UNITED STATES DEPARTMENT OF ENERGY
BEFORE THE
BONNEVILLE POWER ADMINISTRATION

In the Matter of:	)	
	)	BPA Docket No. BP-14
FISCAL YEAR (FY) 2014-2015 PROPOSED POWER AND TRANSMISSION RATE ADJUSTMENTS	)	

Pursuant to the Order on Procedures to Admit Evidence[1] (the "Order"), the Western Public Agencies Group submits the following data responses to be included as part of the BP-14 record.

Data Response No.
WG-BPA-4
WG-BPA-5
WG-BPA-6
WG-BPA-7
WG-BPA-15
WG-BPA-16
WG-BPA-18
WG-BPA-21
WG-BPA-34
WG-BPA-35
WG-BPA-36
WG-BPA-38
WG-BPA-39
WG-JP11-1
WG-JP11-2
WG-JP11-3
WG-JP11-4
WG-JP11-5
WG-JP11-6
WG-JP11-7
WG-JP11-8
WG-JP11-9
WG-JP11-13
WG-JP12-1
WG-JP12-2

[1] BP-14-HOO-44.

WG-JP12-3
WG-JP12-4
WG-JP12-5
WG-JP12-6
WG-JP12-7
WG-JP12-9
WG-JP12-10
WG-JP12-15
WG-JP12-16
WG-JP12-17
WG-JP12-18
WG-JP12-19
WG-JP12-20

Dated this 10th day of April, 2013

Respectfully Submitted,

MARSH MUNDORF PRATT SULLIVAN
+ MCKENZIE, P.S.C.

/s/ Ryan S. Neale
Ryan S. Neale
Attorneys for the Western Public Agencies Group

Request Detail

Request ID: WG-BPA-4
Page Number: 8
Line Number: 4-9
Exhibit Filing: BP-14-E-BPA-33

Technical Contact Name: Anne Falcon
Technical Contact Phone: 425.889.2700
Technical Contact Email: falcon@eesconsulting.com
Legal Contact Name: Ryan Neale
Legal Contact Phone: 425.742.4545
Legal Contact Email: ryann@millcreeklaw.com

Request Text: Why for planning the system does BPA separate its system into 24 planning areas? How are the planning areas selected and bounded? If BPA plans the transmission system based on customer non-coincidental peaks, what is the relevance of the areas?

Response Detail

Date Response Filed: 12/12/2012 10:37:09 AM
Contact Name: Larry Furumasu
Contact Phone: 360.619.6851
Contact Email: lafurumasu@bpa.gov
Response Text:
BPA responds to each question as follows: 1. Separating the BPA system into 24 areas for planning purposes allows for the systematic study of the entire system by multiple study teams within the BPA Transmission Planning group. 2. See testimony page 8, lines 5-6. 3. As indicated above, the 24 areas break up the system in a way that allows for systematic study by multiple BPA study teams.
Files Submitted for this Response:

Request Detail

Request ID: WG-BPA-5
Page Number: 8
Line Number: 4-9
Exhibit Filing: BP-14-E-BPA-33

Technical Contact Name: Anne Falcon
Technical Contact Phone: 425.889.2700
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Legal Contact Name: Ryan Neale
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Request Text: Please provide a description of the 24 planning zones of the transmission system. For each area, please describe: (i) The utilities (PTP and NT) located in each area; (ii) The major generating resources impacting transmission facilities; (iii) Any import or export impacting the transmission facilities; (iv) The critical season for each area; (v) List of major transmission facilities; and (vi) List of constrained transmission facilities and description of the key drivers for these constraints.

Response Detail

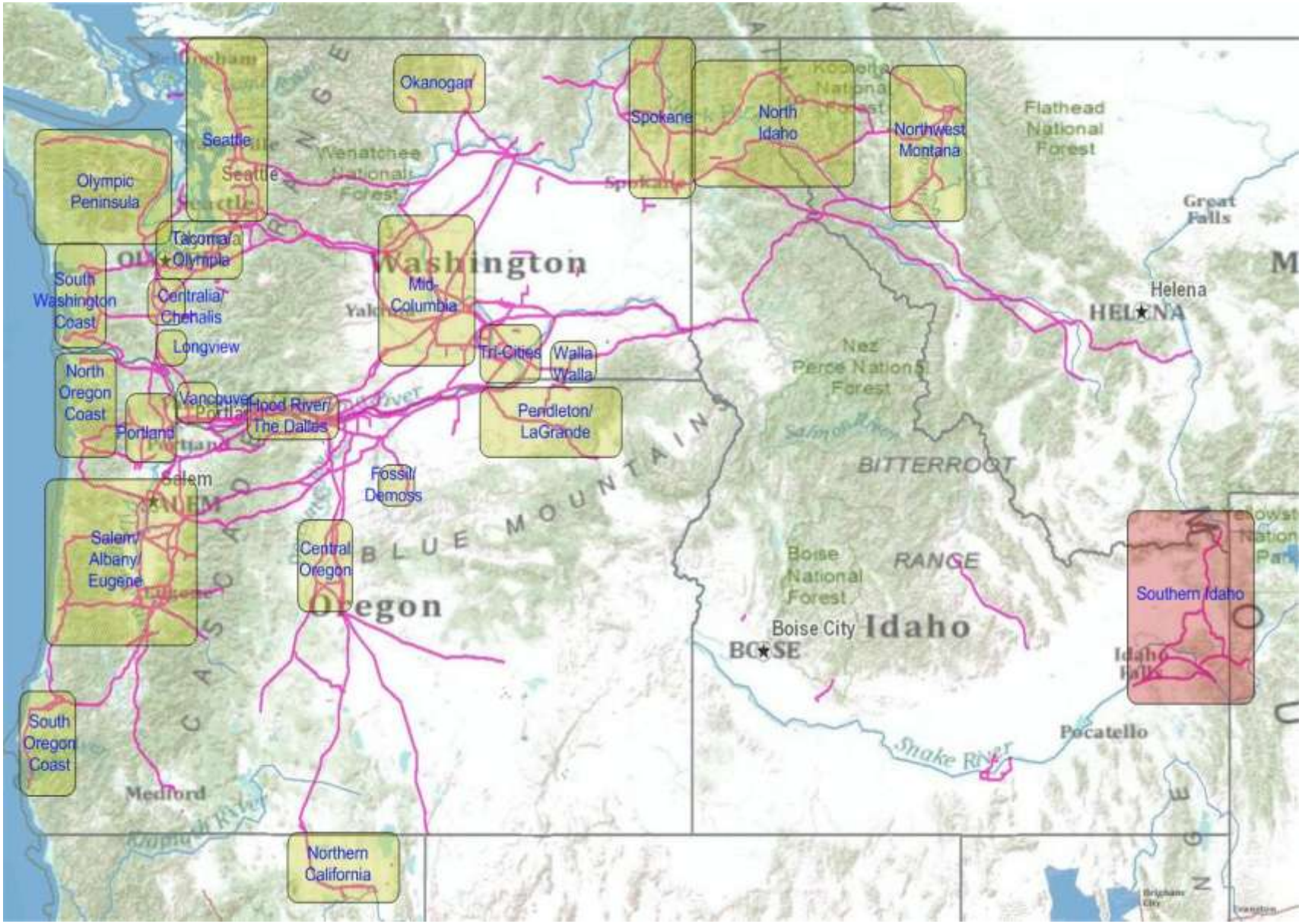
Date Response Filed: 12/13/2012 10:52:48 AM
Contact Name: Larry Furumasu
Contact Phone: 360.619.6851
Contact Email: lafurumasu@bpa.gov
Response Text:
See the attached document. For (iii), BPA does not have data available to respond to this request.
Files Submitted for this Response:
Transmission Planning Area Descriptions 2012.doc

Transmission Planning Area Summaries

For transmission planning studies, BPA has divided its service area up into the following 24 areas:

1 Seattle
2 Portland
3 Tacoma / Olympia
4 Vancouver
5 Salem / Albany / Eugene
6 Olympic Peninsula
7 Tri-cities
8 Longview
9 Mid-Columbia
10 Central Oregon
11 SW Washington Coast
12 Spokane
13 Centralia / Chehalis
14 Northwest Montana
15 Pendleton / LaGrande
16 Southern Idaho
17 North Oregon Coast
18 Northern Idaho
19 South Oregon Coast
20 DeMoss/Fossil
21 Okanogan
22 Hood River / The Dalles
23 Walla Walla
24 Northern California

A map of the service areas is shown on the following page.


Okanogan
Spokane
North Idaho
Northwest Montana
Flathead National Forest
Seattle
Olympic Peninsula
Wenatchee National Forest
Great Falls
Tacoma
Olympia
Washington
South Washington Coast
Centralia/ Chehalis
Mid-Columbia
Helena
HELENA
Longview
Tri-Cities
Walla Walla
North Oregon Coast
Vancouver
Hood River/ The Dalles
Pendleton/ LaGrande
Portland
Nez Perce National Forest
BITTERROOT
Salem
Fossil/ Demoss
Central Oregon
Salem/ Albany/ Eugene
BLUE MOUNTAINS
Boise National Forest
RANGE
Boise City
Idaho
BOISE
Southern Idaho
Idaho Falls
Pocatello
Snake River
South Oregon Coast
Medford
Northern California

Seattle Area Summary

1. General Load Area Description

General description

The Seattle area summary report includes western Washington north of the Tacoma area. It is bounded on the north by Canada, on the south by Tacoma. It is bounded on the east by the Cascade Mountains and on the west by the Puget Sound. It includes Whatcom, Skagit, Snohomish, and King counties. It includes the greater Seattle area including Bellevue and Everett. To the north it includes Blaine, Bellingham, Sedro Wooley and Mount Vernon. Figure 1 shows the Seattle load area relative to the BPA service area.

Customers served

The load includes residential load commercial and industrial load. The customers served include:

1. Whatcom County PUD (WPUD)
2. Puget Sound Energy (PSE)
3. Seattle City Light (SCL)
4. Snohomish County PUD (SPUD)
5. Tacoma Power Utilities (TPU)

Industrial/commercial load

1. Intalco Aluminum
2. Various oil refineries in the Whatcom county area

2. Transmission System Description

Local generation

The local generation that supports the area load includes:

Plant	Voltage (kV)	Owner	MW
Whitehorn	115	PSE	147
Encogen (Enserch)	115	PSE	167
Tenaska Ferndale	115	Tenaska	270
Sumas	115	PSE	125
March Point	115	March Point Cogen Co.	140
Fredonia	230	PSE	208
Fredonia	115	PSE	104
Upper Baker	115	PSE	91
Lower Baker	115	PSE	79
Diablo	230	SCL	159
Gorge	230	SCL	199
Ross	230	SCL	353
Jackson Hydroelectric	115	Snohomish PUD	120

Lines serving the load area

The major lines serving the load area include:

From the **north**:

1. Custer-Ingledow #1 500 kV (BPA)
2. Custer-Ingledow #2 500kV (BPA)

From the **east**:

1. Chief Joseph-Snohomish #1 345 kV (BPA)
2. Chief Joseph-Snohomish #2 345 kV (BPA)
3. Chief Joseph-Monroe 500kV (BPA)
4. Rocky Reach-Maple valley 345 kV (BPA)
5. Echo Lake-Schultz 500 kV (BPA)
6. Shultz-Raver #1 500 kV (BPA)
7. Shultz-Raver #3 500 kV (BPA)
8. Shultz-Raver #3 500 kV (BPA)
9. Covington-Bettas Road 230 kV (BPA)

From the **south**:

1. Paul-Raver 500 kV (BPA)
2. White River-Covington #1 230 kV (PSE)
3. White River-Covington #2 230 kV (PSE)
4. Covington-Chehalis 230 kV (BPA)
5. Tacoma-Cowlitz #1 230 kV (TPU)
6. Tacoma-Cowlitz #2 230 kV (TPU)

Substations serving the load area

The major 500 kV transmission substations include:

1. Custer Substation (BPA)
2. Monroe Substation (BPA)
3. Echo Lake Substation (BPA)
4. Raver Substation (BPA)

The **major** 230 kV and 115 kV load serving substations include:

1. Custer Substation (230/115) (BPA)
2. Portal Way Substation (115 kV) (PSE)
3. Bellingham Substation (115 kV) (PSE)
4. Bellingham Substation (230/115) (BPA)
5. Sedro Wooley Substation (230/115) (PSE)
6. March Point Substation (115 kV) (PSE)
7. Murray Substation (230/115) (BPA)
8. Snohomish Substation (230/115) (BPA)
9. Beverly Park Substation (115 kV) (SPUD)
10. Bothell Substation (230/115) (SCL)
11. Snoking Substation (230/115) (BPA)
12. Sammamish Substation (230/115) (PSE)
13. Novelty Hill Substation (230/115) (PSE)
14. Massachusetts Substation (230/115) (SCL)
15. East Pine Substation (230/115) (SCL)
16. Talbot Hill Substation (230/115) (PSE)
17. Berrydale Substation (230/115) (PSE)
18. Obrien Substation (230/115) (PSE)

Transformers

There are eight 500/230 kV transformers and three 345/230 kV transformer serving the load area:

1. Custer Substation two 500/230 kV transformers (BPA)
2. Monroe Substation one 500/230 kV transformer (BPA)
3. Snohomish Substation two 345/230 kV transformers (BPA)
4. Snoking Substation one 500/230 kV transformer (BPA)
5. Maple Valley Substation one 500/230 kV transformer (BPA)
6. Maple Valley Substation one 345/230 kV transformers (BPA)
7. Covington Substation two 500/230 kV transformers (BPA)
8. Tacoma Substation one 500/230 kV transformer (BPA)

The load serving 230/115 kV transformers include the following (Note: due to the size of the area, load serving transformers below 230/115 were not included:

1. Portal Way Substation one 230/115 kV transformer (PSE)
2. Bellingham Substation one 230/115 kV transformer (BPA)
3. Sedro Wooley Substation one 230/115 kV transformer (PSE)
4. Murray Substation one 230/115 kV transformer (BPA)

5. March Point Substation one 230/115 kV transformer (PSE)
6. Snohomish Substation three 230/115 kV transformers (BPA)
7. Bothell Substation three 230/115 kV transformers (SCL)
8. Novelty Hill Substation one 230/115 kV transformer (PSE)
9. Snoking Substation three 230/115 kV transformer (BPA)
10. Massachusetts Substation two 230/115 kV transformers (SCL)
11. East Pine Substation one 230/115 kV transformer (SCL)
12. Talbot Hill Substation two 230/115 kV transformers (PSE)
13. Berrydale Substation one 230/115 kV transformer (PSE)
14. Obrien Substation two 230/115 kV transformer (PSE)

Reactive support and control

The reactive support (BPA only) for the load area includes:

Location	kV	MVAR	Type	Groups	Total MVAR
Murray (BPA)	115	47	Shunt Capacitors	2	94
Snohomish (BPA)	230	152	Shunt Capacitors	1	152
Snohomish (BPA)	230	76	Shunt Capacitors	1	76
Snohomish (BPA)	115	73	Shunt Capacitors	3	219
Monroe (BPA)	230	147	Shunt Capacitors	1	147
Monroe (BPA)	500	316	Shunt Capacitors	3*	948
Snoking (BPA)	230	153	Shunt Capacitors	2	306
Maple Valley SVC (BPA)	230	300	SVC	1	300
Maple Valley (BPA)	230	100	Shunt Capacitors	4	400
Echo Lake (BPA)	500	316	Shunt Capacitors	2	632
Raver (BPA)	500	312	Shunt Capacitors	2	624
Raver (BPA)	500	328	Shunt Capacitors	1	328
Covington (BPA)	230	152	Shunt Capacitors	2	304
Covington (BPA)	230	81	Shunt Capacitors	1	81
Tacoma (BPA)	230	152	Shunt Capacitors	2	304
Total					**4915**
Monroe (BPA)	230	-180	Shunt reactor	2	-360
Maple Valley SVC (BPA)	230	-350	SVC	1	-350
Raver (BPA)	500	-180	Shunt reactor	3	-540
Covington (BPA)	230	-180	Shunt reactor	1	-180
Total					**-1430**

*The third shunt capacitor at Monore 500kV station is scheduled for energization in 2014.

Bus arrangements

3. Custer 500 kV, Monroe 500 kV, Echo Lake, and Raver 500 kV are all breaker-and-a-half.
4. Custer 230 kV and Intalco 230 kV are large ring busses.

5. Bellingham 230 and 115 kV, Murray 230 and 115 kV 230 kV, Snohomish 230 and 115 kV 230 kV, Snoking 230 and 115 kV 230 kV, Monroe 230, Maple Valley 230 kV, and Covington 230 kV are all main-auxiliary busses. Many of these are segmented into multiple bus sections.

3. Load Forecast

The 2010 NOS report concluded that past and recent studies have shown the summer season is the most limiting for the northern intertie (west) north to south and the winter is the most limiting for northern intertie (west) south to north. The net loads for the Puget sound area assumed in the 2010 NOS were:

- WECC 2016 Heavy Summer (4600 MW Puget Sound Area Net Load)
- WECC 2014-15 Heavy Winter (7020 MW Puget Sound Area Net Load)

Portland Area

1. General Load Area Description

General description

This area includes the greater Portland metropolitan and the surrounding communities of Troutdale, Gresham, Sandy, Beaverton, Hillsboro, Tigard, Tualatin and Wilsonville, Oregon. The area includes Multnomah, Washington and northeast Clackamas counties. South Columbia County is also included in the greater Portland area.

Customers served

The load is primarily residential load with a smaller amount of commercial and industrial load. The customers served include:

6. Portland General Electric (PGE)
7. PacifiCorp (PAC)

Industrial/commercial load

Industrial load in the area includes Intel.

