

Appendix A
PacifiCorp
Avoided Cost (Partial Displacement Differential Revenue
Requirement)
Model Updates through June 2015
Docket No. 03-035-14

Assumptions that have changed since the 2015.Q1 compliance filing are in bold.

GRID Scenario Study Period

January 1, 2016 through December 31, 2035 - 20-year study
Avoided cost prices starting in January 2016

Official Forward Price Curve (Gas and Electric Market Prices)

Updated to PacifiCorp's June 2015 Official Forward Price Curve (1506 OFPC)
OFPC reflecting the changes in forecasted prices and the impact of proposed
Environmental Protection Agency regulation under Clean Air Act Section 111(d)

Fuel Prices (Coal)

Average and incremental coal costs based on forecast dated September 2014

Integrated Resource Plan (IRP) Resources

2015 IRP Update filed with Commission on March 31, 2015
Resource additions, including generating resources, and front office transactions (FOT),
consistent with 2015 IRP Table 8.7
Existing plant retirement consistent with 2015 IRP Table 8.7
Transmission additions consistent with the 2015 IRP - Scenario EG 1

Hydro Resources

2015 hydro forecast prepared April 2015
2015 hydro levels extended thereafter with known and measurable changes
Adjust Klamath dispatch to reflect current operating patterns
Update Mid-Columbia generation forecast

Discount Rate

6.66% discount rate - 2015 IRP page 141

Discount rate is consistent with the Commission’s order in Docket No. 11-035-T06

Inflation Rates

Company’s inflation rate forecast dated June 2015

Levelized Prices (Nominal) @ 6.66% Discount Rate

20 years 2016 through 2035
Calculated annually
Levelized prices are for illustrative purposes only

Load Forecast (Retail)

20-Year load forecast dated May 2015

Long-Term Contracts

Long-term contracts which have prices that are indexed to market are consistent with the 1506 OFPC

Contracts are modeled based on 48 months ended December 2014

Champlin Blue Mountain Wind, an 80 MW wind resource which was included in the 2015 IRP as an existing resource, was removed

Latigo Wind Park’s Commercial Operation Date (“COD”) was delayed from May 2015 to December 2015

One solar QF with capacity of 40MW was removed from the queue

Eight new solar QFs with capacity of 426MW were added to the queue

Eighteen signed Oregon Schedule 37 contracts have been added:

Project Name	Size (MW)	Location	COD
Norwest Energy 5 LLC (Arlington)	2.99	Arlington, OR	2016 12 31
Norwest Energy 2 LLC (Neff)	10.00	Bend, OR	2016 12 31
Norwest Energy 7 LLC (Eagle Point)	9.90	Central Point, OR	2016 12 31
Norwest Energy 4 LLC (Bonanza)	6.00	Bonanza, OR	2016 12 31
Norwest Energy 12 LLC (Falvey)	8.00	Merrill, OR	2016 12 31
Woodline Solar, LLC	8.00	Dairy, OR	2017 12 31
Ewauna Solar 2, LLC	2.90	Klamath Falls, OR	2017 12 31
Cypress Creek - Merrill Solar	10.00	Klamath Falls, OR	2016 11 18
Norwest Energy 9 LLC (Pendleton)	6.00	Klamath Falls, OR	2016 11 18
OR Solar 1 (Sprague River Solar)	10.00	Klamath Falls, OR	2016 11 01
OR Solar 2 (Agate Bay Solar)	10.00	Jackson, OR	2016 11 01
OR Solar 3 (Turkey Hill Solar)	10.00	Klamath Falls, OR	2016 11 01

OR Solar 4 (Bly Solar)	10.00	Klamath Falls, OR	2016 11 01
OR Solar 5 (Merrill)	8.00	Klamath Falls, OR	2016 11 01
OR Solar 6 (Lakeview)	10.00	Lake, OR	2016 11 01
OR Solar 7 (Jacksonville)	10.00	Jackson, OR	2016 11 01
OR Solar 8 (Dairy)	10.00	Klamath Falls, OR	2016 11 01
OSLH - Collier Solar	9.90	Deschutes, OR	2016 11 18

For GRID modeling purposes, Oregon Schedule 37 contracts are combined into a consolidated modeling resource (“Oregon Sch 37 Solar QF”). At the time the study was prepared, eleven contracts with 103.9 MW nameplate, were modeled as potential resources and included in the “QF - 224 - OR – Solar” resource.

Market Capacity

Capacity set at 48 month average of all STF sales ended December 2014
 Mid-Columbia and Palo Verde markets uncapped
 Additional heavy load hour (HLH) and light load hour (LLH) sales limited to historical 48 month average less monthly executed STF contracts as of June 2015

Potential Environmental Costs

Potential environmental costs are excluded from fuel cost for net power costs and plant commitment and dispatch decisions.

