

## **Appendix A**

### **PacifiCorp Avoided Cost (GRID and Differential Revenue Requirement) Model Updates through August 2011 Case No. 03-035-14**

#### **GRID Scenario Study Period**

January 1, 2012 through December 31, 2031 (20-year study)  
Avoided Cost prices starting in January 2012

#### **Official Forward Price Curve (Gas and Market Prices)**

Updated to PacifiCorp's June 2011 official forward price curve (1106 OFPC)

#### **Short-Term Firm (STF) Transactions**

STF transactions have been updated to include executed STF contracts as of July 2011

#### **Market Capacity**

48 Months ended December 2010  
Market cap HLH & LLH sales limited to 48 month average of all STF sales, less monthly STF from July 2011 extract

#### **Inflation Rates**

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

#### **Discount Rate**

7.15% which is consistent with the Company's most recent discount rate dated June 2011.

#### **Load Forecast (Retail)**

20-year load forecast dated July 2011

#### **Fuel Prices (Coal)**

Average and incremental coal cost study  
2012 through 2021 – 10 Year forecast dated August 2011  
Thereafter escalated at 2.5%

#### **Potential Environmental Costs**

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

**Proxy Resource (Next Deferrable Resource)**

2012 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 112.7 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	Klamath Falls Biomass	38.5	85.0%
2	Roseburg Weed Biomass	10.0	85.0
3	Roseburg Dillard Biomass	20.0	90.0
4	AG Hydro	10.0	29.7
5	Dorena Hydro	6.1	28.2
6	Surprise Valley Ranch Geothermal	28.1	91.9
<b>Displacement in Base Case MW</b>		<b>112.7 MW</b>	

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.

<b>Displacement in Base Case - 112.7 MW</b>				
Year	Displaced Resource	IRP Update	Displacement	Remaining MW
2012	FOT – Utah	200	112.7	87.3
2013	FOT – Mona – Utah	150	112.7	37.3
2014	FOT – Mona	300	112.7	187.3
2015	FOT – Mona	300	112.7	187.3
2016	597 MW CCCT Dry "F" 2x1 - East Side Resource (4500')	597	112.7	484.3

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	Klamath Falls Biomass	38.5	85.0%
2	Roseburg Weed Biomass	10.0	85.0
3	Roseburg Dillard Biomass	20.0	90.0
4	AG Hydro	10.0	29.7
5	Dorena Hydro	6.1	28.2
6	Surprise Valley Ranch Geothermal	28.1	91.9
7	Avoided Cost Resource	<u>100.0</u>	85.0
<b>Displacement in Base Case MW</b>		<b>212.7 MW</b>	

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.

<b>Displacement in Avoided Cost Case - 212.7 MW</b>				
Year	Displaced Resource	IRP Update	Displacement	Remaining MW
2012	FOT – Utah	200	200.0	0.0
	– West Main	50	12.7	37.3
	– Mid-C		82.6	588.4
2013	FOT – Mona	150	150.0	0.0
	– Utah	204	62.7	141.3
2014	FOT – Mona	300	212.7	87.3
	– Utah			
	– West Main			
2015	FOT – Mona	300	212.7	87.3
	– Utah			
2016	597 MW CCCT Dry "F" 2x1 - East Side Resource (4500')	597	212.7	384.3

### Wind Resources

A total of 2,100 MW of wind is included in the 2011 IRP by 2020 of which 568.4 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 which partially displace the 2,100 MW of wind listed in the IRP.

<b>Potential QF Wind Resource</b>		
Year	Displaced Resource	MW
2012	Cedar Creek Wind I through V	133.0
2013	Vivaldi Wind QF	78.0
2013	Latigo Wind Park	59.2
2015	QF - Big Wind Wyo	78.2
2013	QF - Black Canyon Wind	20.0
2013	QF - Blue Mtn Wind	80.0
2012	QF - Butter Creek Wind	40.0
2013	QF - Meadow Creek Wind	80.0
Wind Resource Partial Displacement of IRP Wind		568.4

568.4 MW of potential QF wind resources will fully displace IRP wind scheduled for 2018 and 268.4 MW of wind scheduled for 2019.