2. Transmission System Description

Local generation

The local generation that supports the area load includes:

1. Beaver C.T. Generation (PGE) 495 MW
2. Bull Run Hydro #1 (PGE) 21 MW
3. Bull Run Hydro #2 (City of Portland) 33 MW
4. Faraday Hydro (PGE) 33 MW
5. North Folk Hydro (PGE) 38 MW
6. Oak Grove Hydro (PGE) 50 MW
7. River Mill Hydro (PGE) 19 MW
8. Sullivan Hydro (PGE) 15 MW

Lines serving the load area

The major lines serving the load area include:

3. Paul-Allston 500-kV #1(BPA)
4. Paul-Allston 500-kV #2(BPA)
5. Pearl-Marion 500-kV (BPA)
6. Wautoma-Ostrander 500 kV (BPA)
7. Big Eddy-Ostrander 500-kV (BPA)
8. North Bonneville-Troutdale 230 kV #1 (BPA)

9. North Bonneville-Troutdale 230 kV #2 (BPA)
10. Ross-Rivergate 230 kV (BPA)
11. Ross-St Johns 230 kV (BPA)
12. Big Eddy-Mcloughlin 230 kV (BPA)
13. Big Eddy-Troutdale 230 kV (BPA)
14. Bethel-Mcloughlin 230-kV (PGE)

Substations serving the load area

The major 500 transmission substations serving the load area include:

5. Allston Substation with two 500/230 kV transformers (BPA)
6. Keeler Substation with one 500/230 kV transformer (BPA)
7. Pearl Substation
8. Troutdale Substation
9. Ostrander Substation (BPA)
10. McLoughlin Substation (PGE)

The load serving substations include:

1. Keeler Substation with two 230/115 kV transformers (BPA)
2. St. Johns Substation with one 230/115 kV transformer (BPA)
3. Rivergate Substation with two 230/115 kV transformers (PGE)
4. St. Marys Substation with three 230/115 kV transformers (PGE)
5. Murray Hill Substation with one 230/115 kV transformer (PGE)
6. Sherwood Substation with two 230/115 kV transformers (PGE)
7. McLoughlin Substation with two 230/115 kV transformers (PGE)
8. Carver Substation with one 230/115 kV transformer (PGE)
9. Gresham Substation with two 230/115 kV transformers (PGE)
10. Linnemann Substation with one 230/115 kV transformers (PGE)
11. Blue Lake Substation with one 230/115 kV transformers (PGE)
12. Troutdale Substation with three 230/115 kV transformers (PAC)

Transformers

The 500/230 kV transformers include,

1. Allston 1300 MVA (BPA)
2. Allston 1008 MVA (BPA)
3. Keeler 1008 MVA (BPA)
4. Pearl 1792 MVA (BPA)
5. Pearl 433 MVA (BPA)
6. Troutdale 1500 MVA (BPA)
7. McLoughlin 1008 MVA (owned BPA)

The load serving transformers include:

1. Keeler Substation 280 MVA 230/115 kV (BPA)
2. Keeler Substation 250 MVA 230/115 kV (BPA)
3. St. Johns Substation 250 MVA 230/115 kV (BPA)
4. Rivergate Substation 200 MVA 230/115 kV (PGE)
5. Rivergate Substation 320 MVA 230/115 kV (PGE)

6. St. Marys Substation 320 MVA 230/115 kV (PGE)
7 St. Marys Substation 320 MVA 230/115 kV (PGE)
8. St. Marys Substation 320 MVA 230/115 kV (PGE)
9. Murray Hill Substation 320 MVA 230/115 kV (PGE)
10. Sherwood Substation 320 MVA 230/115 kV (PGE)
11. Sherwood Substation 320 MVA 230/115 kV (PGE)
12. McLoughlin Substation 319 MVA 230/115 kV (PGE)
13. Mcloughlin Substation 320 MVA 230/115 kV (PGE)
14. Carver Substation 320 MVA 230/115 kV (PGE)
15. Gresham Substation 320 MVA 230/115 kV (PGE)
16. Gresham Substation 252 MVA 230/115 kV (PGE)
17. Linneman Substation 169 MVA 230/115 kV (PGE)
18 Blue Lake Substation 320 MVA 230/115 kV (PGE)
19. Troutdale Substation 250 MVA 230/115 kV (PAC
20. Troutdale Substation 125 MVA 230/69 kV (PAC)
21. Troutdale Substation 125 MVA 230/69 kV (PAC)

Reactive support and control

The reactive support for the load area includes:

1. Keeler 314 Mvars shunt capacitors @ 230 kV
2. Keeler 350 Mvars shunt capacitors @ 230 kV
3. Keeler 381 Mvars shunt capacitors @ 500 kV
4. Oregon City 20 Mvars shunt capacitors @ 115 kV
5. Ostrander 949 Mvars capacitors @ 500 kV
6. Pearl 152 Mvars shunt reactor @ 230 kV
7. Pearl 291 Mvars shunt capacitors @ 500 kV
8. Troutdale 390 Mvars shunt capacitors @ 230 kV
9. PGE (Various locations) shunt capacitors @ 115kV
10. Troutdale 47 Mvar shunt capacitors @ 69kV (PAC)

Bus arrangements

6. Allston, Pearl, and Ostrander 500-kV stations are a breaker-and-a-half configuration. , Keeler is a double bus layout and Troutdale is a transformer terminated line.

7. Allston, Keeler, Pearl and Troutdale 230-kV buses are main/transfer bus arrangement with one bus sectionalizing breaker

8. Sherwood, Rivergate, Gresham and McLoughlin 230-kV buses are main/transfer bus arrangement no bus sectionalizing breakers

9. St Mary's 230-kV bus is a breaker-and-a-half configuration

10. Linneman, Carver and Blue Lake have only a 230-kV main bus

11. Most 115-kV switching station buses in the Portland area tend to be main/transfer bus or a ring bus arrangement

3. Load Forecast

Winter load

PGE Load forecast (Portland area)

Winter Peak 2010 = 3627 MW (SCADA)
Winter Peak 2016 = 4452 MW (studies)
Winter Peak 2021 = 4826 MW (studies)

Summer load

PGE Load forecast (Portland area)

Summer Peak 2011 = 3340 MW (SCADA)
Summer Peak 2016 = 3879 MW (studies)
Summer Peak 2021 = 4311 MW (studies)

Salem-Albany-Eugene Area

1. General Load Area Description

General description

This includes western Central Willamette Valley and the central Oregon coast. It includes Polk, Benton, and Linn counties in the Willamette Valley and Lincoln, Lane, and Douglas counties along the Oregon Coast. It is bounded by Willamette National Forest on the east and the Pacific Ocean on the west. It is bounded by the Portland area to the north and the south of Eugene area to the south. Due to the size of this area, it was divided into three sub-regions. The northern region includes the Salem-Albany area and the southern region is the Eugene area. The western region includes the central Oregon Coast.

The major population areas include Salem, Albany, Eugene and Corvallis in the Willamette valley and the smaller communities include Dallas, Monmouth, Independence, Silverton, Stayton, Lebanon, Harrisburg, Roseburg, and Myrtle Creek. The communities along the central Oregon coast include Lincoln City, Newport, Florence, Reedsport, North Bend and Coos Bay. The area north of this is covered by the North Oregon Coast studies and the area south of this are covered by the South Oregon coast studies.

Customers served

The load is primarily residential load with a smaller amount of commercial and industrial load. The customers served include:

8. Portland General Electric (Salem Area)
9. PacifiCorp (Albany, Corvallis, Lebanon Area, Southwest Oregon Coast)
10. Seven Electric Cooperatives: Western Oregon, Blachley-Lane, Lane Electric, Douglas Electric ,Coos-Curry, Salem Electric, and Consumers Power (Albany, Corvallis, Lebanon Rural Areas)
11. City of Monmouth
12. Central Lincoln PUD
13. Emerald PUD
14. Eugene Water and electric Board (EWEB)
15. U.S. Bureau of Mines located in Albany, OR

Industrial/commercial load

None.

2. Transmission System Description

Local generation

The Salem/Albany local generation that supports the area load include:

12. Two Foster Dam (22 MW) owned by US Army Corp

13. Green Peter Dam ((92 MW owned by US Army Corp
14. Detroit Dam (120 MW) owned by US Army Corp
15. Big Cliff Dam (22 MW)
16. Adair generation (5.6 MW) owned by Consumers Power

The Eugene local generation that supports the area load include:

1. Three Carmen generators owned by EWEB for a total of 94.5 MW maximum
2. Two Cougar generators owned by US Army Corp for a total of 28 MW maximum
3. Two Weyco generators owned by EWEB for a total of 47 MW maximum
4. Leaburgs generation owned by EWEB for a total of 13.8 MW Maximum
5. Stone CR generation owned by EWEB for a total of 12.5 MW maximum
6. Waltville generation owned by EWEB for a total of 9.7 MW maximum
7. Two Hills Cr Green generators owned by US Army Corp for a total of 34 MW maximum.

The central Oregon Coast local generation that supports the area load include:

None.

Lines serving the load area

Most of the lines serving the load area are out of Marion Substation and Alvey Substation.

- The major lines serving Marion Substation are the Buckley-Marion 500 KV #1, the Ashe Marion 500 KV #2, the John Day-Marion 500 KV #1, and the Pearl-Marion 500 KV #1.
- The major lines serving Alvey Substation are the Marion-Alvey 500 KV and the Alvey-Dixonville 500 KV (PAC).

The major lines serving the Salem/Albany/Eugene load area include:

15. Santiam-Bethel 230 KV (BPA)
16. Santiam-Chemawa 230 KV (BPA)
17. Santiam-Albany 230 KV (BPA)
18. Big Eddy-Chemawa 230-kV (BPA)
19. Round Butte-Bethel 230 KV (PGE)
20. McLoughlin-Bethel 230-KV (PGE)
21. Bethel-Fry-Alvey 230-kV (PAC)
22. Jones-Canyon Santiam 230 KV
23. Marion-Santiam 500 KV
24. Marion-Lane 500 KV #1
25. Alvey-Lane 230 KV

The major lines serving the central Oregon coast area include:

1. Alvey-Fairview 230 kV (BPA)
2. Dixonville-Fairview 230 KV (PAC)
3. Santiam-Toledo 230 KV #1 (BPA)
4. Lane-Wendson 115 KV #1
5. Lane-Wendson 115 KV #2

Substations serving the load area

The substations serving the **Salem** load area include:

11. Bethel Substation located East of Salem (PGE)
12. Chemawa Substation located North of Salem near Keizer, OR (BPA)
13. Salem Substation located to the West of Salem (BPA)

The substations serving the **Albany** load area include:

1. Santiam Substation located East of Albany near Stayton, OR. (BPA) It is the main source for both the Salem and Albany load areas
2. Fry Substation located East of Albany (PAC)
3. Albany Substation located in the Southwest end of the town (BPA)

The substations serving the **Eugene** load area include:

1. Alvey Substation located in Southeast Eugene
2. Lane Substation located west of Eugene.

The substations serving the **central Oregon Coast** load area include:

1. Fairview Substation (BPA)
2. Toledo Substation (BPA)
3. Wendson Substation (BPA)

Transformers

The transformers serving the **Salem-Albany** load area include:

1. Albany 300 MVA 230/115 kV (BPA)
2. Chemawa 220 MVA 230/115 kV (BPA)
3. Salem 290 MVA 230/115 kV (BPA)
4. Two Fry 280 MVA 230/115 kV (PAC)
5. Two Bethel 250 MVA 230/115 kV (PGE)

The transformers serving the **Eugene** load area include:

1. Two Alvey 250 MVA 230/115 kV (BPA)
2. Two Lane 280 MVA 230/115 kV (BPA)
3. Albany 300 MVA 230/115 kV (BPA)
4. Mckenzew 250 MVA 230/115 kV (Eugene Water and Electric)

The transformers serving the **central Oregon Coast** load area include:

1. Two Toledo 250 MVA 230/69 kV (BPA)
2. Fairview 250 MVA 230/115 kV (BPA)
3. Wendson 200 MVA 230/115 kV (BPA)
4. Tahkenitch 250 MVA 230/115 kV (BPA)

Reactive support and control

The reactive support for the **Salem-Albany** load area include:

11. Chemawa 135 Mvars shunt capacitors @ 230 kV
12. Chemawa 24 Mvars shunt capacitors @ 115 kV
13. Albany 100 Mvars shunt capacitors @ 115 kV

14. Santiam 104 Mvars shunt capacitors @ 230 kV
15. Santiam 180 Mvars shunt reactor @ 230 kV
16. Lebanon 20 Mvars shunt capacitors @ 115 kV

The reactive support for the **Eugene** load area include:

1. Lane 37 Mvars shunt capacitors @ 115 kV
2. Lane 72 Mvars shunt capacitors @ 230 kV
3. Alvey 78 Mvars shunt capacitors @ 115 kV
4. Alvey 3 each 115 Mvars shunt capacitors @ 230 kV
5. Alvey 114.9 Mvars shunt reactor @ 230 kV
6. Alvey 2 each 43.2 Mvars shunt reactor @ 121 kV
7. Marion 460 Mvars shunt capacitors @ 500 kV
8. Marion 180 and 300 Mvars shunt reactors @ 500 kV

The reactive support for the **central Oregon coast** load area include:

1. Tahkenitch 42 Mvars @115 kV
2. Fairview 61 Mvars @ 115 kV
3. Drain 8 Mvars @115 kV
4. Toledo 230kV Mvars @ 230 kV
5. Toledo 58 Mvars @ 115 kV

Bus arrangements

17. The Alvey 230kV bus is a main/transfer bus arrangement with a 230kV bus sectionalizing breaker. The 115kV bus has a main/transfer bus arrangement.

18. The Santiam 230-kV bus is a main/transfer bus arrangement with a 230-kV bus sectionalizing breaker.

19. BPA's Chemawa 230-kV, Chemawa 115-kV and Albany 115-kV have a main/transfer bus arrangement.

20. The Lane 230-kV and 115-kV buses both have a main/transfer bus arrangement.

21. The Salem 115-kV bus is a non-standard BPA design double bus/single breaker design. There is no 230-kV bus at Salem

22. PGE's Bethel 230-kV and 115-kV buses have been rebuilt to a reliable breaker and a half bus layout.

23. PacifiCorp's Fry 230-kV bus is a ring bus whereas the Fry 115-kV bus is a main/transfer bus arrangement.

24. BPA's Fairview 230 kV bus has been rebuilt to include a sectionalizing breaker.

3. Load Forecast

Winter load

Salem-Albany

Winter Peak 2011/12 = 994 MW (SCADA)

Winter Peak 2016 = 1343 MW (studies)

Winter Peak 2021 = 1436 MW (studies)

Eugene

Winter Peak 2011/12 = 983 MW (SCADA)
Winter Peak 2016 = 1144 MW (studies)
Winter Peak 2021 = 1196 MW (studies)

Summer load

Salem-Albany

Summer Peak 2011 = 814 MW (SCADA0
Summer Peak 2016 = 1098 MW (studies)
Summer Peak 2021 = 1183 MW (studies)

Eugene

Summer Peak 2011 = 681 MW (SCADA0
Summer Peak 2016 = 865 MW (studies)
Summer Peak 2021 = 913 MW (studies)

Tacoma-Olympia Area

1. General Load Area Description

General Description

The Tacoma/Olympia Area study covers loads in Pierce, Thurston, North Lewis and South King counties. It includes major metropolitan areas surrounding Tacoma, Puyallup, Olympia, and Federal Way. T

Customers served

The load serving customers include:

Tacoma Public Utilities (TPU)
Puget Sound Energy (PSE)
Alder Mutual Light Co. (Mutual)
City of Eatonville (Mutual)
City of Milton (Mutual)
City of Steilacoom (Mutual)
Elmhurst Light and Power (Mutual)
Lakeview Light and Power (Mutual)
Ohop Mutual Light (Mutual)
Parkland Light and Power (Mutual)
Peninsula Light (Mutual)

Load

The load includes the residential and commercial loads.

2. Transmission System Description

Generation

The generation local to the Tacoma-Olympia area includes:

1. TPU's Cushman Hydroelectric	133 MW
2. TPU's Alder Hydroelectric	50 MW
3. TPU's LaGrande Hydroelectric	65 MW
4. Fredrickson LLP thermal	270 MW
5. PSE Fredrickson thermal	162 MW
6. Simpson Biomass thermal	64 MW
Total	**744 MW**

The generation outside the load area includes:

7. Centralia thermal	1460 MW
8. PAC's Chehalis thermal	600 MW
9. Big Hanaford thermal	260MW
10. Grays Harbor thermal	640 MW
Total	**2960 MW**

Substations

The major substations serving the area include:

Tacoma Area

1. Covington Substation (BPA)
2. Tacoma Substation (BPA)
3. South Tacoma Substation (BPA)
4. Northeast Substation (TPU)
5. Cowlitz Substation (TPU)
6. Southwest substation (TPU)
7. Canyon substation (TPU)

Olympia Area

1. White River 230 kV (PSE)
2. Chehalis 230 kV (BPA)
3. Olympia Substation (BPA)
4. Olympia Substation (PSE)
5. St. Claire Substation (PSE)
6. Paul 500 kV (BPA)

Lines serving the load area

Figure 3 shows the cutplane for the Tacoma-Olympia area. The cutplane shows the lines feeding the load area as well as the other load areas that this load area feeds.

The major lines feeding the area load are:

1. Raver-Covington #1 & #2 500 kV (BPA)
2. Raver-Tacoma 500 KV line (BPA)
3. Bettas Road-Covington 230 kV (BPA)
4. Baldi-White river 230 kV line (PSE)
5. Grand Coulee-Olympia 287 kV line
6. Paul-Olympia 500 kV line (BPA)
7. Paul-Tono 500 kV line (PSE)
8. Chehalis-Covington #1 230 kV line
9. Chehalis-Olympia 230 kV line
10. Satsop-Olympia 230 kV line (BPA)
11. Obrien-Tacoma 230 kV line (PSE)

The smaller lines feeding the area load are:

1. Two Cushman-Pearl 115 KV lines (TPU)
2. Two Alder-Cowlitz 115 KV lines (TPU)
3. Obrien-White River 115 kV line
4. Starwood-White River 115 kV line (PSE)
5. Ellingson-White River 115 kV line (PSE)

The load area typically provides service outside the area over the following lines:

1. South Elma-Olympia 115 kV line (BPA)
2. Olympia-Shelton 230 kV #3, #4, and #5
3. Olympia-Shelton 115 kV #1 and #2
4. Covington-Creston 230 kV (SCL)
5. Covington-Maple Valley 230 kV (BPA)
6. Covington-Berrydale 230 kV (PSE)

Transformers

1. Northeast Substation (TPU) 2 - 230/115 KV transformers
2. Tacoma Substation (BPA) 1 - 500/230 KV transformer
3. Cowlitz Substation (TPU) 2 - 230/115 KV transformers
4. Southwest Substation (TPU) 2 - 230/115 KV transformers
5. Canyon Substation (TPU) 1 - 230/115 KV transformer
6. Tacoma Substation (BPA) 1 - 500/230 KV transformer
7. Olympia Substation (BPA) 2 – 230/115 KV transformers
8. Olympia Substation (BPA) 1 - 500/230 KV transformer
9. Olympia Substation (BPA) 1 - 287/230 KV transformer
10. Tono Substation (PSE) 1 - 500/115 KV transformer
11. White River Substation (PSE) 2 - 230/115 KV transformers
12. Covington Substation (BPA) 2 – 500/230 KV transformers
13. Satsop Substation (BPA) 1 – 500/230 KV transformer

Reactive Support

Location	**kV**	**MVAR**	**Type**	**Groups**	**Total MVAR**
Tacoma (BPA)	230	152	Shunt caps	2	304
Northeast (TPU)	115	83	Shunt caps	1	83
Cowlitz (TPU)	115	63	Shunt caps	1	63
Soutwest (TPU)	115	104	Shunt caps	1	104
Pearl (TPU)	115	115	Shunt caps	1	115
Olympia (BPA)	115	56	Shunt caps	1	56
Olympia (BPA)	230	152	Shunt caps	2	304
Covington (BPA)	230	152	Shunt caps	2	304
Covington (BPA)	230	81	Shunt caps	1	81
Total					1414
Covington (BPA)	230	-172	Shunt reactor	1	-172
Olympia (BPA)	230	-180	Shunt reactor	1	-180

Bus arrangements

25. Main Transfer: Tacoma Substation 230 kV (BPA), Covington 230 kV (BPA), Olympia 230 kV (BPA), Olympia 115 kV (BPA),
26. Breaker-and-a-half: South Tacoma Substation (BPA) 230 KV, Paul 500 kV (BPA), Raver 500 kV (BPA)
27. Double bus single breaker arrangements Northeast (TPU), Cowlitz (TPU), Southwest (TPU), and Pearl (TPU)
28. Transformer-terminated lines: Covington 500 kV (BPA), Tacoma 500 kV (BPA), Olympia 287 kV (BPA), Olympia 500 kV (BPA), Satsop 500 kV (BPA)
29. Other: Most other TPU 115 KV stations tend to have a single main bus with no auxillary or transfer bus.

