

## **Appendix A**

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

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

January 1, 2011 through December 31, 2030 (20-year study)  
Avoided Cost prices starting in January 2011

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

Updated to PacifiCorp's 2011 March official forward price curve (1103 OFPC)

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

STF transactions have been updated to include executed STF contracts as of March 2011  
STF Extract 602

#### **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 Extract 602

#### **Inflation Rates**

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

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

20-year load forecast dated November 2010

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

Average and incremental coal cost study  
2011 through 2020 – 10 Year forecast dated October 2010  
Thereafter escalated at 2.5%

#### **Potential Environmental Costs**

Costs included in incremental fuel costs for plant commitment and dispatch decisions starting in 2015  
Environmental costs are for carbon dioxide  
Costs are consistent with the Company's forecast dated March 2011  
Costs are excluded from fuel costing and are excluded from avoided costs

**Proxy Resource (Next Deferrable Resource)**

2011 through 2015 - Mona, Utah, West Main, 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 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 (2013), Utah (2011), West Main (2012), Mid Columbia (2012), and California Oregon Border (COB) (2011). 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.

Displacement in Avoided Cost Case - 332.6 MW				
Year	Displaced Resource	IRP Update	Displacement	Remaining MW
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.

Potential QF Wind Resource		
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
2013	XRG-DP7 through DP10	<u>72.0</u>

Wind Resource Partial Displacement of IRP Wind	342.2
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## IRP Partial Displacements (last filing)

### Thermal and Market Purchase Resources

Base Case - thermal partial displacement was 191.5 MW. Included were QFs that were 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	Timber Canyon	40.0	85.0
<b>Displacement in Base Case MW</b>		<b>191.5 MW</b>	

In the base case, 2012 through 2017 front office trades are displaced in the Mona bubble.

Displacement in Base Case - 191.5 MW				
Year	Displaced Resource	IRP Update	Displacement	Remaining MW
2012	Market FOT – Mona	200	191.5	8.5
2013	Market FOT – Mona	300	191.5	108.5
2014	Market FOT – Mona	300	191.5	108.5
2015	Market FOT – Mona	300	191.5	108.5
2016	Market FOT – Mona	300	191.5	108.5
2017	Market FOT – Mona	300	191.5	108.5
2018	536 MW CCCT Dry "F" 2x1 - East Side Resource (4500')	536	191.5	344.5

Avoided Cost Case – a 100 MW 85% capacity factor (CF) avoided cost resource was 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	Timber Canyon	40.0	85.0
5	Avoided Cost Resource	100.0	85.0
<b>Displacement in Base Case MW</b>		<b>291.5 MW</b>	

In the avoided cost case, 2012 front office trades in the Mona bubble were fully displaced and additional displacements were made in the West Main and California Oregon Border (COB) bubbles. In 2013 through 2017 front office trades were displaced in the Mona bubble.

<b>Displacement in Base Case - 291.5 MW</b>				
<b>Year</b>	<b>Displaced Resource</b>	<b>IRP Update</b>	<b>Displacement</b>	<b>Remaining MW</b>
2012	Market FOT – Mona	200	200.0	0.0
	Market FOT – West Main	15	15.0	0.0
	Market FOT – COB	389	76.5	312.5
2013	Market FOT – Mona	300	291.5	8.5
2014	Market FOT – Mona	300	291.5	8.5
2015	Market FOT – Mona	300	291.5	8.5
2016	Market FOT – Mona	300	291.5	8.5
2017	Market FOT – Mona	300	291.5	8.5
2018	536 MW CCCT Dry "F" 2x1 - East Side Resource (4500')	536	291.5	244.5

### Wind Resources

A total of 887 MW of wind was included in the 2008 IRP Update by 2019 of which 427 MW was under construction or contract at the time of the IRP study. The remaining 460 MW of planned wind resources was scheduled to be available starting in 2017 (Table ES.1). The Company has added potential wind QF resources which partially displace 353.6 MW of the 460 MW remaining total.

<b>Potential QF Wind Resource</b>		
<b>Year</b>	<b>Displaced Resource</b>	<b>MW</b>
2011	Power County Wind – North and South	43.6
2012	Cedar Creek Wind I through V	133.0
2012	Pioneer Wind Park I QF	49.5
2013	Pioneer Wind Park II QF	49.5
2013	Vivaldi Wind QF	78.0
Wind Resource Partial Displacement of IRP Wind		353.6

### **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.

### **Transmission (Firm Transmission Rights)**

Transmission updated to reflect current transmission right

### **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 March Official Forward Price Curve (1103 OFPC).

Modeling updates include APS Supplemental, BPA South Idaho Exchange, Cowlitz Swift, Deseret Purchase, and Grant County.

**Hydro Resources**

10 year forecast dated September 27, 2010

Hydro forecast extended past 2020 at 2021 hydro level

This is a change for the prior filing

**Discount Rate**

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

**Contract Reserves**

Nucor, P4 Production and US Magnesium reserve contracts were extended consistent with 2011 IRP assumptions.