



2013

Integrated Resource Plan Volume I

*Let's turn the answers **on.***

April 30, 2013



Rocky Mountain Power
Pacific Power
PacifiCorp Energy

Table 5.12 – Updated Format: System Capacity Loads and Resources without Resource Additions

Calendar Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
East										
Thermal	6,200	6,626	6,460	6,454	6,454	6,454	6,454	6,454	6,454	6,454
Hydroelectric	137	140	140	135	135	132	135	135	135	135
Renewable	85	85	83	83	83	83	83	83	82	80
Purchase	1,005	611	611	398	285	285	285	285	257	257
Qualifying Facilities	83	73	73	73	73	73	73	73	73	25
Sale	(1,032)	(732)	(730)	(724)	(638)	(638)	(638)	(639)	(158)	(158)
Non-Owned Reserves	(103)	(103)	(138)	(138)	(138)	(138)	(138)	(138)	(138)	(138)
Transfers	750	829	737	672	678	683	1,124	1,122	1,124	706
East Existing Resources	7,125	7,529	7,236	6,953	6,932	6,934	7,378	7,375	7,829	7,361
Load	6,920	7,061	7,188	6,994	7,105	7,217	7,337	7,455	7,584	7,697
Existing Resources:										
Interruptible	(141)	(143)	(155)	(155)	(155)	(155)	(155)	(155)	(155)	(155)
DSM	(379)	(379)	(379)	(379)	(379)	(379)	(379)	(379)	(379)	(379)
East obligation	6,400	6,539	6,654	6,460	6,571	6,683	6,803	6,921	7,050	7,163
Planning Reserves (13%)	832	850	865	840	854	869	884	900	917	931
East Reserves	832	850	865	840	854	869	884	900	917	931
East Obligation + Reserves	7,232	7,389	7,519	7,300	7,425	7,552	7,687	7,821	7,967	8,094
East Position	(107)	140	(283)	(347)	(493)	(618)	(309)	(446)	(138)	(733)
East Reserve Margin	11.3%	15.1%	8.7%	7.6%	5.5%	3.8%	8.5%	6.6%	11.0%	2.8%
West										
Thermal	2,524	2,524	2,524	2,520	2,503	2,503	2,503	2,503	2,503	2,500
Hydroelectric	776	751	776	782	780	780	723	726	647	650
Renewable	36	36	36	36	36	36	36	36	36	19
Purchase	482	225	231	13	13	13	2	2	2	2
Qualifying Facilities	88	99	99	89	89	89	88	89	89	89
Sale	(260)	(260)	(160)	(110)	(110)	(110)	(110)	(110)	(109)	(103)
Non-Owned Reserves	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)
Transfers	(752)	(830)	(737)	(672)	(678)	(683)	(1,124)	(1,124)	(1,124)	(706)
West Existing Resources	2,885	2,536	2,760	2,649	2,624	2,619	2,109	2,113	2,035	2,442
Load	3,216	3,269	3,307	3,365	3,407	3,470	3,479	3,516	3,549	3,583
Existing Resources:										
Interruptible	0	0	0	0	0	0	0	0	0	0
DSM	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)	(28)
West obligation	3,188	3,241	3,279	3,337	3,379	3,442	3,451	3,488	3,521	3,555
Planning Reserves (13%)	414	421	426	434	439	447	449	453	458	462
West Reserves	414	421	426	434	439	447	449	453	458	462
West Obligation + Reserves	3,602	3,662	3,705	3,771	3,818	3,889	3,900	3,941	3,979	4,017
West Position	(717)	(1,126)	(945)	(1,122)	(1,194)	(1,270)	(1,791)	(1,828)	(1,944)	(1,575)
West Reserve Margin	(9.5%)	(21.8%)	(15.8%)	(20.6%)	(22.3%)	(23.9%)	(38.9%)	(39.4%)	(42.2%)	(31.3%)
System										
Total Resources	10,010	10,065	9,996	9,602	9,556	9,553	9,487	9,488	9,864	9,803
Obligation	9,588	9,780	9,933	9,797	9,950	10,125	10,254	10,409	10,571	10,718
Reserves	1,246	1,271	1,291	1,274	1,294	1,316	1,333	1,353	1,374	1,393
Obligation + Reserves	10,834	11,051	11,224	11,071	11,244	11,441	11,587	11,762	11,945	12,111
System Position	(824)	(986)	(1,228)	(1,469)	(1,688)	(1,888)	(2,100)	(2,274)	(2,081)	(2,308)
Reserve Margin	4.4%	2.9%	0.6%	(2.0%)	(4.0%)	(5.6%)	(7.5%)	(8.8%)	(6.7%)	(8.5%)