3. Load Forecast

The Tacoma-Olympia load forecast is:

Heavy winter load

2016 1-in-2 loads, 1961 MW Tacoma and Olympia area net load
2021 1-in-2 loads, 2040 MW Tacoma and Olympia area net load

Heavy summer load

2016 1-in-2 loads, 1375 MW Tacoma and Olympia area net load
2021 1-in-2 loads, 1409 MW Tacoma and Olympia area net load

Spokane Area Summary

1. General Load Area Description

General description

This includes the greater Spokane area as well as the Colville Valley to the north including the communities of Colville and Chewelah and the eastern Washington area to the east including Newport, WA.. This would include Pend Oreille, Stevens and Spokane Counties.

Customers served

The load is primarily residential load with a smaller amount of commercial and industrial load. The customers served include:

16. Avista
17. Inland Power and Light
18. West Kooteney Power and Light
19. Pend Oreille PUD
20. Ponderay Newsprint Company

Industrial/commercial load

2. Transmission System Description

Local generation

The local generation that supports the area load includes:

1. Seattle City Light's Boundary generation (1040 MW)
2. Pend Oreille's Box Canyon generation (66 MW)
3. USACE's Albeni Falls generation (48 MW)
4. Avista's Long Lake generation (88 MW)
5. Avista's Little Falls generation (32 MW)
6. USACE's Dworshak generation (458 MW)

Lines serving the load area

The major lines serving the load area include:

1. Coulee-Bell #6 500 kV (BPA)
2. Taft Bell 500-kV (BPA)
3. Bell-Boundary #1 230 kV (BPA)
4. Bell-Boundary #3 230 kV (BPA)
5. Usk-Boundary #1 230 kV and Bell-Usk #1 230 kV (BPA)
6. Grand Coulee-Westside #1 230 kV and Westside-Bell #1 230 kV (BPA)
7. Bell-Lancaster #1 230 kV (BPA)
8. Bell-Beacon #4 230 kV (Avista)
9. Bell-Beacon #5 230 kV (Avista)
10. Grand Coulee-Bell #3 230 kV (BPA)
11. Grand Coulee-Bell #5 230 kV (BPA)

Substations serving the load area

The major 500 transmission substation serving is:
Bell Substation (BPA)

The load serving substations include:

1. Bell Substation (BPA)
2. Addy Substation (BPA)
3. Sacheen Substation (BPA)
4. Usk Substation (Pond Oreille)
5. Boulder Substation (AVA)
6. Deer Park substation (BPA)
7. Trentwood Substation (BPA)
8. Westside Substation (AVA)

Transformers

The 500/230 kV transformers include,
Bell 1300 MVA (BPA)

The load serving transformers include:

1. Bell Substation 250 MVA 230/115 kV (BPA)
2. Addy Substation 168 MVA 230/115 kV (BPA)
3. Usk Substation 167 MVA (Pend Oreille)
4. Sacheen substation 168 MVA 230/115 kV (BPA)
5. Boundary Substation 167 MVA 230/115 kV (BPA)
6. Boulder Substation 250 MVA 230/115 kV (AVA)
7. Boulder Substation 250 MVA 230/115 kV (AVA)
8. Beacon Substation 250 MVA 230/115 kV (AVA)
9. Beacon Substation 250 MVA 230/115 kV (AVA)
10. Westside Substation 125 MVA 230/115 kV (AVA)
11. Westside Substation 125 MVA 230/115 kV (AVA)

Reactive support and control

The reactive support for the load area includes:

1. Colville 3 each 14.4 Mvars shunt capacitors @ 115 kV
2. Trentwood 2 each 27 Mvars shunt capacitors @ 114.5 kV
3. Bell 5 each 68.4 Mvars shunt capacitors @ 237 kV
4. Bell 81 Mvars shunt capacitors @ 234.5 kV
5. Bell series capacitors @ 500kV (BPA)
6. Bell 180 Mvar shunt reactor at 550 kV
7. Deer Park 16.3 Mvar @ 115 kV

Bus arrangements

1. Bell has 4 each 230 kV bus sections in main-auxiliary configurations. The 115 kV bus is a main- auxiliary and the 500 kV bus is a breaker-and-a-half.

2. The other BPA stations (Trentwood, Boundary, Cusick, Colville, Sacheen) are main-auxiliary configurations.

3. Load Forecast

Winter load

2016 peak winter load with low hydro generation

Summer load

2016 peak summer load with low hydro and high hydro scenarios

Mid-Columbia Area Summary

1. General Load Area Description

General description

This Mid-Columbia (Mid-C) area includes the Columbia Basin area of central Washington, excluding the Tri-cities area, which is described in a separate study and report. Geographically, the Mid-C area extends from Moses Lake in Grant County to the east to Leavenworth in Chelan County, Ellensburg in Kittitas County and Yakima in Yakima County to the west. It extends from Chelan to the north to Sunnyside on the south.

Since this is such a large area, the transmission system is described in three separate sub areas, the Upper Mid-C, the Lower Mid-C, and the East Mid-C.

Upper Mid-C The Upper Mid-C area includes Chelan, Douglas, and Kittitas County and the communities of Chelan, Wenatchee, Cashmere, Leavenworth, and Ellensburg.
Lower Mid-C The Lower Mid-C area includes Yakima County and includes the communities in the Yakima area including Yakima, Union Gap, Wapato, Toppenish, Granger, and Sunnyside.
East Mid-C The East Mid-C area includes Grant County and includes the communities of Quincy, Ephrata, Moses Lake, Wilson Creek, Warden and Othello.

Customers served

The load makeup is residential, irrigation, one aluminum plant in Chelan, and a growing number of computer server data centers in Douglas and Grant. The customers served include:

Upper Mid-C

21. Chelan County PUD (Chelan)
22. Douglas County PUD (Douglas)
23. Kittitas County PUD (Kittitas)
24. City of Ellensburg

Lower Mid-C

1. Benton REA (BREA)
2. PacificCorp (PAC)
3. Benton County PUD (BPUD)

East Mid-C

1. Grant County PUD (Grant)

The Mid-Columbia area has a surplus of generation. Many of BPA's transmission customers depend on a reliable and minimally constrained transmission system in the Mid-Columbia area, to move power from the 5 major hydro plants (Wells, Rocky Reach, Rock Island, Wanapum, and Priest Rapids) to

the main grid delivery points (Sickler, Columbia, Vantage, Midway) for transmission to the NW region and California.

Industrial/commercial load

An Alcoa aluminum plant is served by the Valhalla (BPA) 115 kV substation and the McKenzie (Chelan) 115/230 kV substation. This industrial load customer service belongs to Chelan, but its service impacts the power flows in the Mid-Columbia area. Additionally, Grant and Douglas have plans to begin serving new large computer server data centers in the next few years.

2. Transmission System Description

Local generation

The local generation that supports the area load includes three classes:

Hydroelectric generation There are 5 major hydroelectric plants on the Columbia River. These include:

1. Wells Dam (Douglas PUD) (840 MW)
2. Rocky Reach Dam (Chelan County PUD) (1287 MW)
3. Rock Island Dam (Chelan County PUD) (660 MW)
4. Wanapum Dam (Chelan County PUD) (1038 MW)
5. Priest Rapids Dam (Grant County PUD) (955 MW)

Wind generation There are 2 wind farms; these include:

1. Wild Horse (PSE) (273 MW)
2. Kittitas Valley Wind (Horizon) (101 MW)

Other Generation The other local generation includes:

1. Roza Power Plant Yakima Project (USBR) (13 MW)
2. Quincy Chute Hydroelectic (Grant) (9.4 MW)
3. Potholes East Canal (Grant) (6.5 MW)
4. Chelan Falls Hydroelectic Project (Chelan PUD) (59 MW)
5. Summer Falls Power Plant (92 MW)

Lines serving the load area

The major lines serving the load area and delivering surplus generation to the main grid include:

Upper Mid-Columbia

1. Sickler 500/230 kV transformer (BPA)
2. Grand Coulee- Columbia 230 kV #1 (BPA)
3. Grand Coulee- Columbia 230 kV #2 (BPA)
4. Rocky Reach-Columbia 230 kV #1 (BPA)
5. Rocky Reach-Columbia 230 kV #2 (Chelan)
6. Columbia-Vantage 230 kV (BPA)
7. Columbia-Ancient Lake-Wanapum 230 kV (Grant)

Eastern Mid-Columbia

1. Grand Coulee- Potholes 230 kV (BPA)
2. Potholes-Midway 230 kV (BPA)
3. Grand Coulee- Rocky Ford 230 kV (BPA)
4. Rocky Ford-Midway 230 kV (BPA)
5. Rocky Ford-Larson-Sand Dunes-Frenchman Hills-Midway 230 kV system (Grant)

Lower Mid-Columbia

1. Vantage-Midway 230 kV (BPA)
2. Wanapum-Midway 230 kV (Grant)
3. Wanapum-Pomona Heights 230 kV (Pacificorp)
4. Midway-Union Gap 230 kV (Pacificorp)
5. Benton-Midway 230 kV (BPA)
6. Benton-Midway 115 kV (BPA)
7. Benton-Othello 115 kV (BPA)
8. Midway-North Bonneville 230 kV (BPA)
9. Big Eddy-Midway 230 kV (BPA)

Substations serving the load area

The major 500 kV transmission substations serving are:

1. Sickler Substation (BPA)
2. Vantage Substation (BPA)
3. Hanford Substation

The load serving substations and taps include:

Upper Mid-C

1. Rocky Reach Switchyard (Chelan)
2. Douglas Substation (Douglas)
3. Andrew York Substation (Chelan)
4. Columbia Substation (BPA)
5. Valhalla Substation (BPA)

Lower Mid-C

1. Pomona Heights Substation (PAC)
2. Union Gap Substation (PAC)
3. Midway Substation (BPA)
4. Outlook Substation (PAC)
5. Wine Country Substation (PAC)
6. Mabton Substation (BPA)
7. Alfalfa Substation (BPA)

East Mid-C

1. Rocky Ford Substation (Grant)
2. Ancient Lake Substation (Grant)
3. Frenchman Hills Substation (Grant)
4. Sand Dunes Substation (Grant)
5. Larson Substation (Grant)

Transformers

The load serving transformers include:

Upper Mid-C

1. Rocky Reach Switchyard two 230/115 kV transformers (Chelan)
2. Douglas Substation one 230/115 kV transformer (Douglas)
3. Andrew York Substation one 230/115 kV transformer (Chelan)
4. Columbia Substation two 230/115 kV transformers (BPA)

Lower Mid-C

1. Pomona Heights Substation two 230/115 kV transformers (PAC)
2. Union Gap Substation two 230/115 kV transformers (PAC)
3. Midway Substation one 230/115 kV transformer (BPA)
4. Outlook Substation one 230/115 kV transformer (PAC)
5. Wine Country Substation one 230/115 kV transformer (PAC)
6. Mabton Substation one 230/12.5 kV (BPA)
7. Alfalfa Substation one 230/34.5 kV (BPA)

East Mid-C

1. Rocky Ford Substation one 230/115 kV transformer (Grant)
2. Ancient Lake Substation one 230/115 kV transformer (Grant)
3. Frenchman Hills Substation one 230/115 kV transformer (Grant)
4. Sand Dunes Substation one 230/115 kV transformer (Grant)
5. Larson Substation one 230/115 kV transformer (Grant)
6. Columbia Substation two 230/115 kV transformer
7. The 230 kV taps on Grant's Larson-Sand Dunes 230 kV circuit (Grant)

Reactive support and control

The BPA reactive support for the load area includes:

1. Ellensburg Substation 1 each 14.4 Mvar shunt capacitors @ 115 kV
2. Ashe Substation 1 each 43.2 and 1 each 28.8 Mvar shunt capacitors @ 241.5 kV
3. The 5 major hydro plants provide much of the voltage support for the Mid-Columbia area. It would be worth considering future plans to locate shunt capacitors close to these plants if they can be used to keep the dynamic reactive power available for system contingencies. This is a consideration for future reactive planning in the area.
4. Typically the 500 kV system delivers reactive power via the Vantage substation's two 500/230 kV transformers during the spring/summer high north-to-south power transfers through central WA. The reactive power supports the reactive demand of the 230 kV system in the Mid-Columbia area during high loading.
5. The Rocky Ford 230/115 kV transformer is an important delivery point for reactive power to the Grant load area (as well as active power).

Bus arrangements

1. Sickler is a 500 kV ring bus, Rocky Reach 500 is a transformer terminated line, Hanford and Vantage are 500 kv breaker-and-a-half configurations.

2. The other BPA stations (Columbia 230 kV, Columbia 115 kV, Midway 230 kV, Midway 115 kV, Ashe 230 kV, Vantage 230 kV, Potholes 230 kV, Valhalla 115 kV, and Ellensburg 115 kV) are main-auxiliary configurations.

3. Load Forecast

Winter load

2016 and 2021 peak winter loads are:

Mid-Columbia Area		2016 Winter Peak		
	Zone Name	**MW**	**MVAR**	**P.F.**
	Central Washington (minus Okanogan)	1007	279	0.96
	AVA: Othello - Big Bend	104	30	0.96
	PAC:YKMA	655	126	0.98
	Grant County, WA	947	214	0.98
	Total	**2712**	**649**	**0.97**

Mid-Columbia Area		2021 Winter Peak		
	Zone Name	**MW**	**MVAR**	**P.F.**
	Central Washington	1208	334	0.96
	AVA: Othello - Big Bend	112	33	0.96
	PAC:YKMA	704	136	0.98
	Grant County, WA	1018	230	0.98
	Total	**3042**	**733**	**0.97**

Summer load

2016 and 2021 peak summer loads are:

Mid-Columbia Area		2016 Summer Peak		
	Zone Name	**MW**	**MVAR**	**P.F.**
	Central Washington	728	280	0.93
	AVA: Othello - Big Bend	125	51	0.92
	PAC:YKMA	613	209	0.95
	Grant County, WA	906	266	0.96
	Total	**2372**	**806**	**0.95**

Mid-Columbia Area		2021 Summer Peak		
	Zone Name	**MW**	**MVAR**	**P.F.**
	Central Washington	759	291	0.93
	AVA: Othello - Big Bend	132	54	0.92
	PAC:YKMA	648	221	0.95
	Grant County, WA	941	275	0.96
	Total	**2480**	**841**	**0.95**

Vancouver Area

1. General Load Area Description

General description

This includes Clark County, WA. The major population areas include greater Vancouver Washington area including the communities of Washougal, Camas and Battleground.

Customers served

The load is primarily residential load with a smaller amount of commercial and industrial load. The customers served include:

Clark PUD

2. Transmission System Description

Local generation

The local generation that supports the area load include:

1. River Road (Clark PUD) (250 MW)
2. Swift (Pacificorp and Cowlitz)(280 MW)
3. Merwin and Yale (Pacificorp) (235 MW)
4. Bonneville PH #1 115-kV Units 200 MW
5. Bonneville PH #1 230-kV Units 290 MW
6. Bonneville PH #2 230-kV Units 560 MW

Lines serving the load area

With all lines in service, the Vancouver load area is served by,

1. North Bonneville-Ross 230-kV #1 and #2 lines
2. McNary-Ross 345-kV line
3. Longview-Lexington-Ross 230-kV Line

Also, Four 115-kV lines also provide support the Vancouver area, including:

1. BPA's Bonneville-Alcoa 115 kV line
2. BPA's Bonneville-Sifton-Ross 115-kV Lines
3. Pacificorp's Merwin-Cherry Grove-Hazel Dell-St Johns 115-kV line
4. Pacificorp/Clark's Troutdale-Runyan-Sifton 115-kV line

Substations serving the load area

The substations serving the **Vancouver** load area include:

4. Sifton Substation
5. Ross Substation
6. Alcoa Substation

Transformers

The transformers serving the **Vancouver** load area include:

1. Ross 600 MVA 345/230 kV (BPA)
2. Ross 280 MVA 230/115 kV (BPA)
3. Ross 280 MVA 230/115 kV (BPA)
4. Ross 112 MVA 230/69 kV (BPA)
5. Ross 100 MVA 230/69 kV (BPA_
6. Sifton 280 MVA 230/115 kV (BPA)
7. Sifton 280 MVA 230/115 kV (BPA)
8. Alcoa 280 MVA 230/115 kV (BPA)

Reactive support and control

The reactive support for the **Vancouver** load area include:

6. Ross 96 Mvars shunt capacitors @ 239 kV
7. Ross 96 Mvars shunt capacitors @ 239 kV
8. Ross 138 Mvars shunt capacitors @ 239 kV
9. Alcoa 66 Mvars shunt capacitors @ 119 kV

Bus arrangements

1. The Ross 230-kV and 115-kV buses are a non-standard BPA design double bus/single breaker arrangement with a 230-kV bus sectionalizing breaker in the main bus.
2. The Sifton 230-kV and 115-kV buses are a main/transfer bus arrangement. Note that Sifton 230-kV bus is an incomplete bus with only one 230-kV breaker. The banks are not paralleled on the 230-kV side.
3. The Alcoa 115-kV bus is somewhat of a ring bus with line breakers off of the ring bus. This is a one of kind design on the BPA System

3. Load Forecast

Winter load

Clark PUD

Winter Peak 2010 = 975 MW (SCADA)
Winter Peak 2016 = 1034 MW (studies)
Winter Peak 2021 = 1074 MW (studies)

Summer load

Clark PUD

Summer Peak 2011 = 737 MW (SCADA0
Summer Peak 2016 = 861 MW (studies)
Summer Peak 2021 = 888 MW (studies)

Tri-Cities Area Summary

1. General Load Area Description

General description

The Tri-Cities area is in Central Washington and includes the major communities of Pasco, Kennewick and Richland. This load area includes the irrigation load of Big Bend Electric, Benton PUD and Benton REA and many other smaller communities near the Tri-Cities area such as West Richland and Benton City. The load area is bounded by the Mid-Columbia area to the north and west and the Walla Walla area to the east.

