2013 Integrated Resource Plan

Public Session
Technical Workshop

August 27, 2013

Let’s turn the answers on.
Agenda

• Overview of the 2013 IRP

• Wyoming Federal Implementation Plan (FIP)

• The President’s Climate Action Plan

• Confidential Volume 3 Overview
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)

Forecasted Annual System Coincident Peak (MW)

Henry Hub Natural Gas Prices ($/MMBtu)

Average of MidC/Palo Verde Flat Power Prices ($/MWh)
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**: Includes 13% Planning Reserves, Sales and Non-Owned Reserves.
- **Existing - Long Term Contracts and PPA’s**: 2014 Lake Side 2 CCCT (under construction).
- **Existing - Physical Assets and DSM**: Includes retirements, turbine upgrades, and gas repower. DSM includes both Class 1 and 2.

* Solar resources peak contribution is 8 MW by 2022 and Combined Heat and Power (CHP) contributes 12 MW.
Accumulated acquisition of incremental energy efficiency meets 67% of forecasted load growth from 2013 levels by 2022.

The action plan identifies steps the Company will take in the next two to four years to accelerate acquisition of cost-effective energy efficiency resources.
RPS Compliance

- Evaluation of RPS compliance alternatives supports use of unbundled renewable energy credits (RECs) – no new wind until 2024
- The action plan calls for annual REC RFPs to meet state RPS obligations
Energy Gateway Transmission

• 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
## Wyoming Regional Haze Compliance

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

<table>
<thead>
<tr>
<th>Unit</th>
<th>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>Naughton 2</td>
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<td>LNB</td>
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<td>LNB</td>
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<td>SCR (within 5 years)</td>
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<tr>
<td>Naughton 3</td>
<td>330</td>
<td>SCR/BH (12/31/14)</td>
<td>SCR/BH (12/31/14)</td>
<td>Gas Conv. (6/30/15)</td>
<td>Gas Conv. (6/30/15)</td>
<td>SCR/BH (12/31/14)</td>
</tr>
<tr>
<td>Jim Bridger 1</td>
<td>354</td>
<td>SCR (12/31/22)</td>
<td>SCR (within 5 years)</td>
<td>SCR (12/31/22)</td>
<td>SCR (12/31/17)</td>
<td>SCR (12/31/22)</td>
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<tr>
<td>Jim Bridger 2</td>
<td>363</td>
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<td>SCR (within 5 years)</td>
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<td>349</td>
<td>SCR (12/31/15)</td>
<td>SCR (12/31/15)</td>
<td>SCR (12/31/15)</td>
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<tr>
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<td>SCR (12/31/16)</td>
<td>SCR (12/31/16)</td>
<td>SCR (12/31/16)</td>
<td>SCR (12/31/16)</td>
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<tr>
<td>Dave Johnston 1</td>
<td>106</td>
<td>LNB*</td>
<td>LNB (7/31/18)</td>
<td>n/a</td>
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<td>LNB (7/31/18)</td>
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<tr>
<td>Dave Johnston 2</td>
<td>106</td>
<td>LNB*</td>
<td>LNB (7/31/18)</td>
<td>n/a</td>
<td>LNB (12/31/2018)</td>
<td>LNB (7/31/18)</td>
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<tr>
<td>Dave Johnston 3</td>
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<td>LNB</td>
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<td>LNB</td>
<td>SNCR (12/31/17)</td>
<td>SCR (within 5 years)</td>
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<tr>
<td>Dave Johnston 4</td>
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<td>LNB</td>
<td>LNB</td>
<td>LNB</td>
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<td>SNCR (within 5 years)</td>
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<td>SNCR (12/31/17)</td>
<td>SNCR (within 5 years)</td>
</tr>
</tbody>
</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.
General SCR Project Timeline – Spring 2018

- Representative timeline for EPA’s currently proposed 2018 compliance timeline for additional SCR’s in Wyoming (e.g. Naughton Units 1 and 2, Dave Johnston Unit 3)
- If pursued, one or more of the projects may be deferred to Fall 2018 tie-in schedule, with associated deferral of individual activities
President Obama’s Climate Action Plan

• Unveiled June 25, 2013

• Pledges action to reduce greenhouse gas emissions on a number of fronts, including the power generation industry

• Includes timetable for the U.S. Environmental Protection Agency (EPA) to regulate carbon dioxide emissions from power plants

• EPA to publish a new proposed rule regulating carbon dioxide emissions from new power plants by September 20, 2013, and to finalize the rule in a “timely fashion”

• EPA to publish a new proposed rule regulating carbon dioxide emissions from existing power plants by June 2014, and to finalize the rule by June 2015

• The final rule for existing sources is to include a requirement that states submit implementation plans to the EPA no later than June 30, 2016
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