Figures 5.2 through 5.4 charts the table above for annual capacity position (resource surplus or deficits) for the system, west balancing area, and east balancing area, respectively. The east increase in 2014 is primarily due to the addition of Lake Side 2 natural gas plant.

between zones and includes spot market transactions for system balancing. The model minimizes the overall PVRR, consisting of the net present value of contract and spot market purchase costs, generation costs (fuel, fixed and variable operation and maintenance, unserved energy, and unmet capacity), and amortized capital costs for planned resources.

Modeling Capital Costs and Addressing “End-Effects”

For capital cost derivation, System Optimizer uses annual capital recovery factors to convert capital dollars into real levelized revenue requirement costs to address end-effects issues associated with capital-intensive investments that have different lives and in-service dates. All capital costs evaluated in the IRP are converted to real levelized revenue requirement costs. Use of real levelized revenue requirement costs is an established and preferred methodology to account for analysis of capital investment decisions that have unequal lives and/or when it is not feasible to capture operating costs and benefits over the entire life of any given investment decision. To achieve this, the real levelized revenue requirement method spreads the return of investment (book depreciation), return on investment (equity and debt), property taxes and income taxes over the life of the investment. The result is an annuity or annual payment that grows at inflation such that the PVRR is identical to the PVRR of the nominal annual requirement when using the same nominal discount rate. For the 2013 IRP, the PVRR is calculated inclusive of real levelized capital revenue requirement through the end of the 2032 planning period. PacifiCorp uses the real-levelized capital costs produced by System Optimizer for portfolio cost reporting by the PaR model.

In prior IRPs, growth station resources were included as generic resource alternatives in the out years of the IRP planning horizon. Historically, this resource option was used to balance capacity in each load area as a means to manage simulation run times by simplifying resource selection beyond the first 10 years of the planning period. Growth stations were ascribed costs derived from the forward power price curve. Upon expanding the scope of the 2013 IRP to evaluate coal unit environmental investments in all System Optimizer simulations, the use of growth resources was eliminated, allowing selection of supply and demand side resource alternatives in meeting loads over the entire 20 year planning horizon. This approach is required to ensure that the economics of potential early coal unit retirements capture the full cost of replacement resources over the long-term.

Modeling Front Office Transactions

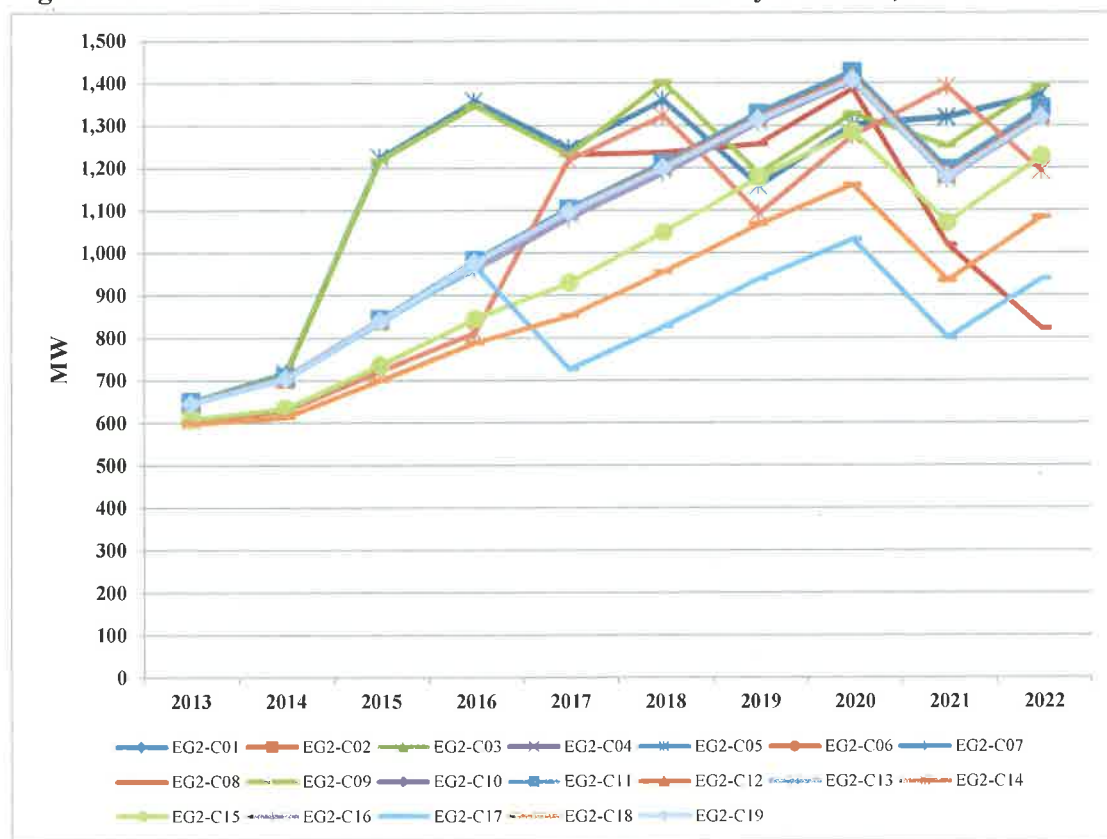
Front office transactions (FOTs) are assumed to be transacted on a one-year basis, and are represented as available in each year of the study. For capacity optimization modeling, System Optimizer engages in market transactions. FOT transactions are firm forward power purchases that contribute capacity and energy to the system. System balancing transactions are short-term purchases and sales used to balance energy supply with demand in all hours across the system. System balancing purchases are energy transactions and do not contribute in meeting system capacity and planning reserve margin needs.

