Wind Turbine	300	300
G0908	45.620778	-119.330848	Solar Battery	500	300
G0919	46.471700	-119.333800	Nuclear	270	270
G0920	46.230140	-119.561208	Solar Battery	800	500
G0923	46.573363	-118.328563	Wind Turbine Solar Battery	300	100
G0924	46.573363	-118.328563	Wind Turbine Solar Battery	300	100
G0925	46.573363	-118.328563	Wind Turbine Solar Battery	300	100
G0932	45.925000	-119.932000	Solar Battery	800	400
G0933	45.925000	-119.932000	Solar Battery	800	400
G0934	45.816567	-119.215133	Solar Battery	150	75
G0935	46.521483	-118.334430	Solar	225	225
G0938	46.224334	-119.561303	Battery	300	300
G0941	45.521281	-119.943842	Battery	488	488
G0944	45.814161	-119.934881	Solar	261	261
G0998	46.464622	-119.310280	Nuclear	1,120	1120
G1010	46.369310	-120.550665	Solar	70	70
G1012	45.946503	-118.557228	Wind Turbine	67	67
G1013	45.946503	-118.557228	Wind Turbine	250	250
G1015	46.640158	-118.831944	Solar	500	500
G1029	46.318000	-119.668000	Solar	125	125
G1031	45.888215	-119.951582	Solar	250	250
G1037	46.140000	-120.056000	Solar Battery	800	400
G1038	46.123000	-119.999000	Solar Battery	800	400
G1039	46.473000	-119.348000	Solar Battery	800	400
G1040	46.060000	-120.037000	Solar Battery	800	400

Region 5

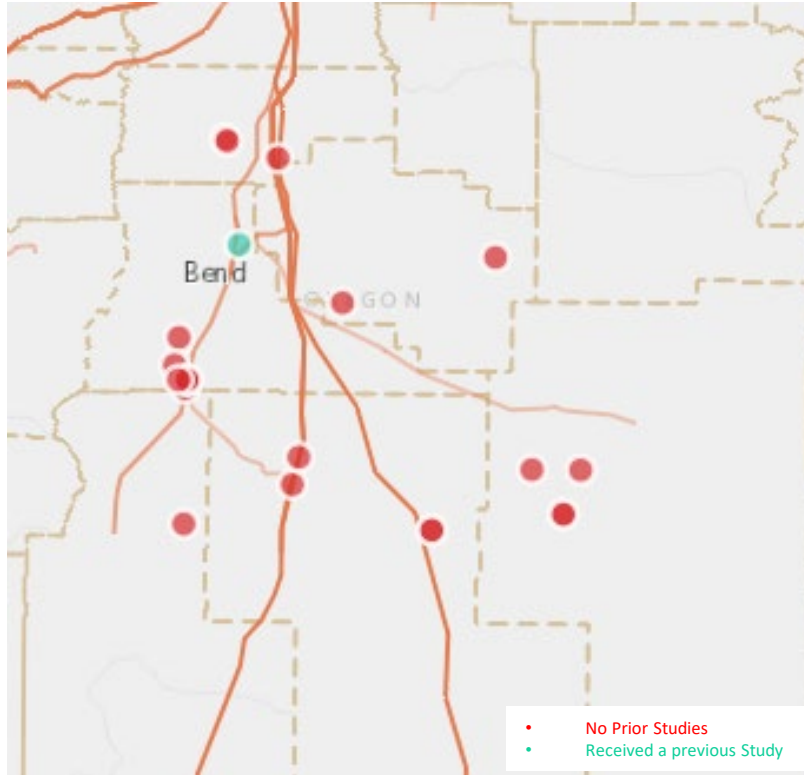


Lower Columbia (LORW) Region

33 GIRs 12,925 MW

Queue Number	Latitude	Longitude	Fuel Source List	MW Total	Rqst MW (max)
G0711	45.672825	-120.728810	Solar	300	300
G0712	45.672825	-120.728881	Solar	448	448
G0728	45.428913	-120.535007	Wind Turbine Battery	420	500
G0768	45.664911	-120.467167	Wind Turbine Solar Battery	600	300
G0787	45.215600	-120.634500	Pumped-Storage Hydro Battery	1,200	600
G0791	45.193700	-120.617000	Solar Battery	1,300	650
G0792	45.215200	-121.086800	Battery	650	650
G0795	45.295800	-120.715600	Solar Battery	1,300	650
G0797	45.029800	-120.696400	Solar Battery	1,300	650
G0825	45.186000	-120.868000	Solar Battery	800	400
G0838	44.932086	-121.442092	Solar Battery	300	150
G0839	44.921728	-121.426308	Solar Battery	300	150
G0849	45.186000	-120.868000	Solar Battery	800	400
G0850	45.132000	-120.824000	Solar Battery	800	400
G0862	45.672825	-120.728881	Battery	400	400
G0863	45.672825	-120.728881	Battery	500	500
G0864	45.311544	-120.779539	Battery Wind Turbine Solar	1,304	500
G0865	45.334000	-120.753000	Solar Battery	300	200
G0866	45.323000	-120.740000	Solar	300	300
G0867	45.261185	-120.815847	Wind Turbine	100	100
G0946	45.639500	-120.985400	Battery	650	650
G0947	45.636400	-121.009000	Battery	650	650
G0948	45.641400	-120.997500	Battery	650	650
G0972	45.474290	-120.289020	Wind Turbine	300	300
G0974	45.339664	-120.141758	Wind Turbine	250	250
G0979	45.840000	-120.520000	Solar Battery	400	200
G0980	45.632574	-120.757209	Wind Turbine	300	191
G0989	45.245700	-120.854300	Solar Battery	550	275
G0994	45.285514	-120.646723	Wind Turbine	277	277
G1002	45.381800	-120.709900	Solar	200	200
G1036	45.551055	-121.485260	Wind Turbine	234	234
G1041	45.497925	-120.473026	Wind Turbine Battery	750	500
G1042	45.500894	-120.472932	Battery	300	300