Regulating Margin

Consistent with the 2014 Wind Integration Study
 Regulation reserves starting at 432 aMW and increasing as necessary to provide wind integration
 Increasing at 7.0 MW of regulation reserve per 100 MW of incremental east side wind
 Reserve modeling reflects reliability Standard BAL-003-1 related to frequency response

Contingency Reserve Calculation

Reserve modeling reflects reliability Standard BAL-002-WECC-2 – contingency reserves set to 3% of retail load plus 3% of generating resources
 Hourly retail load reserve calculation through 2016
 Typical weekday retail load reserve calculation thereafter

Short-Term Firm (STF) Transactions

Executed STF contracts as of June 2015

Size of the Avoided Cost Resource

The avoided cost thermal resource is a 100 MW and 85% capacity factor thermal resource located in the Utah North transmission bubble

Thermal Resources

Thermal resource operating characteristics updated to be consistent with current Company official characteristics

Forced outage, planned outage, and heat rate levels based on 48 months ended December 2014

Wind and Solar Resources

Existing wind generation profiles modeled using 2014 actual generation shape

New wind and solar generation profiles modeled using 12x24 profile

Integration cost methodology pursuant to Commission orders in Docket No. 12-035-100 (issued August 16, 2013, and October 4, 2013)

Wind integration costs set at \$2.09/MWh (2016-2035) on a 20-year nominal levelized basis

Solar integration costs set at \$2.83 per megawatt hour for fixed solar resources and \$2.18 per megawatt hour for tracking solar resources

Capacity contribution applied to renewable resources consistent with June 26, 2015, Commission order in Docket No. 14-035-140 (see table below)

Renewable Type	Capacity Contribution Percent of Nameplate	
	East	West
Wind	14.5%	25.4%
Solar – Fixed Mount	34.1%	32.2%
Solar –Tracking	39.1%	36.7%

Transmission

Short term transmission modeled based on 48 months ended December 2014

Energy Gateway transmission rights - 2015 IRP Scenario EG 1

Wyoming Central -> Wyoming Northeast transmission link added

IRP Partial Displacements (This Filing)

Thermal partial displacement is 1,401.87 MW in the base case and 1,501.87 in the avoided cost case. Listed below are the QFs that have executed a power purchase agreement or are actively negotiating for a power purchase agreement. Signed QFs are new QFs that were not included in the 2015 IRP.

QF Queue						
No.	QF	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
1	Utah Pavant Solar II	19.55	50.00	29.6%	39.1%	2016 12 01
2	Granite Mtn Solar West	19.71	50.40	31.4%	39.1%	2016 08 01
3	Iron Springs Solar	31.28	80.00	31.1%	39.1%	2016 09 01
4	Granite Mtn Solar East	31.28	80.00	31.4%	39.1%	2016 08 15
5	Oregon Sch 37 Solar QF - COD before 7/2017	13.54	36.89	26.6%	36.7%	2017 07 01
6	Oregon Sch 37 Solar QF - COD before 7/2018	4.00	10.90	26.6%	36.7%	2018 07 01
Total Signed MW		119.36	308.19			