Customers served

The load is primarily residential with commercial and irrigation. The customers served include:

1. Franklin County PUD
2. City of Richland
3. Benton County PUD
4. Benton REA
5. Big Bend Electric Coop
6. Columbia REA
7. South Columbia Basin Irrigation District (generation and load)
8. U.S. Bureau of Reclamation (load and generation)
9. Interconnections with PacifiCorp (several locations) and Avista (at Benton)

2. Transmission System Description

Local generation

The local generation that supports the area load includes:

1. USCOE Ice Harbor hydro (700 MW)
2. USBR Chandler hydro (12 MW)
3. USCOE McNary hydro (1200 MW)
4. South Columbia Basin Irrigation District hydro (Scooteney, Glade & Ringold) (6 MW)
5. Florida Power Nine Mile Wind (100 MW)
6. Energy NW Nine Canyon Wind (90 MW)
7. The nuclear Columbia Generating Station is physically located in the Tri-Cities area, but not electrically. Therefore it was not considered part of the local generation.

Lines serving the load area

The major lines serving the load area include:

1. The Lower Monumental-McNary 500 kV line is tapped at Sacajawea with a 500/115 kV transformer
2. The Midway-Benton 230 kV line
3. The Midway-White Bluffs 230-kV line
4. The McNary-Franklin 230-kV line

The smaller lines include:

1. Franklin-Walla Walla 115 kV
2. Midway-Benton 115 kV
3. McNary-Badger Canyon 115 kV
4. Midway-Grandview 115 kV

Substations serving the load area

The load serving substations include:

1. Benton Substation
2. White Bluffs Substation
3. Franklin Substation with
4. Sacajawea Substation
5. Midway Substation
6. Richland Substation
7. Red Mountain Substation
8. Horse Heaven Substation

Transformers

The load serving transformers include:

1. Benton Substation with one 230/115-kV 280 MVA transformer
2. White Bluffs Substation one 230/115-kV 280 MVA transformer
3. Franklin Substation with one 230/115-kV 250 MVA transformer
4. Sacajawea Substation with one 500/115-kV 500 MVA transformer
5. Midway Substation with one 230/115-kV 220 MVA transformer
6. McNary Substation with one 230/115-kV 220 MVA transformer
7. Horse Heaven with one 230/115-kV 280 MVA transformer

Reactive support and control

The reactive support for the load area includes:

1. Ashe Substation 1 group at 43.6 Mvars and 1 group at 28.8 Mvars of shunt capacitors @ 242 kV (BPA)
2. Benton Substation 45 Mvars of shunt capacitors @ 119-kV (BPA)
3. Connell Substation 21.6 Mvars of shunt capacitors @ 119 kV (BPA)
4. Grandview Substation 20.25 Mvars of shunt capacitors @ 112-kV (BPA)
5. Patterson Substation 22 Mvars of shunt capacitors @ 115-kV (Benton PUD)

6. Richland Substation 2 groups of 45 Mvars shunt capacitors @ 119 kV (BPA)
7. Scooteney Substation 24.3 Mvars of kV shunt capacitors @ 119 kV (BPA)

Bus arrangements

1. Midway and McNary 230-kV buses are a main/transfer bus arrangement with two bus sectionalizing breakers (3 sections)
2. Franklin and White Bluffs 115-kV buses are a main/transfer bus arrangement with one bus sectionalizing breaker (2 bus sections)
3. Midway, Benton, Grandview, Richland, Badger Canyon and Sacajawea 115-kV buses are a main/transfer bus arrangement with no bus sectionalizing breaker
4. The Red Mountain 115-kV bus is a ring bus

3. Load Forecast

Winter load

2016 peak load 971 MW
2021 peak load 1037 MW

Summer load

2016 peak load 1204 MW
2021 peak load 1285 MW

Olympic Peninsula Area Summary

1. General Load Area Description

General description

The Olympic Peninsula is a long radial system extending about 110 miles from BPA Olympia Substation to BPA Port Angeles substation. This area includes the Olympic peninsula north and west of Olympia. Included within this area are Clallam, Mason, Kitsap and the western portion of Jefferson counties. The primary communities served include Shelton, Bremerton, and Port Angeles, as well as the US Navy in the Bremerton area. The smaller communities include Potlach, Hoodsport, Quilcene, Fairmount, Duckabush, and Sequim.

The Olympic Peninsula area transmission system is further divided into four sub-areas: 1) North of Olympia, 2) Kitsap Peninsula, 3) North of Shelton, and 4) North of Fairmount

Customers served

The load is primarily residential load with a smaller amount of commercial load. The customers served include:

1. Puget Sound Energy (PSE)
2. City of Port Angeles (CPA)
3. Clallam County PUD
4. Mason PUD#1
5. Mason PUD #3
6. US Navy (USN)

Industrial load

Nippon Paper Mill at Port Angeles
Paper Mill in Port Townsend, WA
US Navy in the Bremerton area

2. Transmission System Description

Local generation

The local generation that supports the area load includes:

1. Mason generation (although this is electrically connected to Tacoma and not the local load area.
2. Grays Harbor Energy Facility, a 640-megawatt, combined-cycle power plant (Duke Energy)

Lines serving the load area

The major lines serving the load area include:

1. Paul-Olympia 500 kV

2. Paul-Satsop 500 kV
3. Satsop-Shelton 230 kV
4. Satsop-Olympia 230 kV
5. Grand Coulee-Olympia 287 kV
6. Chehalis-Olympia 230 kV
7. South Tacoma-Olympia 230 kV

Substations serving the load area

The major 500 kV transmission substation serving is:
Paul Substation (BPA)

The major load serving substations include:

1. Olympia Substation (BPA)
2. Shelton Substation (BPA
3. Fairmount Substation (BPA
4. Port Angeles Substation (BPA)
5. Kitsap Substation (BPA)

Transformers

The load serving transformers include:

1. Olympia Substation with one 250 and one 300 MVA 230/115 kV transformer (BPA)
2. Shelton Substation with one 300 MVA 230/115 kV transformer (BPA)
3. Kitsap Substation with two 180 MVA 230/115 kV transformers (BPA)
4. Fairmount Substation with one 100 MVA 230/115 kV transformer (BPA)
5. Happy Valley Substation with one 100 MVA 230/115 kV transformer (BPA)
6. Port Angeles with Substation one 280 MVA 230/115 kV, one 280 MVA 230/69 kV, one 67 MVA 115/69 kV and one 93 MVA 115/69 kV transformer (BPA)
7. Sappho Substation with one 100 MVA 115/69 kV transformer (BPA)
8. South Bremerton Substation with 484 MVA 230/115 kV transformer (PSE)

Reactive support and control

The Olympic Peninsula is served via a long radial transmission system, with no local generation. The transmission corridor extends approximately 149 miles from Olympia to Sappho substation (served from Port Angeles). As a result of the system configuration and peak loads, the Olympic Peninsula has required many shunt capacitor additions in order to maintain established voltage schedules. There are approximately 886 Mvars of capacitor on the Olympic Peninsula for a peak load of 1284 MW, which is shunt compensation equaling approximately 69% of the peak load.:

Location	Voltage (kV)	MVAR	Groups	Total MVAR

Olympia	230	152.4	1	152.4
Olympia	230	152.9	1	152.9
Olympia	115	55.6	1	55.6
Shelton	230	74.6	1	74.6
Shelton	115	19.4	1	19.4
Shelton	115	19.6	1	19.6
Kitsap	115	60.7	2	121.4
Kitsap	115	37.3	1	37.3
Fairmount	230	55.6	1	55.6
Fairmount	230	39.2	1	39.2
Fairmount	115	19.6	4	78.4
Port Angeles	115	23.7	1	23.7
Port Angeles	115	13.1	1	13.1
Port Angeles	69	14.1	3	42.3
Total				**885.5**

In addition, Olympia Substation has a 180 Mvar shunt reactor at 230 kV to provide reactive support for the Coulee-Olympia 287 kV line.

Bus arrangements

1. Several substations have high side transformer terminated lines.
- Satsop Substation 500/230
- Olympia Substation 500/230
- Olympia Substation 287/230
- Kitsap Substation 230/115
- Port Angeles Substation 230/69 kV
- Port Angeles Substation 230/115 kV
- South Bremerton Substation 230/115 (PSE)
- Happy Valley Substation three terminal line with 230/115 kV transformer

2. Several stations are breaker-and-a-half.
- Shelton Substation 230 bus
- Fairmount Substation 230 kV bus

3. Other stations have a conventional main-auxiliary bus
- Olympia Substation 115 kV bus
- Olympia Substation 230 kV bus
- Shelton Substation 115 kV bus
- Fairmount Substation 115 kV bus
- Kitsap Substation 115 kV bus
- Port Angeles Substation 115 kV bus

- Port Angeles Substation 69 kV bus

3. Load Forecast

Winter load (cut-plain flow)

• North of Olympia	1354 MW (2013)	1414 MW (2017)
• Kitsap Peninsula	748 MW (2013)	780 MW (2017)
• North of Shelton	488 MW (2013)	512 MW (2017)
• North of Fairmount	340 MW (2013)	355 MW (2017)

Summer load

The Olympic Peninsula is a winter peaking load

Central Oregon Area Summary

1. General Load Area Description

General description

This includes major central Oregon population area including the communities of Madras to the north, the Redmond and Bend area, Prineville to the east and Lapine and Sunriver to the south.

Customers served

The load in central Oregon is primarily residential load with a smaller amount of irrigation load. Recently, BPA has also received multiple Line and Load Interconnection Requests for data center load additions near the Prineville area.

Pacificorp (PAC)
Central Electric Cooperative (CEC)
Midstate Electric Cooperative (MEC)

Industrial/commercial load

Facebook near Prineville (120 MVA)

2. Transmission System Description

Local generation

The only significant local generation in the area is PGE's Pelton Round Butte Project. This is a hydroelectric project consisting of three hydroelectric plants, Round Butte Dam (338 MW), Pelton Dam (110 MW), and a reregulating dam (20 MW). The generation is interconnected at PGE's Round Butte Substation. There are some small PAC-owned generation projects in the area.

Substations and lines serving the load area

The lines or generation serving the area includes:

1. Ponderosa Substation (BPA) is a tap on the Grizzly-Summer Lake 500 KV line and serves PAC's Ponderosa Substation. PAC's Ponderosa Substation serves the Prineville Area, Redmond, and Pilot Butte areas.

2. Redmond Substation (BPA). Redmond substation serves the Redmond and Sisters load area. Redmond Substation is fed by the Big Eddy-Redmond 230 KV line with generation coming from the Big Eddy area and the Round Butte – Redmond 230 kV line with generation coming from the Pelton Round Butte Project. .
3. Pilot Butte Substation (PAC) serves the Bend area. It is fed from by a 230 KV line from Redmond Substation and a 230 KV line from Ponderosa Substation.

4. Cove (PAC) is fed by the Pelton Round Butte Project which serves the Madras area.
5. La Pine Substation (BPA). La Pine serves Midstate Electric Cooperative, which serves both the Lapine and Sunriver area, as well MEC's Chistmas Valley area.

Transformers

1. Redmond Substation (BPA) 2 each 230/115 KV transformers (300 MVA) and 2 each 230/69 KV transformers (33 MVA each).
2. Ponderosa Substation (BPA) 1 each 700 MVA 500/230 KV transformer (BPA) and 1 each 250 MVA 230/115 KV transformer (PAC).
3. Pilot Butte Substation (PAC) 3 each 230/69 KV transformers.
4. Cove (PAC) 2 each 230/69 KV transformers.
5. Lapine Substation (BPA) 2 each 230/115 KV transformers (150 and 100 MVA) although only one transformer is in service at a time.

Reactive support and control

1. Redmond Substation (BPA) 104.5 MVAR of shunt capacitors at 230 KV
2. Pilot Butte Substation (PAC) 20 MVAR of shunt capacitors at 69 KV

Bus arrangements

1. Redmond Substation (BPA). 230 KV bus is a main-auxiliary.
2. Ponderosa Substation (PAC) 230 KV bus is a gas insulated substation (GIS) ring bus.
3. Lapine Substation (BPA) 230 KV bus is a main-auxiliary.

3. Load Forecast

Winter load

The January 2016 (peak winter) central Oregon Load forecast is estimated to be 779 MW. With all lines in service, the load is served by:

Source	**MW**	**Percent**
Ponderosa 500/230	393	50%
Round Butte-Redmond 230 KV	239	31%
Big Eddy-Redmond 230 KV	147	19%
Total	**779**	

Summer load

The August 2016 (peak summer) central Oregon Load forecast is estimated to be 685 MW. With all lines in service, the load is served by:

Source	**MW**	**Percent**
Ponderosa 500/230	252	37%
Round Butte-Redmond 230 KV	270	39%
Big Eddy-Redmond 230 KV	163	24%

Total	**685**

LaGrande-Pendleton Area Summary

1. General Load Area Description

General description

This includes the Pendleton and LaGrande area of eastern Oregon including the communities of Pendleton and LaGrande.

Customers served

The load is primarily residential load with some irrigation load. The customers served include:

7. Oregon Trail Electric Cooperative (OTEC)
8. PacifiCorp (PAC)
9. Umatilla Electric Cooperative (UEC)
10. Columbia Basin Electric Cooperative (CBEC)

Industrial/commercial load

2. Transmission System Description

The transmission serving the area is shown in Figure 2.

Local generation

The local generation that supports the area load includes:

1. Horizon's Elkhorn Valley Wind Project (101 MW)

Lines serving the load area

The major lines serving the load area include:

1. McNary-Roundup 230 kV (BPA)
2. Roundup-LaGrande 230 kV (BPA)
3. LaGrande-North Powder 230 kV (IPC)

Substations serving the load area

The load serving substations include:

1. LaGrande Substation (BPA)
2. Roundup Substation Tap
3. Pendleton Substation (BPA)

Transformers

The load serving transformers include:

1. Roundup Substation with three 230/69 kV transformers (one PAC and two BPA)
2. LaGrande with two 230/69 kV transformers (one OTEC and one BPA)

Reactive support and control

The reactive support for the load area includes:

10. None on BPA's system

Bus arrangements

LaGrande 230 kV and Roundup 230 kV are main-auxiliary configurations.

3. Load Forecast

	Roundup (MW)		La Grande (MW)	
Year	Winter	Summer	Winter	Summer
2010	70	67	64	58
2016	81	75	62	61
2021	86	76	63	62

Longview Area

1. General Load Area Description

General description

This area includes Cowlitz County, WA. The major population areas include Longview, Washington as well as the smaller communities of Kelso, Kalama, Castle Rock, and Woodland, Washington.

Customers served

The area is comprised of residential and commercial/industrial load. The customers served include:

Cowlitz PUD

Industrial/commercial load

Industrial load in the Area includes Longview Fibre and Weyerhauser.

2. Transmission System Description

Local generation

The Longview local generation included in this study was:

1. Mintfarm (270 MW)
2. Swift (Pacificorp and Cowlitz)(280 MW)
3. Merwin and Yale (Pacificorp) (235 MW)
4. Weyerhauser Company Generation (80MW)
5. Cowlitz (Longview Fiber Co-gen) (55MW)

Lines serving the load area

Under system normal conditions, the lines serving the load area include the following:

1. Longview-Allston 230 kV #1
2. Longview-Allston 230 kV #2
3. Longview-Allston 230 kV #3
4. Longview-Allston 115 kV #4
5. The Chehalis-Longview 230 kV #1 and #2 lines.
6. Ross-Lexington 230 kV line
7. Merwin-Cardwell 115 kV line

Substations serving the load area

The substations serving the load area include:

7. Longview Substation (BPA)
8. Lexington Substation (BPA)
9. Cardwell Substation (BPA)

10. Cowlitz Substation (BPA)
11. Cowlitz County PUD's Pacific Way 115kV Substation which is served from BPA's Lexington Substation to the north and Longview substation to the south.
12. Cowlitz County PUD's Cardwell 115kV Substation is served from BPA's Cowlitz Substation.
13. Additional support is provided from PAC's Merwin 115kV Substation

Transformers

The transformers serving the load area include:

1. Longview 280 MVA 230/115 kV (BPA)
2. Longview 250 MVA 230/69 kV (BPA
3. Lexington 280 MVA 230/115 kV (BPA)
4. Allston 300 MVA 230/115 kV (BPA)

Reactive support and control

The reactive support for the load area includes:

1. Longview 90 Mvars shunt capacitors @ 239 kV
2. Longview 76.5 Mvars shunt capacitors @ 234 kV

Bus arrangements

1. The Longview and Longview Annex #1 230-kV bus is a main/transfer bus arrangement with a sectionalizing breaker between the two yards.
2. The Lexington 230-kV and 115-kV buses are main/transfer bus arrangement with no sectionalizing breaker.
3. The Cowlitz 115-kV and Cardwell 115-kV buses are a main/transfer bus arrangement with no sectionalizing breakers.

3. Load Forecast

Winter load

Cowlitz PUD (Longview area)
Winter Peak 2016 = 785 MW (study)

Summer load

Cowlitz PUD (Longview area)
Summer Peak 2016 = 685 MW (study)

Southwest Washington Area Summary

1. General Load Area Description

General Description

The Southwest Washington area is comprised of Wahkiakum County, Pacific County, western Lewis County, and southern Gray's Harbor County in Washington. It is bounded on the east by Interstate 5 and the west by the Pacific Ocean. It is bounded on the north by Olympic National Forest and on the south by the Columbia River. The main communities served include the Aberdeen area, the Raymond/South Bend area, and the communities on the Long Beach Peninsula.

Customers served

The load in Southwest Washington is mostly residential. The customers include:

Grays Harbor PUD (including some industrial load)
Pacific County PUD #2
Lewis County PUD
Town of McCleary

Industrial/commercial load

None.

2. Transmission System Description

Generation

The Southwest Washington area is served from the following major generation source:

Grays Harbor Energy Facility, a 640-megawatt, combined-cycle power plant (Duke Energy)

There is some wind generation in the area, but none of it was online as of the date of the studies.

Lines and substations serving the load area

The Southwest Washington area is served by two 230 KV lines, (the Aberdeen-Satsop 230 KV #2 and the Aberdeen-Satsop 230 KV #3) and three 115 KV lines (the Olympia-South Elma 115 KV, the Chehalis-Raymond 115 KV #1 and the Naselle Tap to the Allston-Astoria 115 KV #1.