Region 6



Southern OR (S.OR) Region

20 GIRs 12,630 MW

Queue Number	Latitude	Longitude	Fuel Source List	MW Total	Rqst MW (max)
G0662	44.168071	-121.189356	Solar Battery	600	400
G0702	43.332070	-119.689590	Solar Battery	1,200	600
G0747	43.138272	-121.829722	Solar Battery	400	200
G0758	44.486516	-120.988754	Solar Battery Natural Gas	1,365	600
G0826	43.266000	-120.910000	Solar Battery	560	280
G0841	43.373000	-120.869000	Solar Battery	600	400
G0861	43.950000	-120.654000	Wind Turbine	500	500
G0870	43.712130	-121.523967	Wind Turbine	500	500
G0871	43.628280	-121.461667	Wind Turbine	500	500
G0909	43.619300	-121.490100	Solar Battery	400	200
G0910	43.619200	-121.511900	Solar Battery	400	200
G0912	43.653400	-121.474900	Solar Battery	400	200
G1017	43.194042	-121.774358	Solar Battery	1,024	250
G1050	43.306500	-119.735600	Solar Battery	1,300	650
G1051	43.327400	-119.699700	Solar Battery	2,600	1300
G1052	43.335200	-119.660600	Solar Battery	2,600	1300
G1053	43.325900	-119.661300	Battery	1,300	1300
G1054	43.102710	-120.174560	Battery	1,300	1300
G1055	43.266600	-119.751200	Battery	1,300	1300
G1056	43.657600	-121.502600	Battery	650	650

Region 7



- No Prior Studies
- Received a previous Study

Idaho (ID) Region

1 GIR 202 MW

Queue Number	Latitude	Longitude	Fuel Source List	MW Total	Rqst MW (max)
G0945	43.940000	-111.430000	Solar Battery	202	150

BPA LGI CS Methodology Overview

- OATT Definition of **Cluster Area**:
 - Transmission Provider may segment & perform the Cluster Study according to geographically and/or electrically relevant areas on Transmission Provider's System. Cluster Areas shall be determined by Transmission Provider During Phase One Cluster Study (LGIP sec. 6.5 and 7.4)
- Regions may be subdivided into **Cluster Areas** during the Cluster Study
 - Cluster Areas may contain 1 or more new BPA Network Substations to serve as the Point of Interconnections (POIs)
 - Depending on complexity, may be many Cluster Areas per Region
- The Phase One Cluster Study Report will provide study results based on **Cluster Areas** or Scalable Plan Blocks (if applicable) and not on an individualized basis

BPA GI CS Methodology Overview

- Siting new BPA Network substations will be optimized between competing variables
 - Minimum spacing between BPA Network substations, to limit excessive costs & meet standards
 - Least-distance from Interconnection Request location to the BPA POI, to limit excessive gen-tie line lengths
- Scalable Plan Blocks (Plans of Service) will be prescribed as-needed to affected Interconnection Requests, for each Cluster Area

BPA GI CS Methodology Overview

- Simultaneous dispatch of Interconnection Requests (MW output) will be limited based on the BPA POI station capacity
- BPA POI station MW capacity will be determined by study analysis
- The Phase One Cluster Study results are specific to Interconnection Service only.
 - Transmission Service for deliverability to a given load for the Interconnection Request requires a separate BPA TSR study.

BPA GI CS Methodology Overview

- Transition Cluster Phase One Models: latest available WECC planning horizon base cases
 - 2030 HW / 2030 HS, or 2034 HW / 2034 HS
 - *Heavy Winter (HW) & Heavy Summer (HS)
 - No dynamics required for Phase One
- Network Analysis Scope by Cluster Study Phase
 - Phase 1 CS: Minimum Steady State & SCR performance
 - Phase 2 CS: Minimum Steady State, Post-Transient Stability, Transient Stability & EMT performance

Questions?

- General process questions should be directed to GI Cluster mailbox, and cc: your Account Executive
 - Email Address: GI_ClusterStudies@bpa.gov
 - Subject: Generator Interconnection Transition Cluster Study
- Specific Project/Technical Questions
 - Generation Interconnection Lead:
 - Cherilyn Randall ccrandall@bpa.gov