1	QF - 82 - UT - Wind	11.48	79.20	33.8%	14.5%	2015 10 01
2	QF - 122 - UT - Solar	17.05	50.00	20.2%	34.1%	2015 08 31
3	QF - 125 - UT - Wind	6.53	45.00	28.1%	14.5%	2015 11 01
4	QF - 132 - UT - Solar	31.28	80.00	32.4%	39.1%	2016 01 01
5	QF - 133 - UT - Solar	8.29	21.20	32.8%	39.1%	2016 01 01
6	QF - 137 - UT - Solar	7.82	20.00	29.2%	39.1%	2016 12 31
7	QF - 138 - UT - Solar	3.41	10.00	25.2%	34.1%	2015 12 31
8	QF - 141 - UT - Solar	7.82	20.00	30.7%	39.1%	2016 10 01
9	QF - 142 - UT - Solar	31.28	80.00	31.3%	39.1%	2016 10 01
10	QF - 144 - UT - Solar	31.28	80.00	30.6%	39.1%	2016 11 01
11	QF - 145 - UT - Solar	31.28	80.00	30.1%	39.1%	2016 11 01
12	QF - 149 - UT - Solar	31.28	80.00	31.0%	39.1%	2018 01 01
13	QF - 150 - UT - Solar	31.28	80.00	31.0%	39.1%	2018 01 01
14	QF - 156 - UT - Solar	27.28	80.00	26.4%	34.1%	2015 12 31
15	QF - 161 - UT - Solar	31.28	80.00	30.1%	39.1%	2016 11 01
16	QF - 162 - UT - Solar	31.28	80.00	30.6%	39.1%	2016 11 01
17	QF - 164 - UT - Solar	17.05	50.00	25.2%	34.1%	2016 12 31
18	QF - 166 - UT - Solar	27.28	80.00	25.2%	34.1%	2016 12 31
19	QF - 167 - UT - Wind	11.60	80.00	26.4%	14.5%	2018 01 01
20	QF - 168 - UT - Wind	11.60	80.00	27.5%	14.5%	2018 01 01
21	QF - 169 - UT - Solar	1.96	5.00	29.5%	39.2%	2015 12 31
22	QF - 170 - UT - Solar	2.05	6.00	25.0%	34.2%	2016 12 31
23	QF - 171 - UT - Solar	30.58	78.20	22.7%	39.1%	2016 12 31
24	QF - 172 - UT - Solar	5.67	14.50	25.3%	39.1%	2016 12 31
25	QF - 173 - UT - Solar	2.93	7.50	25.8%	39.1%	2016 12 31
26	QF - 174 - ID - Solar	7.82	20.00	23.2%	39.1%	2016 10 31
27	QF - 175 - ID - Solar	7.82	20.00	23.4%	39.1%	2016 10 31
28	QF - 177 - WY - Wind	11.60	80.00	40.7%	14.5%	2016 12 31
29	QF - 178 - UT - Wind	10.01	69.00	35.9%	14.5%	2016 12 31

QF Queue						
No.	QF	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
30	QF - 179 - UT - Solar	27.28	80.00	27.8%	34.1%	2016 12 31
31	QF - 180 - WY - Wind	11.60	80.00	40.7%	14.5%	2016 12 31
32	QF - 181 - ID - Solar	7.16	21.00	27.0%	34.1%	2016 12 31
33	QF - 182 - OR - Solar	16.22	44.20	24.0%	36.7%	2017 01 01
34	QF - 183 - OR - Solar	16.52	45.00	27.5%	36.7%	2016 12 31
35	QF - 184 - OR - Solar	7.34	20.00	22.5%	36.7%	2016 12 31
36	QF - 185 - UT - Solar	27.28	80.00	25.8%	34.1%	2016 06 01
37	QF - 186 - UT - Solar	27.28	80.00	24.5%	34.1%	2016 06 01
38	QF - 187 - UT - Solar	27.28	80.00	25.8%	34.1%	2016 06 01