Most of the Aberdeen area load is served through two major transmission line corridors. The Olympia-Satsop corridor contains the Satsop-Paul 500 KV line, the Satsop-Shelton 230 KV #1, the Olympia-Satsop 230 KV #2, and the Olympia-South Elma 115 KV #1. The Satsop-Aberdeen corridor contains the Aberdeen-

Satsop 230 KV #2, the Aberdeen-Satsop 230 KV #3, and Aberdeen-Satsop Park and Satsop Park-Cosmopolis 115 KV lines.

The major substations that service the area include:

1. Satsop Substation (BPA). Satsop Substation integrates the Grays Harbor
2. Aberdeen Substation (BPA) which is served from Satsop Substation
3. Chehalis Substation (BPA) which serves the area via the Chehalis-Raymond 115 KV #1.
4. Allston Substation (BPA) which serves the area via Naselle Tap to the Allston-Astoria 115 KV#1.
5. South Elma Substation (BPA) which serves the area via the Olympia-South Elma 115 KV.

Transformers

Aberdeen Substation (BPA). 1 each 230/115 KV 280 MVA transformer and 1 each 230/115 KV 250 MVA transformer.

Reactive Support

1. Cosmopolis Substation (BPA) 1x30.5 MVar group at 115 KV
2. Naselle Substation (BPA) 1x42.3 MVar group at 115 KV
3. Olympia Substation (BPA) 1x55.6 MVar group at 115 KV, 180 MVar reactor at 230 KV East, and 152 MVar group at 230 KV West

Bus arrangements

1. Satsop Substation (BPA). 230 KV breaker-and-a-half.
2. Aberdeen Substation (BPA) Both 230 KV line terminate into transformers. There is an emergency tie between the high side of the transformers. The 115 KV bus is main-auxiliary.
3. Naselle Substation (BPA). The 115 KV bus is main-auxiliary.
4. Raymond Substation (BPA). The 115 KV bus is main-auxiliary.
5. Cosmopolis Substation (BPA). The 115 KV bus is main-auxiliary.

3. Load Forecast

The peak season for the Southwest Washington area is the winter season. The Aberdeen area load was modeled at 310 and 336 MW for 2016 and 2021 respectively. The load in the area is expected to be stagnant or possibly decreasing based on data supplied by the major customer, Grays Harbor PUD. The observed winter peak (past five years) was 358.5 MW in 2009. The Aberdeen area load was modeled at 210 MW in the 2016 summer basecase. The observed summer peak (past five years) was 196 MW in 2009.

South Oregon Coast Load Area

1. General Load Area Description

General description

This load service area includes south Oregon coast area including the communities of Fairview, Gold Beach, Port Orford, Bandon, Coquille, Myrtle Point, and as far south as Brookings. For purposes of the most recent study performed, portions of the central Oregon coast, as far north as Wendson and Florence were also included.

Customers served

The load on the south Oregon coast is primarily residential load. The customers served include:

1. Pacificorp (PAC)
2. Coos Curry Cooperative (Coos Curry)
3. City of Bandon
4. Douglas Electric Coop
5. Central Lincoln PUD

Industrial/commercial load

None.

2. Transmission System Description

Local generation

There is no local generation in the area.

Substations and lines serving the load area

The major substations serving the south Oregon coast area include:

1. Fairview Substation (BPA) Fairview Substations is served by two 230 KV lines from Reston Substation. Reston is in turn served by BPA and Pacificorp out of the Eugene Area. Fairview Substation in turn provides service north of Fairview through two 115 KV lines, one owned by BPA and the second owned by Pacificorp. This load service area does not include anything north of Fairview. Fairview also provide service to all stations south of Fairview as described below. Fairview also serves the Fairview area through Coss Curry

2. Bandon Substation (BPA). Bandon Substation is served by two 115 KV lines from Fairview Substation. Bandon Substation serves the Bandon area.
3. Rogue Substation (BPA) is served by the Fairview-Bandon 115 KV #1 and the Fairview-Rogue 230 KV lines. Rogue provide service to BPA and Coos

Curry Coop stations south of Rogue. Rogue, with is shunt capacitors and SVC also provide voltage control for the south Oregon Coast.

4. Gold Beach Substation (BPA). Bandon Substation is served by two 115 KV lines from Rogue Substation. Gold Beach Substation serves the Gold Beach area. Gold beach also provide service to Coos Curry at 115 KV which in turn serves communities south of Gold Beach.

The 5 major transmission sources which serve the south Oregon coast include:

1. BPA's 230 kV Lane-Wendson #2 line which serves mid-south Oregon coast load
2. BPA's 230kV Alvey-Fairview #1 line which serves SW Oregon coast load as defined in DSO 337
3. BPA's 230kV Reston-Fairview #2 line which serves SW Oregon coast load as defined in DSO 337
4. BPA's 230 kV Fairview-Rogue #1 line which serves south of Fairview load
5. PacifiCorp's 230 kV Fairview-Isthmus line which serves PAC load north of Fairview

Transformers

1. Fairview Substation (BPA). One 230/115 KV transformer (150/200/250 MVA).

2. Rogue Substation (BPA). One 230/115 KV transformer (140/200 MVA).

3. Wendson Substation (BPA). One 230/115 KV transformer (140/200 MVA).

4. Tahkenitch Substation (BPA). One 230/115 KV transformer (150/168 MVA).

Reactive support and control

1. Bandon Substation (BPA) 2 groups of 12.6 MVAR (@118.5 KV) shunt capacitors on the 115 KV bus.
2. Rogue Substation (BPA) 2 groups of 13.5 MVAR (@ 124.5 KV) and one group of 24.3 MVAR (@124.5 KV) shunt capacitors on the 115 KV bus. There is also a 50 MVAR Capacitive 45 MVAR inductive Static VAR Controller (SVC) on the 115 KV bus.
3. North Brookings Substation (Coos Curry) BPA owns 1 group of 9.75 MVAR (@124.7 KV) shunt capacitors in Coos Curry's North Brookings Substation.
4. Tahkenitch Substation (BPA) 2 groups of 24.3 MVar (@ 118.47 kV) on the 115 kV bus
5. Reedsport Substation (BPA) 1 group of 12 MVar (@124.71 kV) on the 115 kV bus

Bus arrangements

1. Wendson 230 kV and 115 kV buses: main/transfer bus arrangement

2. Tahkenitch 115 kV bus: main/transfer bus arrangement with a transformer terminated 230 kV line.
3. Fairview 230 kV bus: main/transfer bus arrangement with a bus sectionalizing breaker.
4. Fairview 115 kV bus: main/transfer bus arrangement.
5. Rogue 115 kV bus: main/transfer bus arrangement with a transformer terminated 230 kV line.

3. Load Forecast

The South Oregon Coast is a winter peaking load. Three interfaces were monitored in the South Oregon Coast Study:

- South of Fairview Interface:
  - From Fairview (FAIRVEW2) to Rogue (FAIROG11), 230 kV
  - From Fairview (FAIRVIEW) to Bandon (BANDON), 115 kV
  - From Fairview (FAIRVIEW) to Norway (NORWAY), 115 kV
- SW OR Coast Load as defined in DSO 337
  - From Reedsport (REEDSPRT) to Lakeside (LAKE SID), 115 kV
  - From Fairview (FAIRVEW2) to Reston (RESTON), 230 kV
  - From Fairview (FAIRVIEW) to Reston Tap (RESTN TP), 230 kV
- Mid-South Oregon Coast Load
  - From Wendson (WENDSON) to Tahkenitch (TAHKNICH), 230 kV
  - From Wendson (WENDSON) to Florence (FLORENCE), 115 kV
  - From Wendson (WENDSON) to Berrydale Tap (BERRYD T), 115 kV
  - From Wendson (WENDSON) to Mapleton (MAPLETON), 115 kV
  - From Lane (LANE) to Rainbow Valley Tap (RAINBOW), 115 kV
  - From Fairview (FAIRVIEW) to Sumner (SUMNER C), 115 kV

The current forecasted load growth rate for the South Oregon Coast is less than 1%/year. The South Oregon Coast Study Summary assumed the following loads:

	13hs	**16hs**	**21hs**	**13hw**	**16hw**	**21hw**
South of Fairview	60.7	61.6	62.7	104.2	104.9	110.2
SW OR Coast Load: DSO337	-141.6	-145.4	-151.4	-246.6	-250.3	-261.4
Mid-South OR Coast Load	68.2	71.1	75.7	146.8	149.7	157.3

Walla Walla Area Summary
May, 2012

1. General Load Area Description

General description

This includes the greater Walla Walla are including Walla Walla proper as well as the smaller community of Milton-Freewater to the south.

Customers served

The load is primarily residential load with some irrigation load. The customers served include:

1. Columbia R.E.A (CREA)
2. City of Milton-Freewater
3. Umatilla Electric Cooperative(UEC)
4. Clearwater Power Co.
5. Inland Power and Light
6. PacifiCorp (PAC)

Industrial/commercial load

2. Transmission System Description

Local generation

The local generation that supports the area load includes:

1. NextEra Energy Resources Stateline Wind (92 MW)
2. PSE Hopkins Ridge Wind (157 MW)
3. Infigen Combine Hills II Wind (63 MW)
4. NextEra Energy Resources Vansycle Ridge Wind(25 MW)

Lines serving the load area

The major lines serving the load area include:

1. Franklin-Walla Walla 115 kV (BPA)
2. Walla Walla-Tucannon River 115 kV (BPA)
3. Walla Walla-Pendleton 69 kV #1 kV (BPA)
4. Walla Walla-Pendleton 69 kV #2 kV (BPA)

Substations serving the load area

The load serving substations and taps include:

Facility	Voltage	Customer
Burbank Tap	115 kV	Columbia REA
Joso Tap	115 kV	Columbia REA
Ninemile Tap	115 kV	Stateline Wind (NextEra Energy)
Walla Walla Substation	115 kV	Columbia REA

Dayton Tap	115 kV	Columbia REA
Tucannon River Substation	115 kV	Hopkins Ridge Wind (PSE)
Pomeroy Tap	115 kV	Inland Power and Light
Clarkston Tap	115 kV	Clearwater Power Company
Whitman Tap	69 kV	Columbia REA
Freewater Substation	69 kV	City of Milton-Freewater
Milton Substation	69 kV	City of Milton-Freewater
Weston Tap	69 kV	Umatilla Electric Cooperative
Lagoon Tap	69 kV	City of Milton-Freewater
Stateline Substation	69 kV	Columbia REA
Combine Hills Tap	69 kV	Combine Hills II (Infigen)
Vansycle Tap	69 kV	Vansycle Ridge Wind (NextEra Energy)

Transformers

The load serving transformers include:

1. Walla Walla Substation with one 50 MVA 115/69 kV transformer (BPA)

Reactive support and control

The reactive support for the load area includes:

1. Walla Walla Substation a 14.1 Mvar and a 10.6 Mvar shunt capacitor @ 69 kV
2. Freewater Substation two 8.4 Mvar shunt capacitor @ 72 kV

Bus arrangements

B. Tucannon River substation is a 15 kV ring bus
C. Walla Walla substation 115 kV and 69 kV are main-auxiliary configuration.

3. Load Forecast

	Summer Peak	Winter Peak
2011 - SCADA	65 MW	52 MW
2016 - Projected	59 MW	59 MW
2021 - Projected	58 MW	55 MW

NW Montana Area Summary
(Flathead Valley)

1. General Load Area Description

General description

This includes the Flathead Valley area of northwest Montana including the communities of Kalispell, and Columbia Falls.

Customers served

The load is primarily residential load with a smaller amount of commercial and industrial load. The customers served include:

7. Flathead Electric Cooperative (FEC)
8. Northwestern Energy
9. Lincoln Electric Cooperative

Industrial/commercial load

2. Transmission System Description

A. Local generation

The local generation that supports the area load includes:

1. Avista's Rathdrum generation (154 MW)
2. Cogentrix Energy's Lancaster generation (270 MW)
3. Avista's Cabinet Gorge generation (270 MW)
4. USACE's Noxon generation (567 MW)
5. USACE's Libby generation (605 MW)
6. U.S. Bureau of Reclamation's Hungry Horse generation (430 MW)
7. PPL Global's Kerr generation (194 MW)
8. PPL Global's Colstrip generation (2306 MW)

B. Lines serving the load area

The major lines serving the load area include:

1. Taft-Hot Springs 500 kV (BPA)
2. Hot Springs-Rattlesnake 230 kV (Avista)
3. Noxon-Hot Springs #1 230 kV (BPA)
4. Noxon-Hot Springs #2 230 kV (Avista)
5. Flathead-Hot Springs #1 230 kV (BPA)
6. Hot springs-Placid Lake #1 230 kV (Avista)
7. Libby-Noxon #1 230 kV (BPA)
8. Lancaster-Noxon #1 230 k (Avista)
9. Noxon-Cabinet Gorge #1 230 kV (Avista)
10. Noxon-Pine Creek #1 230 kV (Avista)
11. Libby-Conkelley #1 230 kV

Substations serving the load area

The major 500 kV transmission substation serving is:
Hot Springs Substation (BPA)

The load serving substations and taps include:

1. Haskill Tap
2. Trumbull Creek Tap
3. Conkelley Libby Substation (BPA)
4. Substation (BPA)
5. Columbia Falls Substation (BPA)
6. Kalispell Substation (BPA)
7. Trego Subsation (FEC)
8. Flathead Substation (BPA/FEC)

Transformers

The load serving transformers include:

1. Libby Substation with one 168 MVA 230/115 kV transformer (BPA)
2. Haskill Tap with one xxx MVA 230/24.9 kV transformer (FEC)
3. Columbia Falls Substation has two 100 MVA 230/115 kV transformers (BPA)
4. Kalispell Substation has two 20 MVA 115/34.5 kV transformers (BPA)
5. Trego Substation a 22 MVA and a 7.5 MVA 115/24.9 kV transformer (FEC)
6. Flathead Substation has one 125 MVA 115/34.5 kV transformer and a 100 MVA 115/69 kV (FEC)

Reactive support and control

The reactive support for the load area includes:

1. Conkelley Substation 4 each 64.8 Mvar shunt capacitors @ 237 kV
2. Columbia Falls Substation 2 each 32.4 Mvar shunt capacitors @ 124 kV
3. Kalispell Substation 1 each 15.3 Mvar shunt capacitors @ 115 kV
4. Hot Springs Substation 1 each 180 Mvar shunt reactor at 500 kV

Bus arrangements

1. Hot Springs 500 kV has, in effect a transformer terminated line with one high side breaker..
2. The other BPA stations (Hot Springs 230 kV,Libby, Columbia Falls, Kalispell, Conkelley, Flathead) are main-auxiliary configurations.

North Oregon Coast Area

3. General Load Area Description

General description

This includes north Oregon coast. It includes Tillamook and Clatsop along the Oregon Coast. It is bounded by Clatsop and Tillamook State Forests on the east and the Pacific Ocean on the west. It is bounded by the Columbia River on the north and Pacific City to the south.

The population areas include Astoria, Seaside, Cannon Beach, Manzanita, Tillamook, Oceanside, Hebo and Pacific City. The area north of this is covered by the Southwest Washington Oregon Coast study and the area south of this are covered by the Salem-Albany-Eugene Study.

Customers served

The load is primarily residential. The customers served include:

- City of McMinnville
- Clatskanie PUD
- Consumer's Power
- PacifiCorp – West
- PGE
- Tillamook PUD

Industrial/commercial load

None.

2. Transmission System Description

Local generation

The local generation includes:.
Wauna (Clatskanie PUD) 34.7 MW

Lines serving the load area

The major transmission sources to the load area are:

1. Allston-Clatsop 230kV line
2. Carlton-Tillamook 230kV line
3. Driscoll-Astoria 115kV line
4. Keeler-Tillamook 115kV line
5. Salem-Grand Ronde 115kV line

Substations serving the load area

The area is served from four major substation to the east:

1. Allston Substation through Driscoll Substation
2. Keeler Substation through Forest Grove Substation
3. PGE Sherwood Substation through Carlton Substation
4. Salem Substation through Grand Ronde Substation

The local load is served from two major substations:

1. Clatsop Substation
2. Tillamook Substation

Transformers

The transformers serving load area include:

1. Clatsop 100 MVA 230/115 kV (BPA)
2. Tillamook 280 MVA 230/115 kV (BPA)

Reactive support and control

The reactive support for the load area include:

1. Astoria 115kV Capacitors 15.3 MVARS
2. Hebo 115kV Capacitors 27.8 MVARS
3. McMinnville 115kV Capacitors 38.2 MVARS
4. Tillamook 115kV Capacitors 53.2 MVARS

Cut Plane

The following cut planes were assumed in the studies:

1. Carlton to Tillamook
2. Driscoll to Wauna
3. Driscoll Tap to Clatsop
4. Mist to Cathlamet Tap
5. Timber to South Fork
6. Salem to Grand Ronde

Bus arrangements

1. The Tillamook 115 kV bus is a main/transfer bus arrangement. The 230 kV line is a transformer terminated line.
2. The Clatsop 230 kV bus is a transformer terminated line.

3. Load Forecast

Winter load

Winter Peak 2011/12 = 141 MW (SCADA)
Winter Peak 2016 = 247 MW (studies)
Winter Peak 2021 = 262 MW (studies)

Summer load

Summer Peak 2011 = 121 MW (SCADA0
Summer Peak 2016 = 160 MW (studies)

Summer Peak 2021 = 163 MW (studies)

Chehalis-Centralia Area Summary

1. General Load Area Description

General description

The Chehalis-Centralia area includes Chehalis and Centralia communities of Lewis County Washington. See Figure 1. It consists of a 69 kV loop served out of Chehalis Substation. Chehalis Substation also provides service to Lewis County PUD's Corkins 69 kV Substation and provides support to Raymond Substation and Naselle Substation on the southwest Washington coast.

Customers served

The load is primarily residential load. The customers served include:

1. Centralia City Light
2. City of Centralia
3. Lewis County PUD

Industrial/commercial load

None.

2. Transmission System Description

Local generation

The local generation that supports the area load includes:

1. City of Centralia's Yelm generation (10 MW)
2. Tacoma Power's Mossy Rock generation (334 MW)
3. Tacoma Power's Mayfield generation (135 MW)
4. Lewis County PUD's Cowlitz Falls generation (40 MW)
5. Energy Northwest's Glenoma generation (29 MW)

Lines serving the load area

The major lines serving the load area include:

1. Chehalis- Olympia 230 kV #1(BPA)
2. Chehalis- Covington 230 kV #1(BPA)
3. Longview-Chehalis 230 kV #1(BPA)
4. Longview-Chehalis 230 kV #2 (BPA)
5. Silver Creek-Chehalis 230 kV #1(BPA)
6. Chehalis-Mayfield 230 kV #1(BPA)

Substations serving the load area

The load serving substations and taps include:
Chehalis Substation (BPA)

Transformers

The load serving transformers include:

1. Chehalis Substation with a 250 and a 280 MVA 230/69 kV transformer (BPA)
2. Chehalis Substation with one 25 MVA 115/69 kV transformer (BPA)

Reactive support and control

The reactive support for the load area includes:

Centralia Sub 1 each 20.4 Mvar and 1 each 12 Mvar shunt caps @ 69 kV

Bus arrangements

The BPA stations (Chehalis 230 kV, Chehalis 69 kV, Centralia 69 kV, and silver Creek 69 kV) are main-auxiliary configurations.