**IRP Partial Displacements (last filing)**

Thermal and Market Purchase Resources

Base Case - thermal partial displacement was 232.6 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	Klamath Falls Biomass	38.5	85.0%
2	Eastern Idaho Waste Disposal	15.0	89.5
3	ExxonMobil	98.0	75.0
4	Warm Springs Biomass	35.0	85.0
5	Roseburg Weed Biomass	10.0	85.0
6	Roseburg Dillard Biomass	20.0	90.0
7	AG Hydro	10.0	29.7
8	Dorena Hydro	6.1	28.2
<b>Displacement in Base Case MW</b>		<b>232.6 MW</b>	

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 - 232.6 MW				
Year	Displaced Resource	IRP Update	Displacement	Remaining MW
2011	FOT – Utah	200	200.0	0.0
	– COB	150	32.6	117.4
2012	FOT – Utah	200	200.0	0.0
	– West Main	50	32.6	17.4
2013	FOT – Mona	150	150.0	0.0
	– Utah	204	82.6	121.4
2014	FOT – Mona	300	232.6	67.4
2015	FOT – Mona	300	232.6	67.4
2016	597 MW CCCT Dry "F" 2x1 - East Side Resource (4500')	597	232.6	364.4

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	Klamath Falls Biomass	38.5	85.0%
2	Eastern Idaho Waste Disposal	15.0	89.5
3	ExxonMobil	98.0	75.0
4	Warm Springs Biomass	35.0	85.0

5	Roseburg Weed Biomass	10.0	85.0
6	Roseburg Dillard Biomass	20.0	90.0
7	AG Hydro	10.0	29.7
8	Dorena Hydro	6.1	28.2
9	Avoided Cost Resource	<u>100.0</u>	85.0
<b>Displacement in Base Case MW</b>		<b>332.6 MW</b>	

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.

<b>Displacement in Avoided Cost Case - 332.6 MW</b>				
<b>Year</b>	<b>Displaced Resource</b>	<b>IRP Update</b>	<b>Displacement</b>	<b>Remaining MW</b>
2011	FOT – Utah	200	200.0	0.0
	– COB	150	132.6	17.4
2012	FOT – Utah	200	200.0	0.0
	– West Main	50	50.0	0.0
	– Mid-C	671	82.6	588.4
2013	FOT – Mona	150	150.0	0.0
	– Utah	204	182.6	21.4
2014	FOT – Mona	300	300.0	0.0
	– Utah	26	26.0	0.0
	– West Main	50	6.6	43.4
2015	FOT – Mona	300	300.0	0.0
	– Utah	250	32.6	217.4
2016	597 MW CCCT Dry "F" 2x1 - East Side Resource (4500')	597	332.6	264.4

### Wind Resources

A total of 2,100 MW of wind is included in the 2011 IRP by 2020 of which 342.2 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 which partially displace the 2,100 MW of wind listed in the IRP.

<b>Potential QF Wind Resource</b>		
<b>Year</b>	<b>Displaced Resource</b>	<b>MW</b>
2012	Cedar Creek Wind I through V	133.0
2013	Vivaldi Wind QF	78.0
2013	Latigo Wind Park	59.2
2013	XRG-DP7 through DP10	<u>72.0</u>
Wind Resource Partial Displacement of IRP Wind		342.2

### **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**

Transmission modeling of the western control area has been update to include the NOB (Nevada Oregon Border) transmission bubble and related transmission rights. This

change was made to better identify the utilization of the Company's firm transmission rights.

**Transmission (Firm Transmission Rights)**

Transmission updated to reflect current transmission rights

**Transmission (Non-Firm and Short Term Firm)**

Non-firm transmission - 48 months ended December 2010

Short term firm transmission – 48 months ended December 2010

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 December 2010.

**Long-Term Contracts**

Long-term contracts which have prices that are indexed to market were updated to be consistent with the 2011 June Official Forward Price Curve (1106 OFPC).

Modeling updates include BPA South Idaho Exchange, Cowlitz Swift, Grant County and Pioneer Wind Park I QF. Modeling was added to more accurately track California ISO transactions.

Four QFs will not renew their QF contracts and are expected to use their QF generation to offset their retail load. Their QF generation is included as a reduction in retail loads.

**Hydro Resources**

10 year forecast dated September 27, 2010

Hydro forecast extended past 2020 at 2021 hydro level