39	QF - 188 - UT - Solar	27.28	80.00	24.5%	34.1%	2016 06 01
40	QF - 189 - UT - Solar	27.28	80.00	25.8%	34.1%	2016 06 01
41	QF - 190 - UT - Solar	27.28	80.00	24.5%	34.1%	2016 06 01
42	QF - 191 - UT - Solar	27.28	80.00	29.6%	34.1%	2015 12 31
43	QF - 192 - UT - Solar	27.28	80.00	31.7%	34.1%	2015 12 31
44	QF - 193 - WY - Wind	10.53	72.60	45.2%	14.5%	2016 09 01
45	QF - 194 - WY - Wind	11.60	80.00	40.7%	14.5%	2016 12 31
46	QF - 195 - WY - Wind	11.60	80.00	40.7%	14.5%	2016 12 31
47	QF - 196 - ID - Solar	7.82	20.00	27.1%	39.1%	2016 12 31
48	QF - 197 - ID - Solar	7.82	20.00	27.1%	39.1%	2016 12 31
49	QF - 198 - ID - Solar	7.82	20.00	27.1%	39.1%	2016 12 31
50	QF - 199 - ID - Solar	7.82	20.00	27.1%	39.1%	2016 12 31
51	QF - 200 - OR - Solar	29.36	80.00	26.6%	36.7%	2016 11 01
52	QF - 201 - UT - Solar	5.87	15.00	25.6%	39.1%	2016 12 31
53	QF - 202 - ID - Solar	13.64	40.00	25.9%	34.1%	2016 08 01
54	QF - 203 - ID - Solar	17.05	50.00	25.9%	34.1%	2016 08 01
55	QF - 204 - ID - Solar	6.82	20.00	25.5%	34.1%	2016 08 01
56	QF - 205 - ID - Solar	6.82	20.00	25.5%	34.1%	2016 08 01
57	QF - 206 - ID - Wind	2.90	20.00	31.8%	14.5%	2017 12 01
58	QF - 207 - UT - Solar	15.64	40.00	29.9%	39.1%	2017 12 01
59	QF - 208 - ID - Solar	27.28	80.00	23.5%	34.1%	2016 08 01
60	QF - 209 - ID - Solar	6.82	20.00	23.8%	34.1%	2016 08 01
61	QF - 210 - ID - Solar	6.82	20.00	23.8%	34.1%	2016 08 01
62	QF - 211 - ID - Solar	6.82	20.00	25.0%	34.1%	2016 08 01
63	QF - 212 - ID - Solar	6.82	20.00	25.0%	34.1%	2016 08 01
64	QF - 213 - ID - Solar	6.82	20.00	25.0%	34.1%	2016 08 01
65	QF - 214 - ID - Solar	6.82	20.00	25.2%	34.1%	2016 08 01
66	QF - 215 - ID - Solar	6.82	20.00	25.2%	34.1%	2016 08 01
67	QF - 216 - ID - Solar	6.82	20.00	25.2%	34.1%	2016 08 01
68	QF - 217 - WY - Wind	11.60	80.00	42.3%	14.5%	2016 12 01
69	QF - 218 - WY - Wind	11.60	80.00	35.5%	14.5%	2016 12 01
70	QF - 219 - WY - Wind	11.60	80.00	45.5%	14.5%	2016 12 01
71	QF - 220 - UT - Solar	27.28	80.00	18.3%	34.1%	2016 04 30
72	QF - 221 - UT - Solar	22.68	58.00	32.5%	39.1%	2016 12 01
73	QF - 222 - UT - Solar	31.28	80.00	34.4%	39.1%	2016 12 01
74	QF - 223 - WY - Solar	31.28	80.00	26.6%	39.1%	2018 11 01
75	QF - 224 - OR - Solar	47.94	133.80	27.9%	35.8%	2017 07 01
76	QF - 225 - UT - Solar	7.82	20.00	33.6%	39.1%	2016 12 01
77	QF - 226 - UT - Solar	7.82	20.00	33.6%	39.1%	2016 12 01