3. Load Forecast

Winter load

	2016	**2021**
Chehalis-Centralia 69 kV Net Loop Load	71.5 MW	75.1 MW
Corkins 69 kV Net Load	172 MW	185 MW

Summer load

	2016	**2021**
Chehalis-Centralia 69 kV Net Loop Load	48 MW	52 MW
Corkins 69 kV Net Load	113 MW	124 MW

Hood River-The Dalles Area Summary

1. General Load Area Description

General description

This area includes the areas of northern Oregon and southern Washington along the Columbia River Gorge from Bonneville Dam to the west to The Dalles Dam to the east. It includes the communities of Cascade Locks, Hood River and The Dalles in Oregon and Stevenson, Carson, White Salmon and Bingen in Washington.

Customers served

The load is primarily residential load with a smaller amount of commercial and irrigation load. The customers served include:

1. Klickitat County PUD (White Salmon and Bingen)
2. Skamania County PUD (Stevenson and Carson)
3. City of Cascade Locks (Cascade Locks)
4. PacifiCorps (Hood River)
5. Hood River Electric Coop (Hood River)
6. Northern Wasco PUD (The Dalles)
7. USBR (The Dalles)
8. NW Aluminum (The Dalles)

Industrial/commercial load

Harvey Substation provides a point of delivery to an aluminum plant in The Dalles, but it is not currently in operation.

2. Transmission System Description

Local generation

The local generation that supports the area load includes:

1. USCOE's Bonneville Dam @ 115 kV (236 MW)
2. USCOE's The Dalles Dam @ 115 kV (339 MW)
3. SDS lumber's generation (10 MW)
4. Farmers Irrigation District Plant #2 (5.3 MW)

Note: The local load is served at 115 kV and 69 kV. This load is connected to the hydroelectric generation at Bonneville and The Dalles Dam. Some of the hydroelectric generation at Bonneville Dam and The Dalles Dam is connected to the 230 kV system and some is connected to the 115 kV system. The 115 kV generation at Bonneville and The Dalles projects has much more influence than the 230 kV generation. The 230 kV generation is only connected to the local load area through the 115 kV lines from Alcoa and Sifton and the 230/115 kV bank at The Dalles. For purposes of the studies, the local generation was considered to be only the 115 kV generation at Bonneville and The Dalles.

Lines serving the load area

The major lines providing service to the load area include:

1. Bonneville PH #1-Alcoa 115 kV #1 (BPA)
2. Bonneville PH #1-North Camas 115 kV #1 (BPA)

The major lines providing service within the load area include:

1. North Bonneville Annex-Bald Mountain 115 kV (BPA)
2. Bonneville-Hood River 115 kV (BPA)
3. Hood River-The Dalles 115 kV (BPA)
4. Pacificorp's 69 kV loop system in the Hood River area
5. North Wasco PUD's 115 kV loop in The Dalles area.

Much of the load in this area is served radially off of PAC's 69 kV Tucker Substation and BPA's Bald Mountain 115/69 kV substation. Powerdale is a three terminal switching station with its lines to Bingen and the Farmers Irrigation Plant operated normally open. This disconnects two would-be transmission loops in the system, causing load loss for any faults affecting the radial lines

Substations serving the load area

The load serving substations and taps include:

1. Bald Mountain Substation (BPA)
2. Cascade Locks Substation (BPA)
3. Acton Substation (BPA)
4. Hood River Substation (BPA)
5. The Dalles Subsation (BPA)
6. Chenoweth Substation (BPA)

Transformers

The load serving transformers include:

1. Bald Mountain Substation with one 50 MVA 115/69 kV transformer (BPA)
2. Chenoweth Substation with one 300 MVA 230/115 kV transformers (BPA)
3. Big Eddy Substation with one 250 MVA 230/115 kV transformers (BPA)
4. Tucker Substation two 50 MVA 115/69 kV transformers (PAC)

Reactive support and control

The reactive support for the load area includes:

1. Alcoa Substation a 61.6 Mvar shunt capacitors @ 115 kV
2. North Bonneville Annex Substation 2 each 30.5 Mvar shunt capacitors @ 115 kV

Bus arrangements

1. The BPA stations (The Dalles, Harvalum, Chenoweth and Big Eddy 115 kV) are main-auxiliary configurations.

2. Bald Mountain is a transformer terminated line
3. Acton, Hood River, and Cascade Locks are tapped lines with transformers.

3. Load Forecast

Load in this area peaks in the winter season, following the trend of most of the Pacific Northwest. The loads used in the detailed studies were:

	2016		2021	
Load Area	**Summer**	**Winter**	**Summer**	**Winter**
Klickitat County PUD	19.1	26.8	19.1	28.5
PAC / Hood River	43.3	50.3	45.1	54.8
BPA	27.7	43.1	28.0	45.7
N Wasco / Wasco Elec. Co-op	116.1	129.0	122.4	136.8
TOTAL	**206.2**	**249.2**	**214.6**	**265.8**

North Idaho Area Summary

1. General Load Area Description

General Description

The north Idaho area is comprised of northeast Bonner County, Boundary County in Idaho and western Lincoln County in Montana. The main communities served include the Sandpoint Idaho area. It also includes Newport Washington and Priest River Idaho to the west, Bonners Ferry and Moyie Springs to the north, Troy and Libby Montana to the east, and the small communities along the Clark Fork River in Idaho to the south

Customers served

The load in north Idaho is residential. The customers include:

Avista
Northern Lights Electric Cooperative
City of Bonners Ferry
Flathead Electric Cooperative

Industrial/commercial load

None.

2. Transmission System Description

The transmission serving the north Idaho area is shown in Figure 2.

Generation

The north Idaho area is served from the following major generation sources:

1. Libby (USCOE)
2. Cabinet Gorge (Avista)
3. Noxon (Avista)
4. Albeni Falls (USCOE)

There is some small generation in the Bonners Ferry area, but these were not included in the studies.

Lines and generation serving the load area

The 230/115 transformers serving the115 KV system include a

1. Libby Substation (BPA). Libby Substation integrates the hydroelectric generation from Libby Dam. Libby is also connected to Conkelley Substation which interconnects the hydroelectric generation from Hungry Horse Dam.

2. Cabinet Gorge Substation (Avista) Cabinet Gorge Substation integrates the hydroelectric generation from Cabinet Gorge Dam (Avista). Cabinet Gorge Substation is also connected to Noxon Substation which interconnects the hydroelectric generation from Noxon Dam (Avista).
3. Sacheen Substation (BPA) Sacheen Substation is a 230 KV station on the Bell-Boundary 230 KV line.

Transformers

1. Libby Substation (BPA). 1 each 230/115 KV 168 MVA transformer.
2. Cabinet Gorge Substation (Avista) 1 each 125 MVA 230/115 KV transformer.
3. Sacheen Substation (BPA) 1 each 230/115 KV 168 MVA transformer.

Reactive Support

1. Libby Substation (FEC) 1x11.9 MVar group MVAR at 115 KV
2. Bonners Ferry Substation (BPA) 2x11.9 MVar groups at 115 KV
3. Sand Creek Substation (BPA) 3x11.9 MVar groups at 115 KV
4. Sand Point substation (BPA) 1x11.9 MVar group at 115 KV

This area is fairly heavily compensated (60%) in proportion to the active load. One of the reasons for this is the fact that Avista's Sand Creek to Cabinet Gorge 115 kV line alone consumes about 30 MVars in the event of the limiting outage but does not have any shunt capacitors to compensate for it, so all the reactive support has to be provided by BPA's system at Sand Creek 115 kV, and Sand Point Substations.

Bus arrangements

1. Libby Substation (BPA). 230 KV and 115 KV busses are main-auxiliary.
2. Cabinet Gorge Substation (Avista) There is a single 230 KV bus that interconnects the generation and the line back to Noxon. The 115 KV line is terminated into a 230/115 KV transformer on the 230 KV bus at Cabinet Gorge.
3. Sacheen Substation (BPA). 230 KV and 115 KV busses are main-auxiliary.

4. Load Forecast

The peak season for the Northern Idaho area is the winter season, specifically from November 15 to February 15. During the peak season, typical temperatures range from -10 to -14 ºC and last for several consecutive day periods requiring high energy consumption. The forecasted load growth rate for the area is 1.5% per year.

For peak summer conditions, the highest peak experienced in the North Idaho area within the last 5 years occurred in 2008 when the North Idaho area load reached 111 MW. Using this historical peak and applying the 1.5% forecasted load growth rate indicates that the peak North Idaho area load level used in the 2013, 2016 and 2021

heavy summer basecases is approximately 11 - 13 MW higher than what is expected to occur based on historical peaks and the forecasted load growth rate.

The loads used were:

Year	Summer	Winter
2013	115	205
2016	123	213
2021	135	225

Okanogan Area Summary
May, 2012

1. General Load Area Description

General description

This area includes the Okanogan Valley area of north central Washington including the communities of Omak, Brewster and Bridgeport, Winthrop, Twisp, Pateros, Tonasket, and Okanogan.

Customers served

The load is primarily residential load with some irrigation load. The customers served include:

1. Okanogan PUD
2. Okanogan Coop
3. Douglas PUD

Industrial/commercial load

None.

2. Transmission System Description

Local generation

The local generation that supports the area load includes:

1. Grand Coulee Dam generators for a total of 7100 MW maximum
2. Chief Jo PH Generators for a total of 2600 MW maximum
3. Wells Dam generators for a total of 855 MW maximum

Lines serving the load area

The major lines serving the load area include:

1. BPA's 230 kV Chief Joseph-East Omak line
2. BPA's 115 kV Grand Coulee-Okanogan #2 line
3. BPA's 115 kV East Omak Tap to the Grand Coulee-Foster Creek line.
4. Douglas PUD's Wells –Foster-Creek (Douglas).

Substations serving the load area

The major 500 kV transmission substations serving the area are:

1. Grand Coulee Substation (BPA)
2. Chief Joseph Substation (BPA)

The load serving substations include:

1. Chief Joseph Substation near Brewster Washington
2. East Omak Substation located in Omak, WA
3. Wells Substation located near Pateros, WA

Transformers

The load serving transformers include:

1. East Omak Substation with one 170 MVA 230/115 kV transformer (BPA)
2. Grand Coulee Substation with one 230 MVA 230/115 kV transformer (BPA)
3. Wells Substation with one 112 MVA 230/115 kV transformer

Reactive support and control

The reactive support for the load area includes:

1. Grand Coulee Substation with a 248 Mvar shunt reactor @ 500 kV
2. East Omak Substation with 27 Mvar of shunt capacitors @ 115 kV
3. Oroville Substation 12 Mvar of shunt capacitors @ 115 kV
4. Winthrop Substation 14 Mvar of shunt capacitors at @ 115 kV

Bus arrangements

1. The East Omak 115kV bus is a main/transfer bus arrangement. There is no 230kV Bus at East Omak.
2. The Chief Jo 230kV bus is a main/transfer bus arrangement with a 230-kV bus sectionalizing breaker.
3. The Grand Coulee 115kV bus is a main/transfer bus arrangement.
4. The Wells 230kV bus is a main/transfer bus arrangement. There is no 115kV bus at Wells.

3. Load Forecast

Winter load

Winter Peak 2016 = 208 MW
Winter Peak 2021 = 221 MW

Summer load

Summer Peak 2016 = 159 MW
Summer Peak 2021 = 168 MW

Southern Idaho Area Summary
(Lower Valley-Fall River)

1. General Load Area Description

General description

This includes the area of southeast Idaho from Idaho Falls south to Soda Springs east to Jackson Wyoming. This area is served by Lower Valley Energy. It also includes from West Yellowstone, Montana south to Afton, Wyoming which is served by Fall River Electric Cooperative. This area includes major communities of Jackson, Wyoming and Driggs, Idaho. It also includes Serves the smaller communities of West Yellowstone, Montana, and Afton, Wyoming.

The Lower Valley and Fall River loads are served by PacifiCorp via the South Idaho Exchange. The only local generation is the USBR Palisades Dam which is limited to about 10 MW in the winter. By comparison, the combined flows of the three lines serving the Lower Valley and Fall River loads is approximately 250 MW, so the vast majority of the load is served through South Idaho Exchange with PacifiCorp.

Customers served

The load is primarily residential load. The customers served include:

1. Lower Valley Energy
2. Fall River Electric Cooperative
3. US Bureau of Reclamation (USBR)

Industrial/commercial load

2. Transmission System Description

Local generation

The local generation that supports the area load includes:

1. Four Palisades Powerhouse Units for a total of 180 MW maximum. Palisades is also capable of providing reactive support to the area from -76 to +108 MVARs max.
2. Strawberry Hydro generator for a total of 700 kW maximum
3. Bedford Generation for a total of 1.6 MW maximum
4. Horse Butte Wind Project for a total of 60 MW maximum scheduled for energization in fall 2012.

Lines serving the load area

The major lines serving the load area all originate from PAC's Goshen Substation and include:

1. Goshen-Drummond 161 kV (BPA)
2. Goshen-Swan Valley 161 kV (BPA)
3. Goshen-Palisades 115 kV (BPA)

Substations serving the load area

The load serving substations and taps include:

1. Madison Substation
2. Macks Inn Substation
3. Drummond Substation
4. Targhee Substation
5. Teton Substation

Transformers

There are four transmission 115/161 KV transmission transformers that connect BPA to PacifiCorps.

1. Drummond Substation with one 200 MVA 161/115 kV transformer (BPA)
2. Swan Valley Substation with one 200 MVA 161/115 kV transformer (BPA)
3. Goshen Substation has two 62.5 MVA 161/115 kV transformers (BPA)

The load serving transformers include:

1. Madison Substation with one 25 MVA 115/46 kV transformer (BPA)
2. Macks Inn Substation with two 7.5 MVA 115/46 kV transformers (BPA)
3. Drummond Substation has two 25 MVA 115/46 kV transformers (BPA)
4. Targhee Substation has one 10.5 MVA 115/46 kV transformer and one 25 MVA 115/12.5 MVA transformer (BPA)

Note: Some of the equipment is owned by BPA, and some of the equipment is leased by BPA from the utility. This summary did not distinguish the ownership. If it is owned by BPA or leased by BPA, it was shown as BPA.

Reactive support and control

The reactive support for the load area includes:

1. Madison Substation 1 each 8.1 Mvar shunt capacitor bank @ 115 kV
2. Drummond Substation 2 each 15 Mvar shunt capacitor banks @ 115 kV
3. Targhee Substation 1 each 16.5 Mvar shunt capacitor banks @ 115 kV
4. Tin Cup Substation (Lower Valley) 2 each 9.3 Mvar shunt capacitor banks @ 115 kV

Bus arrangements

1. Drummond, Swan Valley, Teton, and Goshen are main-auxiliary configurations.

2. Madison, Targhee, and Mack's Inn are either taps or transformer terminated lines with no bus arrangement.

3. Load Forecast

Winter load

2011/2012 peak winter load
Lower Valley 197 MW
Fall River 61 MW
Forecasted load less losses and 10 MW Palisades (assumed generation for winter conditions) generation was 265 MW

Summer load

2012 peak summer load
Lower Valley 130 MW
Fall River 71 MW

Northern California Area Summary

1. General Load Area Description

General description

This includes the northeast corner of Modoc County in northern California including the communities of Canby and Alturas.

Customers served

The load is primarily residential load. The customers served include:

1. Surprise Valley Electrification Corporation (SVEC)
2. PacifiCorp (PAC)

Industrial/commercial load

None.

2. Transmission System Description

Local generation

None.

Lines serving the load area

The major lines serving the load area include:

1. Malin-Hilltop 230 kV (BPA)
2. Hilltop-Bordertown 345 kV (NVE)
3. Malin-Alturas 69 kV (PAC)
4. Chiloquin-Alturas 115 kV (PAC)

Substations serving the load area

The load serving substations and taps include:

1. Canby Substation (BPA)
2. Warner Substation (BPA)
3. Cedarville Junction Substation (BPA)
4. Davis Creek Substation (SVEC)
5. Hilltop Substation (NVE)

Transformers

The load serving transformers include:

1. Canby Substation with one 50 MVA 230/69 kV transformer (BPA)
2. Alturas Substation with one 19 MVA 115/69 kV transformer (PAC)
3. Warner Substation with one 100 MVA 230/115 kV transformers (BPA)
4. Cedarville Junction Substation with one 42 MVA 115/69 kV transformer (BPA)

5. Davis Creek Substation with one 3.9 MVA 115/12.5 kV transformer (BPA)

Reactive support and control

The reactive support for the load area includes:

1. Hilltop Substation a 55 Mvar shunt capacitors @ 230 kV (NV Energy)
2. Warner Substation a 14.4 Mvar shunt capacitors @ 115 kV (BPA)
3. Alturas Substation two 5.4 Mvar shunt capacitors @ 69 kV (PAC)
4. Hilltop Substation a 45 Mvar shunt reactor at 345 kV (BPA)

Bus arrangements

The BPA stations are all transformer terminated lines with no substation arrangements.

3. Load Forecast

	2011 SCADA	2016 Summer	2016 Winter	2021 Summer	2021 Winter
Cedarville	9.2	7.4	2.2	7.4	2.3
Davis Creek	2.4	1.8	0.4	1.8	0.4
Canby 69	unavailable	2.3	1.8	2.0	2.0
Alturas 69	11.2	15.2	16.8	15.9	17.2
Canby2 69	0.2	0.02	0.02	0.02	0
Mile Hi 69	24.2	20.5	20.8	20.8	21.1
Total	**35.6**	**35.7**	**37.6**	**36.7**	**38.3**

De Moss-Fossil Area Summary

1. General Load Area Description

General description

This area spans a portion of north central Oregon, including the communities of Maupin, Tygh Valley, and Grass Valley. It encompasses Wasco and Sherman counties in Oregon.

