Let's turn the answers on.

2013 Integrated Resource Plan

Wyoming Commission
August 29, 2013

Let's turn the answers on.
2013 IRP Highlights

• The IRP provides a framework for actions the Company will take for our customers

• Customer energy use is down, growth in demand has slowed

• With reduced loads, two-thirds of our customers’ incremental energy needs can be meet with energy efficiency over the next 10 years

• With low market prices, firm purchases supplement energy efficiency resources – no major new generating resource until 2024

• Where it makes sense, we’re closing coal-fueled generating plants or converting them to natural gas

• Where it makes sense, we will make the environmental investments required to keep these low-cost units operating and producing low-cost electricity for customers
Key Drivers: Loads & Market Prices

**Forecasted Annual System Load (GWh)**

- **2013 IRP**
- **2011 IRP Update**
- **2011 IRP**

**Forecasted Annual System Coincident Peak (MW)**

- **2013 IRP**
- **2011 IRP Update**
- **2011 IRP**

**Henry Hub Natural Gas Prices ($/MMBtu)**

- **2013 IRP (Sep 2012)**
- **2011 IRP Update (Aug 2011)**
- **2011 IRP (Sep 2010)**

**Average of MidC/Palo Verde Flat Power Prices ($/MWh)**

- **2013 IRP (Sep 2012)**
- **2011 IRP Update (Aug 2011)**
- **2011 IRP (Sep 2010)**
Resource Portfolio Development

- Varying combinations of price, policy, and technology assumptions
  - Commodity prices (natural gas, power, coal, and CO₂)
  - Environmental policy
    - Renewable portfolio standards (RPS)
    - Coal unit environmental investments
  - Resource technology cost & performance

- 19 core case definitions, 5 Energy Gateway transmission scenarios (94 Portfolios)
Top Performing Portfolios

- With reduced loads and market prices, top performing portfolios are very similar.

- Energy efficiency and firm market purchases are consistently lowest cost/risk means of meeting the resource need.
Preferred Portfolio (Capacity)

- Obligation + Reserves *
- New Firm Market Purchase
- New - DSM, CHP, and Solar **
- Existing - Long Term Contracts and PPA’s
- 2014 Lake Side 2 CCCT (under construction)
- Existing - Physical Assets and DSM ***

* Includes 13% Planning Reserves, Sales and Non-Owned Reserves
** Solar resources peak contribution is 8 MW by 2022 and Combined Heat and Power (CHP) contributes 12 MW.
*** Includes retirements, turbine upgrades, and gas repower. DSM includes both Class 1 and 2.
The Sigurd-Red Butte project (Segment “G”) is under construction.

Preliminary analysis of the Windstar-Populus project (Segment “D”) shows customer benefits supporting on-going permitting efforts.

Action plan calls for further stakeholder review of Segment D analysis and continued permitting activities for all Energy Gateway Segments.
Environmental Investments in Coal

• Alternatives to incremental environmental investments in existing coal units were considered in the development of candidate resource portfolios
  – Early retirement
  – Conversion to natural gas

• Detailed financial analysis included in Confidential Volume III of the 2013 IRP
  – Naughton Unit 3 conversion to natural gas (2014 – 2017 timeframe)
  – Hunter Unit 1 baghouse and low NO\textsubscript{X} burners in 2014
  – Jim Bridger Unit 3 and Unit 4 selective catalytic reduction (SCR) in 2015/2016

• Continue to evaluate alternative compliance strategies that will meet Regional Haze compliance obligations, related to the U.S. Environmental Protection Agency’s Federal Implementation Plan requirements to install SCR equipment at Cholla Unit 4
Coal Resource Action Items in the 2013 IRP

• Naughton Unit 3
  – Continue permitting/development efforts for gas conversion
  – Issue RFP to procure gas transportation for the Naughton plant
  – Issue RFP for EPC consistent with permitting process

• Hunter Unit 1
  – Complete installation of baghouse conversion and low NO\textsubscript{X} burner projects as required by the end of 2014

• Jim Bridger Units 3 and 4
  – Complete installation of SCR as required by the end of 2015 and 2016, respectively

• Cholla Unit 4
  – Provide an update of the Cholla Unit 4 analysis regarding compliance alternatives in the 2013 IRP Update
Wyoming Regional Haze Compliance

Comparison of Wyoming SIP, EPA FIP Proposals and PacifiCorp IRP Cases

<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit Capacity (MW)</th>
<th>Wyoming Regional Haze SIP Technology</th>
<th>EPA 2012 Proposal Technology</th>
<th>PacifiCorp 2013 IRP Technology (Base Case)</th>
<th>PacifiCorp 2013 IRP Technology (Stringent RH Case)</th>
<th>EPA 2013 Re-Proposal Technology</th>
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</thead>
<tbody>
<tr>
<td>Naughton 1</td>
<td>158</td>
<td>LNB</td>
<td>LNB</td>
<td>LNB</td>
<td>LNB</td>
<td>SCR (within 5 years)</td>
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<td>SCR/BH (12/31/14)</td>
<td>SCR/BH (12/31/14)</td>
<td>Gas Conv. (6/30/15)</td>
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<td>354</td>
<td>SCR (12/31/22)</td>
<td>SCR (within 5 years)</td>
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<tr>
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<td>106</td>
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<td>LNB (7/31/18)</td>
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<tr>
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<td>Dave Johnston 4</td>
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<td>LNB</td>
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<td>SNCR (within 5 years)</td>
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</table>

- PacifiCorp must meet its compliance obligations and has initiated its assessment of EPA’s new requirements on a unit-by-unit basis. The company’s assessment is focused on evaluating compliance costs and identifying potential alternatives that are in the best interests of its customers. Evaluation results will be incorporated into the 2013 IRP Update or in the 2015 IRP, as appropriate.

- PacifiCorp finds EPA’s re-proposed rule to be an extreme and unlawful interpretation of the Regional Haze Rules and will argue from that position in the ongoing public comment process.

- If the EPA’s re-proposed rule is left to stand, many of the company’s coal-fueled generating plants in Wyoming could face early shut-down.

* Wyoming Regional Haze SIP contemplates low-NOx burners would be installed at Dave Johnston Units 1 and 2 by the end of 2018. However, changes to the Wyoming Air Quality regulations are required before the state can mandate the controls.