QF Queue						
No.	QF	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
78	QF - 227 - UT - Solar	31.28	80.00	33.6%	39.1%	2016 12 01
79	QF - 228 - UT - Solar	3.13	8.00	34.7%	39.1%	2016 12 01
Total Potential MW		1282.51	4123.20			
Total Partial Displacement		1401.87	4431.39			
80	Avoided Cost Resource	100.00	100.00	85.0%	100.0%	2016 01 01
Partial Displacement after QF		1501.87				

Please note that after the study was prepared, eleven Oregon Schedule 37 solar projects signed contracts with the Company. Had the Company modeled these QFs as signed, the signed "Oregon Sch 37 Solar QF" resource would have increased by 103.9 MW nameplate and the potential "QF - 224 - OR – Solar" resource would have decreased by 103.9 MW. This shift from potential to signed status has no impact on the reported avoided costs.

Going forward, partial displacement will be adjusted to reflect solar degradation. The partial displacement, adjusted for solar degradation is shown below.

Year	a		b		c		d		e		f		g		h		i		j		k	
	Signed & Potential QFs			Cumulative			Base Case		Avoided Cost Case													
	Adjusted For Solar Degradation			2015 IRP			Displacement		Nameplate		Displacement											
	Signed	Potential	Total	CCCT MW	FOT	CCCT	FOT	New QF	Total	CCCT	FOT											
	a + b			MIN(c,d)		MIN(e,c-f)		c + h		MIN(d,i)		MIN(e,i-j)										
2015	-	-	-	-	726.8	-	-	-	-	-	-											
2016	-	352.8	352.8	-	937.2	-	352.8	100.0	452.8	-	452.8											
2017	115.4	1,144.5	1,259.9	-	904.3	-	904.3	100.0	1,359.9	-	904.3											
2018	118.6	1,242.0	1,360.6	-	869.8	-	869.8	100.0	1,460.6	-	869.8											
2019	117.7	1,266.1	1,383.8	-	935.2	-	935.2	100.0	1,483.8	-	935.2											
2020	116.9	1,258.6	1,375.5	-	978.6	-	978.6	100.0	1,475.5	-	978.6											
2021	116.1	1,251.1	1,367.2	-	768.7	-	768.7	100.0	1,467.2	-	768.7											
2022	115.3	1,243.7	1,359.0	-	791.3	-	791.3	100.0	1,459.0	-	791.3											
2023	114.5	1,236.2	1,350.7	-	760.6	-	760.6	100.0	1,450.7	-	760.6											
2024	113.7	1,228.7	1,342.4	-	754.4	-	754.4	100.0	1,442.4	-	754.4											
2025	112.9	1,221.3	1,334.1	-	770.5	-	770.5	100.0	1,434.1	-	770.5											
2026	112.0	1,213.8	1,325.9	-	791.5	-	791.5	100.0	1,425.9	-	791.5											
2027	111.2	1,206.3	1,317.6	-	834.9	-	834.9	100.0	1,417.6	-	834.9											
2028	110.4	1,198.9	1,309.3	423.0	1,304.0	423.0	886.3	100.0	1,409.3	423.0	986.3											
2029	109.6	1,191.4	1,301.0	423.0	1,166.5	423.0	878.0	100.0	1,401.0	423.0	978.0											
2030	108.8	1,184.0	1,292.8	1,582.0	1,252.5	1,292.8	-	100.0	1,392.8	1,392.8	-											
2031	108.0	1,176.5	1,284.5	1,582.0	1,246.8	1,292.8	-	100.0	1,384.5	1,392.8	-											
2032	107.2	1,169.1	1,276.3	1,582.0	1,410.5	1,292.8	-	100.0	1,376.3	1,392.8	-											
2033	106.4	1,161.6	1,268.0	2,217.0	1,360.3	1,292.8	-	100.0	1,368.0	1,392.8	-											
2034	105.6	1,154.2	1,259.7	2,852.0	1,086.5	1,292.8	-	100.0	1,359.7	1,392.8	-											
2035	104.8	1,146.7	1,251.5	2,852.0	1,086.5	1,292.8	-	100.0	1,351.5	1,392.8	-											
2036	103.9	1,139.3	1,243.2	2,852.0	1,086.5	1,292.8	-	100.0	1,343.2	1,392.8	-											
2037	103.1	1,131.8	1,235.0	2,852.0	1,086.5	1,292.8	-	100.0	1,335.0	1,392.8	-											
2038	102.3	1,124.4	1,226.7	2,852.0	1,086.5	1,292.8	-	100.0	1,326.7	1,392.8	-											
2039	101.5	1,117.0	1,218.5	2,852.0	1,086.5	1,292.8	-	100.0	1,318.5	1,392.8	-											
2040	100.7	1,109.5	1,210.2	2,852.0	1,086.5	1,292.8	-	100.0	1,310.2	1,392.8	-											

CCCT Partial Displacement in 2030	Base Case	AC Case
Before Solar Degradation	1,401.87	1,501.87
After Solar Degradation	1,292.78	1,392.78

IRP Partial Displacements (Previous Filing)

Base Case - Thermal partial displacement is 2,385 MW. Listed below are the QFs that have executed a power purchase agreement or are actively negotiating for a power purchase agreement. Signed QFs are new QFs that were not included in the 2015 IRP.

QF Queue						
No.	QF	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
1	Utah Pavant Solar II	42.00	50.00	29.6%	84.0%	2016 12 01
2	Granite Mtn Solar West	42.34	50.40	31.4%	84.0%	2016 08 01
3	Iron Springs Solar	67.20	80.00	31.1%	84.0%	2016 09 01
4	Granite Mtn Solar East	67.20	80.00	31.4%	84.0%	2016 08 15
Total Signed MW		218.74	260.40			