Customers served

The load is primarily residential load with some irrigation load. The customers served include:

1. Wasco Electric Cooperative (WEC)
2. Columbia Basin Electric Cooperative (CBEC)
3. Columbia Power Cooperative Association (CPBA)
4. PacifiCorp (PAC)

Industrial/commercial load

2. Transmission System Description

Local generation

The local generation that supports the area load includes:

Plant	Voltage (kV)	Owner	MW
The Dalles Hydro	115	US Army COE	339
Condon Wind	69	Seawest	50
PaTu Wind	69	PaTu Wind Farm LLC	10

Lines serving the load area

The major lines serving the load area include:

1. Big Eddy-DeMoss 115 kV (BPA)
2. Maupin-Fossil 69 kV (Wasco)
3. DeMoss-Fossil 69 kV (BPA) (to be upgraded to 115 kV in 2012)
4. Big Eddy-Redmond 230 kV (BPA)

Substations serving the load area

The load serving substations and taps include:

1. DeMoss Substation (BPA)
2. Fossil Substation (BPA)
3. Maupin Substation (BPA)

Transformers

The load serving transformers include:

1. DeMoss Substation with one 115/69 kV transformer (BPA)
2. Maupin Substation with one 230/69 kV transformer (BPA)
3. Fossil Substation with 115/69 kV transformer (BPA) (Planned for energization in 2012)

Reactive support and control

The reactive support for the load area includes:

1. 10 MVars of shunt capacitance at Condon Wind.
2. Two 2.7 MVar shunt capacitor banks at Fossil substation
3. The reactive capability of the Condon Wind. Condon Wind generation is modeled with ± 25 MVar
4. The reactive capability of the Patu Wind. Patu Wind generation is modeled with ± 3.3 MVar of reactive capability

Bus arrangements

1. Maupin Substation 230 kV is laid out as a main-auxiliary bus, but has only one circuit breaker and is operated at a tap on the Big Eddy-Redmond 230 kV line. Maupin 69 kV is a main-auxiliary bus.
2. DeMoss 69 kV is a main-auxiliary bus. Currently, the 115 kV is a transformer terminated line. With the upgrade of the DeMoss-fossil line to 115 kV, a 115 kV ring bus will be constructed at DeMoss.
3. Fossil 69 kV is a main-auxiliary bus. With the upgrade to 115 kV, the 115 kV will be a transformer terminated line.

3. Load Forecast

2016		2021	
Summer	**Winter**	**Summer**	**Winter**
24.4	31.8	25.5	34.0

Request Detail

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Legal Contact Name: Ryan Neale
Legal Contact Phone: 425.742.4545
Legal Contact Email: ryann@millcreeklaw.com

Request Text: (1) Please provide the total NCP by season projected for each of the 24 areas used for transmission planning. (2) Please provide the total CP by season for the same 24 areas. (3) Please provide the total transfer capability for the same 24 areas during the hottest day of the summer. (4) Please provide the list of NT customers in each of the 24 areas, and a list of PTP customers and their contract demands in each of the areas.

Response Detail

Date Response Filed: 12/13/2012 10:57:22 AM
Contact Name: Larry Furumasu
Contact Phone: 360.619.6851
Contact Email: lafurumasu@bpa.gov
Response Text:
1. BPA does not have the information requested. BPA does not determine a total NCP by season for each of the 24 planning areas 2. BPA does not have the information requested. BPA does not determine a total CP by season for the 24 planning areas. 3. BPA does not have the information requested. BPA does not determine total transfer capability (TTC) for the planning areas. BPA determines TTC for specific paths and flowgates, which is described in BPA's ATC methodology, available on BPA's website at http://transmission.bpa.gov/business/atc_methodology. 4. See response to WG-BPA-5, which provides the customers in each area. Refer to Tables 13.1 and 13.2 of the Transmission Rates Study Documentation for the list PTP customers and their contract demands. Refer to Tables 14 and 15 for the list of NT customers.
Files Submitted for this Response:

Request Detail

Request ID: WG-BPA-7
Page Number: 4
Line Number: 22-25
Exhibit Filing: BP-14-E-BPA-33

Technical Contact Name: Anne Falcon
Technical Contact Phone: 425.889.2700
Technical Contact Email: falcon@eesconsulting.com
Legal Contact Name: Ryan Neale
Legal Contact Phone: 425.742.4545
Legal Contact Email: ryann@millcreeklaw.com

Request Text: Please confirm that it is BPA's planning obligation to NT customers to ensure that it is capable of serving NT customer loads at all hours, not just during the peak hour or peak hours.

Response Detail

Date Response Filed: 12/12/2012 4:18:47 PM
Contact Name: Dennis Metcalf
Contact Phone: 360.619.6156
Contact Email: demetcalf@bpa.gov
Response Text:
Yes. By planning the system to meet the customers' non-coincident peak load, BPA maintains adequate facilities to meet the customers' loads during the off-peak hours.
Files Submitted for this Response:

Request Detail

Request ID: WG-BPA-15
Page Number: 11
Line Number: 1-17
Exhibit Filing: BP-14-E-BPA-33

Technical Contact Name: Anne Falcon
Technical Contact Phone: 425.889.2700
Technical Contact Email: falcon@eesconsulting.com
Legal Contact Name: Ryan Neale
Legal Contact Phone: 425.742.4545
Legal Contact Email:

Request Text: Does BPA consider demand response programs in the transmission planning? If so, please explain how such programs are considered in transmission planning.

Response Detail

Date Response Filed: 12/13/2012 11:00:55 AM
Contact Name: Larry Furumasu
Contact Phone: 360.619.6851
Contact Email: lafurumasu@bpa.gov
Response Text:
BPA objects to this data request on the grounds that it is beyond the scope of the testimony. The cited testimony relates to BPA's consideration of transmission outages in its planning studies and does not reference "demand response programs." Without waiving this objection, BPA responds as follows: BPA considers some demand response programs as part of its non-wires program. Information about BPA's non wires program, including how demand response programs are considered in transmission planning, is available at http://transmission.bpa.gov/PlanProj/nonwires.cfm
Files Submitted for this Response:

Request Detail

Request ID: WG-BPA-16
Page Number: 12
Line Number: 8-22
Exhibit Filing: BP-14-E-BPA-33

Technical Contact Name: Anne Falcon
Technical Contact Phone: 425.889.2700
Technical Contact Email: falcon@eesconsulting.com
Legal Contact Name: Ryan Neale
Legal Contact Phone: 425.742.4545
Legal Contact Email:

Request Text: Please confirm that BPA is proposing to allocate transmission costs for the total system by 12 NCP, not allocating transmission costs by area to customers.

Response Detail

Date Response Filed: 12/12/2012 10:49:11 AM
Contact Name: Dave Bogdon
Contact Phone: 360.619.6412
Contact Email: dwbogdon@bpa.gov
Response Text:
BPA proposes to allocate Network Segment transmission costs to customers using the 12 NCP cost allocation methodology. BPA is not proposing to allocate transmission costs by area to customers.
Files Submitted for this Response:

Request Detail

Request ID: WG-BPA-18
Page Number: 8-10
Line Number: 10-5
Exhibit Filing: BP-14-E-BPA-33

Technical Contact Name: Anne Falcon
Technical Contact Phone: 425.889.2700
Technical Contact Email: falcon@eesconsulting.com
Legal Contact Name: Ryan Neale
Legal Contact Phone: 425.742.4545
Legal Contact Email:

Request Text: • In clarification, BPA staff indicated that, in calculating the total loads within a given planning area relevant to transmission planning, BPA: First, determines the individual customer non-coincidental peak (NCP) loads for each customer in each planning area; Second, sums the NCP loads for all customers within a given planning area; Third, adjusts that summed amount based on observed loads within the planning area. Please explain and further detail the nature of the adjustments BPA makes to its load assumptions in system planning based on the observed load within a given planning area. Why and how does BPA make the adjustment? What was the quantity of each and every adjustment (made for any planning area) based on observed load in any study conducted in the last five years? What is the likelihood that an adjustment will take place in any given planning study or model?

Response Detail

Date Response Filed: 12/13/2012 12:09:09 PM
Contact Name: Larry Furumasu
Contact Phone: 360.619.6851
Contact Email: lafurumasu@bpa.gov
Response Text:
BPA responds to each question as follows: 1. BPA plans the system based on the forecasted non-coincident peak loads in the base cases. BPA may study additional sensitivities to different load levels (for a planning area as a whole, not on a customer by customer basis) if the percentage load change for the planning area in the base case load forecast does not correlate with the historical peak load data for that planning area. To determine if the load forecast correlates with historical data, BPA compares the percentage load increase in the base case load forecast to historical annual peak load (determined from SCADA) data. If the load forecast and the trend extrapolated from historical data do not correlate by a significant amount, BPA may study additional sensitivities to different load levels. The results of the analysis of additional sesnsitivities do not change the long range plan for the area, but rather provides additional information on the timing for any proposed transmission projects. 2. Studying or analyzing area load levels other than what is contained in the base cases is determined on a case by case basis that is unique to each area study. In many studies, no actual power flow studies are run with adjusted base case loads. Planning may simply look at the trend of historical peak loads and perform a linear or best fit extrapolation to determine when the total area load levels may exceed critical levels above which there is the potential for system deficiencies to occur. Again, this does not change the proposed projects, it just helps define a range for the need date for a project to aid in determining when to launch the project. 3. BPA objects to the request for the quantity of each and every adjustment to load in any study conducted in the last 5 years on the grounds that it is vague and ambiguous, unduly burdensome, and would require BPA to perform analysis beyond what BPA performed for the Initial Proposal. BPA performs numerous planning studies each year. BPA considers multiple scenarios for multiple seasons for the 24 planning areas throughout each year. This data request would require BPA to go through each study it has performed in the last five years, which may exceed 100 studiesand determine

if an adjustment was made and the quantity of each and every adjustment to load. 4. BPA objects to the request about the likelihood of an adjustment because the data requested is beyond the scope of the rate proceeding. The data request presents a hypothetical question related to the probability that BPA would make an adjustment in a planning study or model, which is not a rates issue. Without waiving this objection, BPA responds as follows: BPA does not have this information.
Files Submitted for this Response:

Request Detail

Request ID: WG-BPA-21
Page Number: 8-10
Line Number: 10-5
Exhibit Filing: BP-14-E-BPA-33

Technical Contact Name: Anne Falcon
Technical Contact Phone: 425.889.2700
Technical Contact Email: falcon@eesconsulting.com
Legal Contact Name: Ryan Neale
Legal Contact Phone: 425.742.4545
Legal Contact Email: ryann@millcreeklaw.com

Request Text: Are there transmission lines and facilities that are used to serve load in more than one planning area? If so, are such lines and facilities designed through BPA's planning process to meet the sum of all of the non-coincidental peak loads of all of the customers in all of the planning areas that are served by those lines and facilities? If the answer is yes to the second question, how is this consistent with the statement in BPA's Transmission Segmentation Study (BP-13-E-BPA-06), page 4, lines 25-26, which states that "BPA plans and operates these facilities on an integrated basis to achieve maximum efficiency on a system-wide basis"? How does using the sum of all the non-coincidental peak loads in the affected planning areas for planning "achieve maximum efficiency on a system-wide basis"?

Response Detail

Date Response Filed: 12/13/2012 2:32:23 PM
Contact Name: Larry Furumasu
Contact Phone: 360.619.6851
Contact Email: lafurumasu@bpa.gov
Response Text:
Yes, there are transmission lines and facilities that are used to serve load in more than one planning area. BPA does not design the transmission lines and facilities that are located in more than one planning area to meet the sum of all of the non-coincident peak loads of all the customers in all of the planning areas served by those lines and facilities as this would be impossible. For example, a 115 kV line that is located in multiple planning areas does not have the thermal capacity to meet the sum of all the non-coincident peak loads of all customers in all of the planning areas where that 115 kV line is located. BPA plans the transmission system as a whole to meet a forecast range of demands..
Files Submitted for this Response:

Request Detail

Request ID: WG-BPA-34
Page Number: 15
Line Number: 2-23
Exhibit Filing: BP-14-E-BPA-11

Technical Contact Name: Anne Falcon
Technical Contact Phone: 425.889.2700
Technical Contact Email: falcon@eesconsulting.com
Legal Contact Name: Ryan Neale
Legal Contact Phone: 425.742.4545
Legal Contact Email: ryann@millcreeklaw.com

Request Text: Will the adjustment proposed for power demand billing determinants be implemented for transmission billing determinants? If not, why not?

Response Detail

Date Response Filed: 12/17/2012 4:13:37 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
No. The proposed adjustments are specific to power rates. The reason is the difference in the way the billing determinant is determined. While both transmission and power rates propose to use customer system peak as the hour of the billing demand peak, the transmission billing determinant is proposed to use the peak usage while the power billing determinant uses the peak usage minus CDQ minus energy usage. The proposed power demand billing adjustments address situations when the peak usage is present without an adequate amount of energy usage; that is, a anomalously low load factor. The level of the load factor is not a concern for the transmission billing determinant.
Files Submitted for this Response:

Request Detail

Request ID: WG-BPA-35
Page Number: 15-16
Line Number: 24-8
Exhibit Filing: BP-14-E-BPA-11

Technical Contact Name: Anne Falcon
Technical Contact Phone: 425.889.2700
Technical Contact Email: falcon@eesconsulting.com
Legal Contact Name: Ryan Neale
Legal Contact Phone: 425.742.4545
Legal Contact Email: ryann@millcreeklaw.com

Request Text: Please describe the primary types of demand side management that utilities can implement, whether such demand side management will impact the results of BPA's transmission planning methodologies, and if so whether they reduce overall transmission revenue requirement.

Response Detail

Date Response Filed: 12/17/2012 4:15:18 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
BPA objects to this request as beyond the scope of the rate case. The request cites testimony that addresses the modification to the demand billing determinant to account for unintended impact on the demand charge that results from weather related outages. As explained in the testimony, demand side management does not help address recovery peak that result from the weather related outages. There is no discussion of the types of demand side management and its impact on transmission planning. Without waiving the objection BPA responds as follows: Utilities can achieve a variety of demand side management objectives in cooperation with their end use customers. These objectives include, but are not limited to a) peak load reduction, b) balancing (ancillary) services, and/or c) relief of transmission and distribution constraints. Peak load reduction is a strategy to reduce load during hours, often in the morning or early evening, in which a maximum consumption of monthly power is anticipated. Balancing services are the adjustment of load, either up or down, in response to intrahour or short-term needs when there are variations from schedules. Balancing services are different from regulation (second-to-second) and load following (spinning, less than 10 minute) reserves, as these are typically non-spinning and need to respond to a full commitment within 10 minutes. Finally, a utility may opt to reduce load in times of transmission constraints, or if there are distribution system constraints within their service area. A utility may call upon assets in the: • Residential Sector, e.g. direct load control of water heaters, space heat, and air conditioning • Commercial and Industrial Sector, e.g. control of motors in manufacturing, refrigeration equipment in cold storage and food processing facilities, and lighting in commercial buildings • Agriculture Sector, e.g. irrigation pumps The impact on transmission planning and the transmission revenue requirement will depend upon the nature and success of the particular demand side management program.
Files Submitted for this Response:

Date Response Filed: 12/19/2012 2:12:44 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:

Clarification. The term "balancing services" used in this data response is different from the term as used in the Generation Inputs Study BP-14-E-BPA-05. The term "balancing service," as used in BPA's response to WG-BPA-35, simply means that demand response can be used to provide non-spinning ancillary services. The term "balancing services," as used in the Generation Inputs Study, includes regulation (spinning), following (spinning and non-spinning), and imbalance reserve (spinning and non-spinning) components.

Files Submitted for this Response:

Request Detail

Request ID: WG-BPA-36
Page Number: 4
Line Number: 6-26
Exhibit Filing: BP-14-E-BPA-06

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name: Ryan Neale
Legal Contact Phone: 425.742.4545
Legal Contact Email: ryann@millcreeklaw.com

Request Text: Please identify each and every customer who receives unbundled retail transmission service from BPA over its integrated network segment. Please also identify each and every customer who receives unbundled retail distribution service from BPA over its integrated network segment. If no such customer exists, please explain why.

Response Detail

Date Response Filed: 1/8/2013 3:45:12 PM
Contact Name: Dennis Metcalf
Contact Phone: 360.619.6445
Contact Email: demetcalf@bpa.gov
Response Text:
BPA does not agree that it provides “retail transmission service” to any customer over its integrated network segment. Section 1.12(ii) of BPA’s tariff allows a retail customer of a distribution utility taking unbundled transmission service from BPA to be an Eligible Customer for service under BPA’s tariff if BPA voluntary agrees to provide service to that customer. Currently, to our knowledge, BPA is not providing service to any retail customers under this section. If by retail, however, the question simply means service to end-use consumers, BPA provides unbundled transmission service directly to 11 end use consumers-- 2 Direct Service Industrial Customers (Alcoa and Port Townsend Paper), 3 public agencies (Energy Northwest, Port of Seattle--SeaTac International Airport, and Asotin PUD [Asotin does have 3 retail customers, but uses about 96% of its purchase from BPA for its own uses]), and 6 Federal agencies (U.S. Air Force Fairchild Base, U.S. DOE Albany Research Center, U.S. DOE Richland Operations Office, U.S. Naval Base Bremerton, U.S. Naval Station Everett [Jim Creek], and U.S. Naval Submarine Base Bangor). As explained above, BPA does not have any retail customers. Moreover, BPA does not have distribution facilities so, therefore, it does not provide unbundled retail distribution service.
Files Submitted for this Response:

Request Detail

Request ID: WG-BPA-38
Page Number: 7
Line Number: 22-25
Exhibit Filing: BP-14-E-BPA-35

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name: Ryan Neale
Legal Contact Phone:
Legal Contact Email: ryann@millcreeklaw.com

Request Text: Please describe and explain the mechanism BPA assumed would be used to finance the construction of new network facilities in making this assertion? Please provide all data and analysis performed by BPA showing that an incremental rate will protect existing customers from significant rate impacts.

Response Detail

Date Response Filed: 1/4/2013 11:01:21 AM
Contact Name: Rebecca Fredrickson
Contact Phone: 360.619.6156
Contact Email: refredrickson@bpa.gov
Response Text:
We did not assume any particular mechanism in making the statement. We are generally familiar with the incremental rate concept, which is discussed in the testimony of Fredrickson, et al., BP-12-E-BPA-48, pp. 4-5.
Files Submitted for this Response:

Request Detail

Request ID: WG-BPA-39
Page Number: 7
Line Number: 22-25
Exhibit Filing: BP-14-E-BPA-35

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name: Ryan Neale
Legal Contact Phone:
Legal Contact Email: ryann@millcreeklaw.com

Request Text: Would an incremental rate protect existing customers from significant rate impacts if the construction of new network facilities is initially financed by transmission customers and BPA returned that initial financing to those customers by providing them transmission credits on their future transmission bills? Would BPA likely need to increase minimum required net revenue if it were to provide transmission credits arising from such financing in the 2014-2015 or future rate periods? Please provide any and all analysis BPA has performed on the potential rate impacts of using customer financing to construct new network facilities to facilitate the transmission of wind energy from Montana.

