# Appendix A

# PacifiCorp Avoided Cost (GRID and Differential Revenue Requirement) Model Updates through June 2009 Case No. 03-035-14

## **GRID Scenario Study Period**

January 1, 2010 through December 31, 2029 (20-year study)

# **Official Market Price Forecast (Gas and Market Prices)**

Updated to PacifiCorp's June 2009 official forward price forecast (0609)

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

STF transactions have been updated to include executed STF contracts as of June 30, 2009; Extract 445

#### **Inflation Rates**

The Company updated inflation rates consistent with the Company's most recent inflation rate study dated June 2009

# **Market Capacity**

12 Months ended December 2008

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

20-year load forecast dated February 24, 2009

## **Fuel Prices (Coal)**

2010 – Oregon GRC Forecast dated March 2009 2011 through December 2017 – 10 Year forecast dated November 2008 Thereafter escalated at 2.5% Incremental coal cost study dated February 2009

# **Proxy Resource (Next Deferrable Resource)**

Updated to 2008 IRP Dated May 28, 2009 - see Appendix D 2010 through 2013 - Mona Third Quarter (Q3) High Load Hour (HLH)
Front Office Trade (FOT) see Appendix D - 2008 IRP Table 8.44
2014 and thereafter – CCCT (Wet "F" 2x1) - East Side Resource (4500') see Appendix D - 2008 IRP Tables 6.2 and 6.4

## **2008 IRP Resources** (Updated to 2008 IRP Dated May 28, 2009)

2008 IRP Resources transmission, thermal, DSM, FOT and wind resources included:

## **Transmission**

- IRP Link Aeolus -> Jim Bridger
- IRP Link Aeolus -> Utah South
- IRP Link Aeolus -> Wyoming NE
- IRP Link Aeolus -> Wyoming SW
- IRP Link Cholla -> Four Corners
- IRP Link Jim Bridger -> Aeolus
- IRP Link Jim Bridger -> Path C
- IRP Link Mid Columbia -> Yakima
- IRP Link Palo Verde -> Utah South
- IRP Link Path C -> Jim Bridger
- IRP Link Path C -> Utah North
- IRP Link Path C -> West Main
- IRP Link Utah North -> Path C
- IRP Link Utah South -> Aeolus
- IRP Link Utah South -> Mona
- IRP Link Utah South -> Palo Verde
- IRP Link Walla Walla -> Yakima
- IRP Link West Main -> Path C
- IRP Link Wyoming NE -> Aeolus
- IRP Link Wyoming SW -> Aeolus
- IRP Link Yakima -> Mid Columbia

## **Thermal**

- IRP Thermal Utah North AERO
- IRP Thermal Utah North CCCT (Including Duct Firing)
- IRP Thermal Utah North DSG
- IRP Thermal Utah North IB
- IRP Thermal West Main Biomass
- IRP Thermal West Main DSG
- IRP Thermal West Main IB
- IRP Thermal West Main RE
- IRP Thermal Wyoming DSG
- IRP Thermal Wyoming IB
- IRP Thermal Wyoming RE

## **Power Purchase Agreement**

East Side PPA

#### **DSM**

IRP DSM - Class 1 - Utah Cool Keeper (Modeled as reserves)

All others excluded – Included in Loads

#### **Front Office Trades**

IRP FOT - COB - Flat

IRP FOT - COB - Q3 HLH

IRP FOT - Mead - Q3 HLH

IRP FOT - Mid Columbia - Flat

IRP FOT - Mid Columbia - Q3 HLH

IRP FOT - Mona - Q3 HLH

IRP FOT - Utah - Q3 HLH

IRP FOT - West Main - Q3 HLH

#### Wind

IRP Wind - Walla Walla

IRP Wind - Wyoming

IRP Wind - Yakima

# **IRP Partial Displacements (this filing)**

## Thermal and Market Purchase Resources

Base Case - prior to the inclusion of the avoided cost resource, Mona FOT is partially displaced by 31.8 MW in 2010 through 2013, and the proxy resource is partially displaced by 31.8 MW starting in 2014. The potential qualifying facility (QF) resources included in the Base Case consists of a request by Kennecott QF for a new contract.

Queue	Thermal Resource	Capacity	Energy
1	Kennecott QF	31.8 MW	85%
Displacement in Base Case MW		31.8 MW	

Displacement in Base Case - 31.8 MW					
Year	Displaced Resource	2008 IRP	Displacement	Remaining MW	
2010	Market FOT – Mona 3Q	50	31.8	18.2	
2011	Market FOT – Mona 3Q	150	31.8	118.2	
2012	Market FOT – Mona 3Q	350	31.8	318.2	
2013	Market FOT – Mona 3Q	443	31.8	411.2	
2014	Proxy Resource (see above)	570	31.8	538.2	

Avoided Cost Case – a 100 MW 85% capacity factor (CF) avoided cost resource is added to the thermal resource queue. The increase in capacity is partially offset so the Mona FOT is partially displaced by 131.8 MW in 2010 through 2013, and the proxy resource is partially displaced by 131.8 MW starting in 2014.

Queue	Thermal Resource	Capacity	Energy
1	Kennecott QF	32 MW	85%
2	Avoided Cost Resource	<u>100 MW</u>	85%
Displacement in Avoided Cost Case MW 131.8 MW			

	Displacement in Avoided Cost Case – 131.8 MW					
Year	Displaced Resource	2008 IRP	Displacement	Remaining MW		
2010	Market FOT – Mona 3Q	50	50.0	0.0		
2011	Market FOT – Mona 3Q	150	131.8	18.2		
2012	Market FOT – Mona 3Q	350	131.8	218.2		
2013	Market FOT – Mona 3Q	443	131.8	311.2		
2014	Proxy Resource (see above)	571	131.8	438.2		

The 2008 IRP has a total of 50 MW of FOT in 2010, all of which are Mona 3Q market purchases. Since the 131.8 displacement is greater than total 50 MW of FOT resources available, no further displacements are made in 2010.

#### Wind Resources

A total of 1,600 MW of wind is included in the 2008 IRP by 2021. These IRP wind resources are not partially offset by potential wind resources. Two potential wind resources listed in the 2008 IRP, Duke Energy and High Plains, are included as Company owned wind resources.

# **IRP Partial Displacements (last filing)**

The partial displacements in the last filing was made against the 2007 IRP resources and is not comparable to the partial displacements in the current filing

## **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**

The Aeolus transmission bubble was added to allow modeling of the Energy Gateway Transmission – See Appendix D - 2008 IRP Chapter 10 Wyoming was split into Wyoming NE and Wyoming SW

# **Transmission (Firm Transmission Rights)**

Includes Energy Gateway Transmission – See Appendix D - 2008 IRP Chapter 10 Transmission was redesigned to facilitate the new Aeolus bubble and the split Wyoming Other transmission was updated to reflect current firm transmission rights

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

48 months ended December 2008

## **Thermal Resources**

Coal Plant Efficiency Improvements (Turbine Upgrades) – See Appendix D – Page 114 Blundell capacity was increased by 34.5 MW in 2013

All gas-fired resource have updated modeling assumptions to reflect current expected operation

## **Long-Term Contracts**

Long-term contracts which have prices that are indexed to market were updated to be consistent with the June 2009 Official Price Forecast (0609). Modeling updates include changes to APS Supplemental, ExxonMobil QF, Gem State, Monsanto Curtailment, SCL State Line, Simplot Phosphates, Tesoro, and US Magnesium Reserve and revised wind modeling. New Contracts include Co-Gen II QF, LADWP contracts, Idaho Power P278538 and Chehalis Pipeline contracts. Schwendiman QF and expired contracts were removed.

# **Company Owned Resources**

The Chehalis CCCT and two wind resources were added; McFadden Ridge Wind and Three Buttes Wind

## **Discount Rate**

7.1% which is consistent with the Company's most recent discount rate dated June 2009