1	QF - 82 - UT - Wind	16.24	79.20	33.8%	20.5%	2015 10 01
2	QF - 122 - UT - Solar	34.00	50.00	20.2%	68.0%	2015 08 31
3	QF - 125 - UT - Wind	9.23	45.00	28.1%	20.5%	2015 11 01
4	QF - 132 - UT - Solar	67.20	80.00	32.4%	84.0%	2016 01 01
5	QF - 133 - UT - Solar	17.81	21.20	32.8%	84.0%	2016 01 01
6	QF - 136 - UT - Solar	33.60	40.00	29.0%	84.0%	2016 12 31
7	QF - 137 - UT - Solar	16.80	20.00	29.2%	84.0%	2016 12 31
8	QF - 138 - UT - Solar	6.80	10.00	25.2%	68.0%	2015 12 31
9	QF - 141 - UT - Solar	16.80	20.00	30.7%	84.0%	2016 10 01
10	QF - 142 - UT - Solar	67.20	80.00	31.3%	84.0%	2016 10 01
11	QF - 144 - UT - Solar	67.20	80.00	30.6%	84.0%	2016 11 01
12	QF - 145 - UT - Solar	67.20	80.00	30.1%	84.0%	2016 11 01
13	QF - 149 - UT - Solar	67.20	80.00	31.0%	84.0%	2018 01 01
14	QF - 150 - UT - Solar	67.20	80.00	31.0%	84.0%	2018 01 01
15	QF - 156 - UT - Solar	54.40	80.00	26.4%	68.0%	2015 12 31
16	QF - 161 - UT - Solar	67.20	80.00	30.1%	84.0%	2016 11 01
17	QF - 162 - UT - Solar	67.20	80.00	30.6%	84.0%	2016 11 01
18	QF - 164 - UT - Solar	34.00	50.00	25.2%	68.0%	2016 12 31
19	QF - 166 - UT - Solar	54.40	80.00	25.2%	68.0%	2016 12 31
20	QF - 167 - UT - Wind	16.40	80.00	26.4%	20.5%	2018 01 01
21	QF - 168 - UT - Wind	16.40	80.00	27.5%	20.5%	2018 01 01
22	QF - 169 - UT - Solar	4.20	5.00	29.5%	84.0%	2015 12 31
23	QF - 170 - UT - Solar	4.08	6.00	25.0%	68.0%	2016 12 31
24	QF - 171 - UT - Solar	65.69	78.20	22.7%	84.0%	2016 12 31
25	QF - 172 - UT - Solar	12.18	14.50	25.3%	84.0%	2016 12 31
26	QF - 173 - UT - Solar	6.30	7.50	25.8%	84.0%	2016 12 31
27	QF - 174 - ID - Solar	16.80	20.00	23.2%	84.0%	2016 10 31
28	QF - 175 - ID - Solar	16.80	20.00	23.4%	84.0%	2016 10 31
29	QF - 177 - WY - Wind	16.40	80.00	40.7%	20.5%	2016 12 31
30	QF - 178 - UT - Wind	14.15	69.00	35.9%	20.5%	2016 12 31
31	QF - 179 - UT - Solar	54.40	80.00	27.8%	68.0%	2016 12 31
32	QF - 180 - WY - Wind	16.40	80.00	40.7%	20.5%	2016 12 31
33	QF - 181 - ID - Solar	14.28	21.00	27.0%	68.0%	2016 12 31
34	QF - 182 - OR - Solar	37.13	44.20	24.0%	84.0%	2017 01 01
35	QF - 183 - OR - Solar	37.80	45.00	27.5%	84.0%	2016 12 31

QF Queue						
No.	QF	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
36	QF - 184 - OR - Solar	16.80	20.00	22.5%	84.0%	2016 12 31
37	QF - 185 - UT - Solar	54.40	80.00	25.8%	68.0%	2016 06 01
38	QF - 186 - UT - Solar	54.40	80.00	24.5%	68.0%	2016 06 01
39	QF - 187 - UT - Solar	54.40	80.00	25.8%	68.0%	2016 06 01
40	QF - 188 - UT - Solar	54.40	80.00	24.5%	68.0%	2016 06 01
41	QF - 189 - UT - Solar	54.40	80.00	25.8%	68.0%	2016 06 01
42	QF - 190 - UT - Solar	54.40	80.00	24.5%	68.0%	2016 06 01
43	QF - 191 - UT - Solar	54.40	80.00	29.6%	68.0%	2015 12 31
44	QF - 192 - UT - Solar	54.40	80.00	31.7%	68.0%	2015 12 31
45	QF - 193 - WY - Wind	14.88	72.60	45.2%	20.5%	2016 09 01
46	QF - 194 - WY - Wind	16.40	80.00	40.7%	20.5%	2016 12 31
47	QF - 195 - WY - Wind	16.40	80.00	40.7%	20.5%	2016 12 31
48	QF - 196 - ID - Solar	16.80	20.00	27.1%	84.0%	2016 12 31
49	QF - 197 - ID - Solar	16.80	20.00	27.1%	84.0%	2016 12 31
50	QF - 198 - ID - Solar	16.80	20.00	27.1%	84.0%	2016 12 31
51	QF - 199 - ID - Solar	16.80	20.00	27.1%	84.0%	2016 12 31
52	QF - 200 - OR - Solar	67.20	80.00	26.6%	84.0%	2016 11 01
53	QF - 201 - UT - Solar	12.60	15.00	25.6%	84.0%	2016 12 31
54	QF - 202 - ID - Solar	27.20	40.00	25.9%	68.0%	2016 08 01
55	QF - 203 - ID - Solar	34.00	50.00	25.9%	68.0%	2016 08 01
56	QF - 204 - ID - Solar	13.60	20.00	25.5%	68.0%	2016 08 01
57	QF - 205 - ID - Solar	13.60	20.00	25.5%	68.0%	2016 08 01
58	QF - 206 - ID - Wind	4.10	20.00	31.8%	20.5%	2017 12 01
59	QF - 207 - UT - Solar	33.60	40.00	29.9%	84.0%	2017 12 01
60	QF - 208 - ID - Solar	54.40	80.00	23.5%	68.0%	2016 08 01
61	QF - 209 - ID - Solar	13.60	20.00	23.8%	68.0%	2016 08 01
62	QF - 210 - ID - Solar	13.60	20.00	23.8%	68.0%	2016 08 01
63	QF - 211 - ID - Solar	13.60	20.00	25.0%	68.0%	2016 08 01
64	QF - 212 - ID - Solar	13.60	20.00	25.0%	68.0%	2016 08 01
65	QF - 213 - ID - Solar	13.60	20.00	25.0%	68.0%	2016 08 01
66	QF - 214 - ID - Solar	13.60	20.00	25.2%	68.0%	2016 08 01
67	QF - 215 - ID - Solar	13.60	20.00	25.2%	68.0%	2016 08 01
68	QF - 216 - ID - Solar	13.60	20.00	25.2%	68.0%	2016 08 01
69	QF - 217 - WY - Wind	16.40	80.00	42.3%	20.5%	2016 12 01
70	QF - 218 - WY - Wind	16.40	80.00	35.5%	20.5%	2016 12 01
71	QF - 219 - WY - Wind	16.40	80.00	45.5%	20.5%	2016 12 01
Total Potential MW		2166.27	3603.40			
Total Partial Displacement		2385.01	3863.80			