Response Detail

Date Response Filed: 1/4/2013 11:50:04 AM
Contact Name: Rebecca Fredrickson
Contact Phone: 360.619.6156
Contact Email: refredrickson@bpa.gov
Response Text:
BPA objects to the request because it calls for analysis that BPA has not performed. Without waiving the objection, we respond that the intent of an incremental rate is to avoid cost shifts to existing customers for costs of new facilities needed to provide new service. We have done no analysis regarding the potential impacts of using customer financing to construct new network facilities to facilitate the transmission of wind energy from Montana under various possible incremental rate designs.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP11-1
Page Number: 4
Line Number: 8-10
Exhibit Filing: BP-14-E-JP11-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Please explain how BPA is not planning to meet demands throughout the year if its planning analysis considers peak loads in three of the four seasons?

Response Detail

Date Response Filed: 2/21/2013 3:51:31 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
We do not state that BPA is not planning to meet demands throughout the year. What we state is that BPA's "testimony refers to only three seasons of the year when load peaks…." The issue for cost allocation is whether BPA experiences pronounced peaks during certain periods. The reasoning behind this is that capacity costs are incurred to serve the peak loads. Based on Snohomish's review of the power flow studies BPA relied on in this rate case, which Snohomish received under a non-disclosure agreement, BPA's annual plans are based on: 1) one winter non-coincidental peak; 2) one summer non-coincidental peak; and 3) one spring non-coincidental off-peak with high hydro conditions (i.e. not on the average peak over each season). By planning for its non-coincidental peaks, BPA is inherently planning for other demands on its system throughout the year.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP11-2
Page Number: 4
Line Number: 8-11
Exhibit Filing: BP-14-E-JP11-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Is the transfer capability on transmission lines the same each month? If not, how does it differ?

Response Detail

Date Response Filed: 2/21/2013 3:52:14 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
Ambient temperature, wind speed and a host of other factors can impact line ratings.
This is a key reason why seasons are used in the powerflow base cases.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP11-3
Page Number: 4-5
Line Number: 12-23, 1-6
Exhibit Filing: BP-14-E-JP11-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: The quotes each identify the winter months, spring months and summer months. Does this indicate that rather than 3 NCP that BPA should use 9 NCP (3 seasons x 3 months = 9 months = 9 NCP) under your proposal?

Response Detail

Date Response Filed: 2/21/2013 3:53:16 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
No. See response to WG-JP11-1.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP11-4
Page Number: 5
Line Number: 15-16
Exhibit Filing: BP-14-E-JP11-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Please provide the FERC guidance (including citations to specific page or paragraph numbers) supporting the statement that "the FERC tests were designed for utilities that serve native load with only a small percentage, if any, PTP or third-party transactions."

Response Detail

Date Response Filed: 2/21/2013 3:54:06 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
This statement is based on our general knowledge that the tests were designed for integrated utilities, whose primary function is to serve native load.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP11-5
Page Number: 5
Line Number: 10-12
Exhibit Filing: BP-14-E-JP11-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Is planning the only criteria FERC uses for cost allocation or does FERC consider other criteria/factors? If your answer is that planning is the only criteria, please provide the FERC guidance (including citations to specific page or paragraph numbers) you are relying on.

Response Detail

Date Response Filed: 2/21/2013 3:55:04 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
It is our understanding that FERC requires that a cost allocation method reflect how a utility plans its system. In Order No. 888, FERC reaffirmed the use of the 12 CP method because it believed the majority of utilities planned their systems to meet their twelve monthly peaks. FERC also stated that utilities that plan their systems to meet an annual system peak, for instance, “are free to file another method if they demonstrate that it reflects their transmission system planning.” See Order No. 888, FERC Stats. and Regs. ¶ 61,036, at 31,736 (1996).
Files Submitted for this Response:

Request Detail

Request ID: WG-JP11-6
Page Number: 5
Line Number: 11-12, 20-21
Exhibit Filing: BP-14-E-JP11-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Are you aware of any wholesale transmission providers whose cost allocation methodology is based on 2 NCP or 3 NCP? If so, please identify those transmission providers.

Response Detail

Date Response Filed: 2/21/2013 3:56:24 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
No.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP11-7
Page Number: 5
Line Number: 16-21
Exhibit Filing: BP-14-E-JP11-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Please identify each of the utilities or transmission owners that you are aware of that use 1 NCP, 2 NCP, 3 NCP, 12 NCP, 1 CP and/or 12 CP. For each utility or transmission owner so identified please provide the PTP and NT splits for that utility or transmission owner.

Response Detail

Date Response Filed: 2/21/2013 3:57:22 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
We are aware of several WECC Investor Owned Utilities that use a 12 CP cost allocation. Tacoma Power uses a 1CP and has only 3% PTP service on its transmission system (See response to WG-JP-11-8). See the attached document for the PTP/NT splits for each utility.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP11-8
Page Number: 5-6
Line Number: 20-1
Exhibit Filing: BP-14-E-JP11-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: For each Benton PUD, Franklin PUD, Tacoma Power, Seattle City Light and Snohomish County PUD please provide the following: (1) the split between non-NT and NT usage on the utility's transmission system; (2) the utility's most recent COSA study; (3) a description of the cost allocation method used for the utility's Open Access Transmission Tariff ("OATT"); (4) a copy of the utility's OATT; (5) description of how the utility plans its transmission system including but not limited to (i) how the utility plans its system to accommodate both NT and non-NT usage and (ii) how diversity is incorporated in the utility's transmission system planning.

Response Detail

Date Response Filed: 2/21/2013 3:58:21 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
Counsel for Snohomish County PUD has contacted counsel for WPAG and understands that the intent of the questions in this data request is meant to obtain the support the witnesses relied on to state that they "are unaware of any utility whose cost allocation method is based on a 12 NCP or CP that has more non-NT usage than NT usage." To this extent, we respond that the statement is based on the witnesses' general knowledge and experience in the electric industry. Beyond this response, we object to the data request on the basis that it does not relate to the testimony cited and is not likely to lead to the discovery of admissible evidence. The information requested for each of the entities listed has no relevance to the witnesses' statement. Further, the utilities that comprise Joint Party 11 are primarily (if not solely) load serving entities, and thus they are not comparable to BPA, making their individual business practices irrelevant to this proceeding. Without waiving these objections, we provide the following information that is readily available to us: - All the parties listed, except for Tacoma, currently only serve retail customers. Non-NT sales on Tacoma's system are 3% and the remaining 97% are Network Integration Load. - See response to JP03-JP11-7 for a description of the cost allocation methods for Tacoma Power and Seattle City Light (the two parties that offer transmission service). Seattle does not conduct a COSA exclusively for transmission service; Seattle's COSA for retail rates is available here: http://www.seattle.gov/light/accounts/rates/ - Benton PUD, Franklin PUD and Snohomish County PUD do not have OATTs. Seattle's OATT can be found here: http://www2.seattle.gov/light/news/memo.asp?ID=62. Tacoma Power's OATT can be found here: https://www.mytpu.org/files/library/oatt-july-2012.pdf - Benton PUD, Franklin PUD, and Snohomish County PUD operate distribution systems and thus do not have a transmission system to plan for nor do they develop a COSA for transmission facilities.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP11-9
Page Number: 6
Line Number: 10-11
Exhibit Filing: BP-14-E-JP11-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Has FERC accepted the use of contract demand for PTP customers?

Response Detail

Date Response Filed: 2/21/2013 3:58:45 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
FERC has accepted the use of contract demand for PTP customers under the assumption that the transmission provider would plan for contract demand. Order No. 888, FERC Stats. and Regs. ¶ 61,036, at 31,738.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP11-13
Page Number: 20-21
Line Number: 1-15,1-5
Exhibit Filing: BP-14-E-JP11-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Would PTP customers still be allowed to resell their reserved capacity under your proposal that BPA calculate rates using the forecasted non-coincident peak usage data for the contract-demand based services?

Response Detail

Date Response Filed: 2/21/2013 4:03:10 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
Yes. The 2NCP or 3NCP amounts for PTP customers should reflect the amount of redirect and resale by PTP customers. As a result, the cost of the Network segment used by PTP customers to resell and redirect would be allocated to such customers.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-1
Page Number: 6
Line Number: 13-19
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name: Ryan Neale
Technical Contact Phone: 425.742.4545
Technical Contact Email: ryann@millcreeklaw.com
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Please provide a copy of BPA's petition cited here.

Response Detail

Date Response Filed: 2/21/2013 2:39:21 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12445378
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-2
Page Number: 9
Line Number: 13-15
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name: Ryan Neale
Technical Contact Phone: 425.742.4545
Technical Contact Email: ryann@millcreeklaw.com
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Is it your position that FERC uses the seven factor test for making rolled-in rate determinations for facilities used in unbundled wholesale transmission, i.e., transmission of electric energy that is being sold for resale? If yes, please provide all FERC guidance (including citations to specific page or paragraph numbers) that supports your position.

Response Detail

Date Response Filed: 2/21/2013 2:41:47 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
It is our understanding that all FERC jurisdictional electric utilities are subject to the 7-factor test to determine whether to allocate costs of facilities to transmission rate base or distribution rate base. FERC only has jurisdiction to review rates related to transmission and not distribution. Therefore, the distinction between transmission and distribution is critical for transmission ratemaking purposes.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-3
Page Number: 9
Line Number: 13-15
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: For what purpose(s) has FERC used the seven factor test since the conclusion of the 1996 rate case? Please provide the FERC guidance (including citations to specific page or paragraph numbers) you are relying on for each purpose identified.

Response Detail

Date Response Filed: 2/21/2013 2:45:29 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
We have not performed the legal research necessary to answer this request, and litigants are limited to requesting parties' existing analyses. However, our understanding is that FERC has used the 7-factor test to identify distribution facilities in the context of ratemaking and reliability.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-4
Page Number: 15
Line Number: 6
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: What distinguishing characteristic(s) prevent(s) a “distribution-like” facility from being a “distribution” facility?

Response Detail

Date Response Filed: 2/21/2013 2:47:40 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
We are unclear what the term “prevent(s)” means in this context. However, both distribution and distribution-like facilities would meet the 7-factor test. A distribution facility would be in a distribution system and a distribution-like facility would not be in a distribution system.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-5
Page Number: 15
Line Number: 20-21
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: What specific sections and subsections of the Northwest Power Act regarding the residential exchange program are not being correctly implemented under BPA's segmentation proposal? Please explain how each specific subsection identified is not being correctly implemented.

Response Detail

Date Response Filed: 2/21/2013 2:50:33 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
The Pacific Northwest Electric Power and Conservation Act section 839c(c)(7) is not being correctly implemented under Bonneville's proposal. The "average system cost" for electric power sold to the Administrator under this subsection shall be determined by the Administrator on the basis of a methodology developed for this purpose in consultation with the Council, the Administrator's customers, and appropriate State regulatory bodies in the region. Such methodology shall be subject to review and approval by the Federal Energy Regulatory Commission. As explained in the testimony, BP-14-E-JP12-01 at page 14, lines 4-14, the average system cost has one definition of transmission. Bonneville has interpreted this definition one way for exchanging utilities, but is proposing to interpret it a different way for its own facilities in this proceeding.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-6
Page Number: 16
Line Number: 1-4
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Do you agree that the Residential Exchange Program provides a subsidy to exchanging utilities, including public power utilities?

Response Detail

Date Response Filed: 2/21/2013 2:52:21 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
Joint Party 12 agrees that the Residential Exchange Program is a subsidy, legally established to bring the wholesale rates charged by Bonneville to investor-owned utilities into parity with the rates Bonneville charges preference customers. See e.g. Alcoa, Inc. v. Bonneville Power Admin., 698 F.3d 774, 780 (2012); Wash. Utils. & Transp. Comm'n v. FERC, 26 F.3d 935, 936 (1994); Golden Northwest Aluminum, Inc. v. Bonneville Power Admin., 501 F.3d 1037, 1047 (2007); CP Nat'l Corp. v. Bonneville Power Admin., 928 F.2d 905, 907 (1990); Cent. Electric Coop., Inc., v. Bonneville Power Admin., 835 F.2d 199, 200-01 (1987). The status of the Residential Exchange Program as a subsidy, however, is irrelevant to the issue of Bonneville's improper calculation of residential exchange benefits by inconsistently interpreting the transmission versus distribution facility standards.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-7
Page Number: 16
Line Number: 1-4
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Is Snohomish PUD No. 1, Benton PUD No. 1, Tacoma Power, and/or Seattle City Light an exchanging utility under the Residential Exchange Program?

Response Detail

Date Response Filed: 2/21/2013 2:54:24 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
Snohomish PUD No. 1 is an exchanging utility under the Residential Exchange Program. In addition, two other public utilities, Clark County PUD No. 1 &Franklin County PUD No. 1, have participated in the Residential Exchange Program under the 2008 ASC Methodology.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-9
Page Number: 20
Line Number: 17-18
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: What are the “individual rate classes” BPA is referring to in this quote?

Response Detail

Date Response Filed: 2/21/2013 2:58:09 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
“Individual rate classes” are not defined in the referenced testimony. However, our understanding is that at the time BPA had three basic classes of customers: (i) public power utilities, (ii) investor-owned utilities, and (iii) Direct Service Industries.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-10
Page Number: 21
Line Number: 1-3
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Are Snohomish PUD No. 1, Benton PUD No. 1, Tacoma Power, and Seattle City Light federal or non-federal power users of the system for purposes of section 10 of the Transmission System Act? Please explain.

Response Detail

Date Response Filed: 2/21/2013 3:00:01 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
We object to this request because it calls for legal analysis and legal conclusions. Without waiving these objections, we consider the entities listed to be Federal and non-Federal power users.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-15
Page Number: 22-23
Line Number: 19-9
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Did FERC develop the seven factor test in Order 888 to be used in making rolled-in rate determinations or some other purpose? If for some other purpose, what was the purpose as identified in Order 888?

Response Detail

Date Response Filed: 2/21/2013 3:08:45 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
FERC developed the seven actor test to determine what facilities would be subject to FERC's jurisdiction (i.e., transmission). Our understanding is that rolled-in rate determinations would apply only to facilities under FERC's jurisdiction. Therefore, distribution facilities are prohibited from being rolled-in to a utility's transmission rate base.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-16
Page Number: 22-23
Line Number: 19-9
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Is the seven factor test a standalone test under Order 888 or does Order 888 identify an initial functional test to be used before the seven factor test is performed? If it is the latter, what is that functional test and what are its implications under Order 888?

Response Detail

Date Response Filed: 2/21/2013 3:10:28 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
We are unaware of an initial functional test to be used before the seven-factor test is performed.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-17
Page Number: 22-23; 25-26
Line Number: 19-9; 17-2
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Please provide any FERC guidance (including citations to specific page or paragraph numbers) that you rely on that provides that a rolled-in rates determination for facilities used for unbundled wholesale transmission service should be based on the seven factor test. For purposes of this data request, the phrase "unbundled wholesale transmission" means the transmission of electric energy that is being sold for resale.

Response Detail

Date Response Filed: 2/21/2013 3:12:15 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
We did not rely on how FERC determines whether the cost of a transmission facility should be rolled in and charged to all customers. Our understanding is that this FERC review only applies to transmission facilities. Although BPA does own a distribution system, BPA has defined distribution-like facilities as those that meet the first four factors of the seven factor test. Therefore, it is appropriate to use the seven factor transmission/distribution test. BPA's proposal is to place facilities serving a transmission function in the Network segment and facilities serving a distribution function in the Delivery segment. Under this proposal, it is possible to have transmission facilities in the Network segment that do not benefit the users of the Network system. However, under our alternative proposal, we believe that the use of the BES as a first step will properly determine which transmission facilities should be included in the Network. See pp. 25-33 of BP-14-E-JP12-01.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-18
Page Number: 25
Line Number: 17-19
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Please provide any FERC guidance (including citations to specific page or paragraph numbers) that you rely on that provides that a rolled-in rates determination for facilities used for unbundled wholesale transmission service should be based on the Bulk Electric System definition. For purposes of this data request, the phrase "unbundled wholesale transmission" means the transmission of electric energy that is being sold for resale.

Response Detail

Date Response Filed: 2/21/2013 3:14:00 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
See response to WG-JP12-17.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-19
Page Number: 23-25
Line Number: 20-14
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Please provide the specific citation (e.g., page and/or paragraph number) in Order No. 773 that states that the Bulk Electric System definition should be used for making rolled-in rate determinations for facilities used for unbundled wholesale transmission service. For purposes of this data request, the phrase "unbundled wholesale transmission" means the transmission of electric energy that is being sold for resale.

Response Detail

Date Response Filed: 2/21/2013 3:15:46 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
See our testimony at p. 24, lines 7-16 and our response to WG-JP12-15.
Files Submitted for this Response:

Request Detail

Request ID: WG-JP12-20
Page Number: Exhibit No. 3
Line Number: Exhibit No. 3
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name:
Technical Contact Phone:
Technical Contact Email:
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: Please identify which of the facilities identified in this Exhibit No. 3 are not being used to provide unbundled wholesale transmission service. For purposes of this data request, the phrase "unbundled wholesale transmission" means the transmission of electric energy that is being sold for resale.

Response Detail

Date Response Filed: 2/21/2013 3:35:17 PM
Contact Name:
Contact Phone:
Contact Email:
Response Text:
Snohomish's assessment did not take any contract, sale or resale information into account. The assessment assessed powerflow directions and whether or not the system elements provided benefits to the greater integrated network or just to particular customers regardless of market considerations.
Files Submitted for this Response:

Request Detail

Request ID: BPA-JP12-12
Page Number: All
Line Number: All
Exhibit Filing: BP-14-E-JP12-01

Technical Contact Name: Thomas Davis
Technical Contact Phone: 503.230.3968
Technical Contact Email: tedavis@bpa.gov
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text: A review of your testimony leaves us with an understanding that you believe that a number of facilities currently segmented to the network should not be included in the network. Other than a statement that transmission rates should be determined using cost-causation principles and Bonbright's Principles, your testimony is opaque about how BPA would recover the costs of the facilities that you would remove from the network segment. How do you propose that BPA collect the costs associated with the facilities that you would remove from the network?

Response Detail

Date Response Filed: 2/11/2013 12:24:21 PM
Contact Name: Joe Fina
Contact Phone: 425.783.8649
Contact Email: gfina@snopud.com
Response Text:
Cost causation requires that the customers who use and benefit from particular facilities pay for those facilities. In adhering to this principle, BPA should seek to recover the costs associated with non-Network (i.e. those facilities that provide no system-wide benefit) from the customers who use and benefit from these particular facilities. Specifically, non-Network facilities that serve a distribution (or distribution-like) function should be segmented to the Delivery Segment, where costs would then be recovered through the Delivery Charge, or directly assigned. That said, the cost allocation should adhere to the rate design principles we discussed in our testimony, including, as appropriate, adjusting rates in a manner so as to promote rate stability and minimize unexpected changes seriously adverse to existing customers.
Files Submitted for this Response: