

Appendix A

PacifiCorp Avoided Cost (GRID and Differential Revenue Requirement) Model Updates through February 2012 Case No. 03-035-14

GRID Scenario Study Period

January 1, 2013 through December 31, 2032 (20-year study)
Avoided Cost prices starting in January 2013

Official Forward Price Curve (Gas and Market Prices)

Updated to PacifiCorp's December 2011 official forward price curve (1112 OFPC)

Short-Term Firm (STF) Transactions

STF transactions have been updated to include executed STF contracts as of February 2012

Market Capacity

48 Months ended June 2011
Market cap HLH & LLH sales limited to 48 month average of all STF sales less monthly executed STF contracts as of February 2012

Inflation Rates

The Company updated inflation rates consistent with the Company's most recent inflation rate study dated December 2011

Discount Rate

7.17% which is the discount rate used in the 2011 IRP. This discount rate is consistent with the Commission's order in Docket 11-035-T06.

Load Forecast (Retail)

20-year load forecast dated November 2011

Fuel Prices (Coal)

Average coal cost study
2013 through 2021 – 10 Year forecast dated October 2011
Thereafter escalated at 2.5%
Incremental coal cost study dated October 2011

Potential Environmental Costs

Costs are consistent with the Company's forecast dated December 2011
Costs are excluded from fuel costing and are excluded from avoided costs
Costs included in incremental fuel costs for plant commitment and dispatch decisions starting in 2021
Environmental costs are for carbon dioxide

Proxy Resource (Next Deferrable Resource)

2013 through 2015 - Mona, Utah, West Main, Mid-Columbia and COB Third Quarter (Q3) High Load Hour (HLH) Front Office Trade (FOT) – 2011 IRP Table 8.16
2016 and thereafter – 597 MW Combined Cycle Combustion Turbine (CCCT)
Dry "F" 2x1 - East Side Resource (4500') – 2011 IRP Table 6.1 & 6.3
Commencing operation June 1, 2016

IRP Resources

IRP Resources transmission, thermal, DSM, FOT, Growth Station and wind resources
2011 IRP Dated March 31, 2011
Preferred Portfolio Table 8.16

IRP Partial Displacements (this filing)

Thermal and Market Purchase Resources

Base Case - thermal partial displacement was 197.4 MW. Included are QFs that are actively negotiating for new power purchase agreements as shown below.

Queue	Thermal Resource	Capacity MW	Energy – Capacity Factor
1	Roseburg Dillard Biomass (Signed)	20.0	90.0%
2	Roseburg Weed Biomass (Signed)	10.0	85.0%
3	AG Hydro (Signed)	10.0	29.7%
4	Dorena Hydro (Signed)	6.1	28.2%
5	TMF Biofuels (Signed)	4.8	88.5%
6	Columbia Biogas (Signed)	3.0	45.7%
7	QF - 10 - UT - Biogas	3.0	95.0%
8	QF - 18 - UT - Biomass	10.5	94.0%
9	QF - 21 - UT - Gas	36.0	95.0%
10	QF - 23 - UT - Gas	44.0	85.0%
11	QF - 24 - UT - Gas	50.0	85.0%
Displacement in Base Case MW		197.4 MW	

Market front office trades (FOT) are displaced based upon the year the FOT is availability and from highest to lowest price. FOT available in order of highest to lowest price are Mona (Available 2013), Utah, West Main, Mid Columbia, and California Oregon Border (COB). FOT are listed in Table 8.16 of the 2011 IRP. The partial displacement is shown below.

Displacement in Base Case				
Year	Displaced Resource	2011 IRP	Displacement	Remaining MW
2013	FOT – Mona	150	150.0	0.0
	– Utah	204	47.4	156.6
2014	FOT – Mona	300	197.4	102.6
2015	FOT – Mona	300	197.4	102.6
2016	597 MW CCCT Dry "F" 2x1 - East Side Resource (4500')	597	197.4	399.6

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

Queue	Thermal Resource	Capacity MW	Energy – Capacity Factor
1	Roseburg Dillard Biomass (Signed)	20.0	90.0%
2	Roseburg Weed Biomass (Signed)	10.0	85.0%
3	AG Hydro (Signed)	10.0	29.7%
4	Dorena Hydro (Signed)	6.1	28.2%
5	TMF Biofuels (Signed)	4.8	88.5%
6	Columbia Biogas (Signed)	3.0	45.7%
7	QF - 10 - UT - Biogas	3.0	95.0%
8	QF - 18 - UT - Biomass	10.5	94.0%
9	QF - 21 - UT - Gas	36.0	95.0%
10	QF - 23 - UT - Gas	44.0	85.0%
11	QF - 24 - UT - Gas	50.0	85.0%
12	Avoided Cost Resource	<u>100.0</u>	85.0%
Displacement in Base Case MW		297.4 MW	

The Table below shows the FOT 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	2011 IRP	Displacement	Remaining MW
2013	FOT – Mona	150	150.0	0.0
	– Utah	204	147.4	56.6
2014	FOT – Mona	300	297.4	2.6
2015	FOT – Mona	300	297.4	2.6
2016	597 MW CCCT Dry "F" 2x1 - East Side Resource (4500')	597	297.4	299.6

Wind Resources

A total of 2,100 MW of wind is included in the 2011 IRP of which 489.5 MW is partially displaced by potential and signed QF Wind Resources. All IRP wind is located in Wyoming with the first proposed wind projects available in 2018. The Table below shows the potential wind resources that partially displace the 2,100 MW of wind listed in the IRP.

Potential and Signed QF Wind Resource		
Year	Displaced Resource	MW
2013	Blue Mtn Wind I (Signed)	80.0
2012	North Point Wind (Signed)	80.0
2012	Five Pine Wind (Signed)	40.0
2013	High Plateau Wind QF (Signed)	10.0
2013	Lower Ridge Wind QF (Signed)	10.0
2013	Mule Hollow Wind QF (Signed)	10.0
2013	Pine City Wind QF (Signed)	10.0
2013	QF - 14 - WY - Wind	76.5
2014	QF - 15 - WY - Wind	76.5
2014	QF - 19 - WY - Wind	76.5
2016	QF - 06 - ID - Wind	20.0
Wind Resource Partial Displacement of IRP Wind		489.5

The 489.5 MW of potential QF wind resources will displace 300 MW of IRP wind scheduled for 2018 will displace 189.5 MW of wind scheduled for 2019.

IRP Partial Displacements (last filing)

Thermal and Market Purchase Resources

Base Case - thermal partial displacement was 123.1 MW. Included are QFs that are actively negotiating for new power purchase agreements as shown below.

Queue	Thermal Resource	Capacity MW	Energy – Capacity Factor
1	QF - 02 - OR - Biomass	38.5	85.0%
2	QF - 05 - OR - Biomass	10.0	85.0%
3	Roseburg Dillard Biomass (Signed)	20.0	90.0%
4	AG Hydro (Signed - QF Oregon)	10.0	29.7%
5	Dorena Hydro (Signed - QF Oregon)	6.1	28.2%
6	QF - 10 - UT - Biogas	3.0	95.0%
7	QF - 16 - UT - Geothermal	25.0	69.3%
8	QF - 18 - UT - Biomass	10.5	94.0%
Displacement in Base Case MW		123.1 MW	

Market front office trades (FOT) are displaced based upon the year the FOT is availability and from highest to lowest price. FOT available in order of highest to lowest price are Mona (Available 2013), Utah, West Main, Mid Columbia, and California Oregon Border (COB). FOT are listed in Table 8.16 of the 2011 IRP. The partial displacement is shown below.

Displacement in Base Case				
Year	Displaced Resource	2011 IRP	Displacement	Remaining MW
2012	FOT – Utah	200	123.1	76.9
	– West Main	50	0.0	50.0
2013	FOT – Mona	150	123.1	26.9
	– Utah	204	0.0	204.0
2014	FOT – Mona	300	123.1	176.9
2015	FOT – Mona	300	123.1	176.9
2016	597 MW CCCT Dry "F" 2x1 - East Side Resource (4500')	597	123.1	473.9

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

Queue	Thermal Resource	Capacity MW	Energy – Capacity Factor
1	QF - 02 - OR - Biomass	38.5	85.0%
2	QF - 05 - OR - Biomass	10.0	85.0%
3	Roseburg Dillard Biomass (Signed)	20.0	90.0%
4	AG Hydro (Signed - QF Oregon)	10.0	29.7%
5	Dorena Hydro (Signed - QF Oregon)	6.1	28.2%
6	QF - 10 - UT - Biogas	3.0	95.0%
7	QF - 16 - UT - Geothermal	25.0	69.3%
8	QF - 18 - UT - Biomass	10.5	94.0%
9	Avoided Cost Resource	100.0	85.0%
Displacement in Base Case MW		223.1 MW	

The Table below shows the FOT 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	2011 IRP	Displacement	Remaining MW
2012	FOT – Utah	200	200.0	0.0
	– West Main	50	23.1	26.9
2013	FOT – Mona	150	150.0	0.0
	– Utah	204	73.1	130.9
2014	FOT – Mona	300	223.1	76.9
2015	FOT – Mona	300	223.1	76.9
2016	597 MW CCCT Dry "F" 2x1 - East Side Resource (4500')	597	223.1	373.9

Wind Resources

A total of 2,100 MW of wind is included in the 2011 IRP of which 684.0 MW is partially displaced by potential QF Wind Resources. All IRP wind is located in Wyoming with the first proposed wind projects available in 2018. The Table below shows the potential wind resources that partially displace the 2,100 MW of wind listed in the IRP.

Potential and Signed QF Wind Resource		
Year	Displaced Resource	MW
2012	QF - 01 - ID - Wind	133.0
2013	QF - 03 - ID - Wind	78.0
2013	QF - 06 - ID - Wind	20.0
2013	Blue Mtn Wind I (Signed – QF Utah)	80.0
2012	QF - 08 - OR - Wind	40.0
2013	QF - 09 - ID - Wind	80.0
2012	QF - 12 - ID - Wind	20.0
2013	QF - 14 - WY - Wind	76.5
2014	QF - 15 - WY - Wind	76.5
2013	QF - 17 - UT - Wind	80.0
Wind Resource Partial Displacement of IRP Wind		684.0

The 684.0 MW of potential QF wind resources will displace all IRP wind scheduled for 2018 and 2019, 300 MW each year, and will displace 84.0 MW of wind scheduled for 2020.

Regulating Margin

Regulating margin was updated to recognize that the study start date has shift from the 2012 to the 2013

Size of the Avoided Cost Resource

The avoided cost resource is assumed to be a 100 MW 85% CF thermal resource. The size of the avoided cost resource has not been changed.

Topology

There were no changes to the GRID model topology.

Transmission (Firm Transmission Rights)

There were no changes to firm transmission rights.

Transmission (Non-Firm and Short Term Firm)

Non-firm transmission - 48 months ended June 2011

Short term firm transmission – 48 months ended June 2011

STF and non-firm combined and modeled as a single transmission link

Modeled without incremental wheeling costs

This assumption has not changed from the last filing

Thermal Resources

Thermal resources operating characteristics were updated to reflect expected operations. Forced Outage, Planned Outage and Heat rate levels reflect 48 months ended June 2011.

Long-Term Contracts

Long-term contracts which have prices that are indexed to market were updated to be consistent with the 2011 December Official Forward Price Curve (1112 OFPC).

Modeling updates include: Biomass One and SCL State Line. Seven wind QFs were added: Blue Mountain, Five Pine, High Plateau, Lower Ridge, Mule Hollow, North Point and Pine City. Modeling was added to more accurately track electric swaps transactions.

Hydro Resources

10 year forecast dated September 9, 2011

Hydro forecast extended past 2022 at 2022 hydro level