The partial displacement is shown below.

Displacement in Base Case				
Year	Displaced Resource	2015 IRP - Resource Size	Displacement MW	Remaining MW
2016	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - COB - Q3 HLH	62.2	62.2	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	107.9	292.1
2017	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - COB - Q3 HLH	29.3	29.3	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2018	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	369.8	369.8	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2019	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - COB - Q3 HLH	60.2	60.2	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2020	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - COB - Q3 HLH	103.6	103.6	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2021	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	268.7	268.7	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2022	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	291.3	291.3	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2023	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	260.6	260.6	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2024	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	254.4	254.4	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0

Displacement in Base Case				
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Year	Displaced Resource	2015 IRP - Resource Size	Displacement MW	Remaining MW
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2025	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	270.5	270.5	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2026	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	291.5	291.5	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2027	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	334.9	334.9	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2028	2028- 423 MW CCCT - Wyo NE	423.0	423.0	0.0
	IRP FOT - Mona - Q3 HLH	161.1	161.1	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - COB - Q3 HLH	267.9	267.9	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2029	2028- 423 MW CCCT - Wyo NE	423.0	423.0	0.0
	IRP FOT - Mona - Q3 HLH	44.0	44.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - COB - Q3 HLH	247.5	247.5	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2030	2028- 423 MW CCCT - Wyo NE	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 1	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 2	423.0	423.0	0.0
	2030- 313 MW CCCT - Wyo NE	313.0	313.0	0.0
	IRP FOT - Mona - Q3 HLH	109.6	109.6	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - COB - Q3 HLH	267.9	267.9	0.0
	IRP FOT - NOB - Q3 HLH	100.0	50.5	49.5
	IRP FOT - Mid-C - Q3 HLH	400.0	0.0	400.0
2031	2028- 423 MW CCCT - Wyo NE	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 1	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 2	423.0	423.0	0.0
	2030- 313 MW CCCT - Wyo NE	313.0	313.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - Mona - Q3 HLH	103.9	103.9	0.0
	IRP FOT - COB - Q3 HLH	267.9	267.9	0.0

Displacement in Base Case				
Year	Displaced Resource	2015 IRP - Resource Size	Displacement MW	Remaining MW
	IRP FOT - NOB - Q3 HLH	100.0	56.2	43.8
	IRP FOT - Mid-C - Q3 HLH	400.0	0.0	400.0
2032	2028- 423 MW CCCT - Wyo NE	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 1	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 2	423.0	423.0	0.0
	2030- 313 MW CCCT - Wyo NE	313.0	313.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - Mona - Q3 HLH	267.6	267.6	0.0
	IRP FOT - COB - Q3 HLH	267.9	160.4	107.5
	IRP FOT - NOB - Q3 HLH	100.0	0.0	100.0
	IRP FOT - Mid-C - Q3 HLH	400.0	0.0	400.0
2033	2028- 423 MW CCCT - Wyo NE	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 1	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 2	423.0	423.0	0.0
	2030- 313 MW CCCT - Wyo NE	313.0	313.0	0.0
	2033- 635 MW CCCT - UT N 1	635.0	635.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	168.0	207.0
	IRP FOT - Mona - Q3 HLH	300.0	0.0	300.0
	IRP FOT - COB - Q3 HLH	185.3	0.0	185.3
	IRP FOT - NOB - Q3 HLH	100.0	0.0	100.0
	IRP FOT - Mid-C - Q3 HLH	400.0	0.0	400.0
2034	2028- 423 MW CCCT - Wyo NE	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 1	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 2	423.0	423.0	0.0
	2030- 313 MW CCCT - Wyo NE	313.0	313.0	0.0
	2033- 635 MW CCCT - UT N 1	635.0	635.0	0.0
	2034- 635 MW CCCT - UT N 2	635.0	168.0	467.0

Market FOTs are displaced based upon the year the FOT is available and from highest to lowest price.

Avoided Cost Case – A 100 MW 85% capacity factor (CF) avoided cost resource is added to the thermal resource queue.

QF Queue						
No.	QF	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
Total Partial Displacement in the Base Case as shown above		2385.01	3863.80			
	Avoided Cost QF	100.00	100.00	85.0%	100.0%	2016 01 01
Partial Displacement after QF		2485.01	3963.80			

The Table below shows the resources that are displaced for the Avoided Cost Case which includes the 100 MW 85% capacity factor avoided cost resource.

Displacement in Avoided Cost Case				
Year	Displaced Resource	2015 IRP - Resource Size	Displacement MW	Remaining MW
2016	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - COB - Q3 HLH	62.2	62.2	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	207.9	192.1
2017	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - COB - Q3 HLH	29.3	29.3	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2018	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	369.8	369.8	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2019	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - COB - Q3 HLH	60.2	60.2	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0

2020	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - COB - Q3 HLH	103.6	103.6	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2021	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	268.7	268.7	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2022	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	291.3	291.3	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2023	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	260.6	260.6	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2024	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	254.4	254.4	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2025	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	270.5	270.5	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2026	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	291.5	291.5	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2027	IRP FOT - Mona - Q3 HLH	0.0	0.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	334.9	334.9	0.0
	IRP FOT - COB - Q3 HLH	0.0	0.0	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2028	2028- 423 MW CCCT - Wyo NE	423.0	423.0	0.0
	IRP FOT - Mona - Q3 HLH	161.1	161.1	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - COB - Q3 HLH	267.9	267.9	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2029	2028- 423 MW CCCT - Wyo NE	423.0	423.0	0.0
	IRP FOT - Mona - Q3 HLH	44.0	44.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - COB - Q3 HLH	247.5	247.5	0.0

	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	400.0	0.0
2030	2028- 423 MW CCCT - Wyo NE	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 1	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 2	423.0	423.0	0.0
	2030- 313 MW CCCT - Wyo NE	313.0	313.0	0.0
	IRP FOT - Mona - Q3 HLH	109.6	109.6	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - COB - Q3 HLH	267.9	267.9	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	50.5	349.5
2031	2028- 423 MW CCCT - Wyo NE	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 1	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 2	423.0	423.0	0.0
	2030- 313 MW CCCT - Wyo NE	313.0	313.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - Mona - Q3 HLH	103.9	103.9	0.0
	IRP FOT - COB - Q3 HLH	267.9	267.9	0.0
	IRP FOT - NOB - Q3 HLH	100.0	100.0	0.0
	IRP FOT - Mid-C - Q3 HLH	400.0	56.2	343.8
2032	2028- 423 MW CCCT - Wyo NE	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 1	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 2	423.0	423.0	0.0
	2030- 313 MW CCCT - Wyo NE	313.0	313.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	375.0	0.0
	IRP FOT - Mona - Q3 HLH	267.6	267.6	0.0
	IRP FOT - COB - Q3 HLH	267.9	260.4	7.5
	IRP FOT - NOB - Q3 HLH	100.0	0.0	100.0
	IRP FOT - Mid-C - Q3 HLH	400.0	0.0	400.0
2033	2028- 423 MW CCCT - Wyo NE	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 1	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 2	423.0	423.0	0.0
	2030- 313 MW CCCT - Wyo NE	313.0	313.0	0.0
	2033- 635 MW CCCT - UT N 1	635.0	635.0	0.0
	IRP FOT - Mid-C +10 - Q3 HLH	375.0	268.0	107.0
	IRP FOT - Mona - Q3 HLH	300.0	0.0	300.0
	IRP FOT - COB - Q3 HLH	185.3	0.0	185.3
	IRP FOT - NOB - Q3 HLH	100.0	0.0	100.0
	IRP FOT - Mid-C - Q3 HLH	400.0	0.0	400.0
2034	2028- 423 MW CCCT - Wyo NE	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 1	423.0	423.0	0.0
	2030- 423 MW CCCT - Clvr 2	423.0	423.0	0.0
	2030- 313 MW CCCT - Wyo NE	313.0	313.0	0.0
	2033- 635 MW CCCT - UT N 1	635.0	635.0	0.0
	2034- 635 MW CCCT - UT N 2	635.0	268.0	367.0

FOT displacement in early years reflects the start date timing of when signed and potential resources are available. Market FOTs are displaced based upon the year the FOT is available and from highest to lowest price.