The FOTs modeled in the PaR model generally have the same characteristics as those modeled in the System Optimizer, except that transaction prices reflect wholesale forward electric market

Front Office Transactions

- All portfolios utilized front office transactions to fill both near-term and long-term system capacity needs, a consistent trend among all Energy Gateway scenarios. Figure 8.6 shows the annual front office transactions selected among core case portfolios under Energy Gateway Scenario 2. Over the first 10 years of the planning period, FOTs range between 599 MW and 1,428 MW. In the latter half of the planning horizon, annual FOT resource selections range between 710 MW and 1,472 MW. Beyond 2016, selection of FOTs is highest in case C17, which assumes a market price spike through 2022. Prior to 2016, FOTs are highest in cases with near-term coal unit retirements (cases C04, C05, C08 and C09).

Figure 8.6 – Front Office Transaction Addition Trends by Portfolio, EG-2

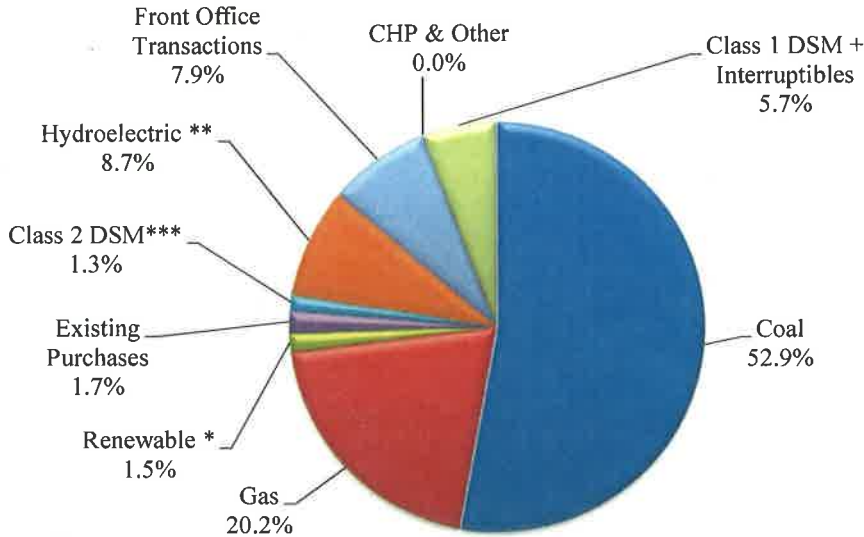


Retirements/Gas Conversion of Existing Coal-Fired Resources

- All portfolios reflected the end of life retirement of Carbon Unit 1 and Unit 2 in 2015.
- In addition to Carbon Unit 1 and Unit 2, asset lives of nine coal-fired facilities are assume to end prior to the end of this IRP’s study period.
- All portfolios reflect the conversion of Naughton Unit 3 to natural gas.
- Portfolio selections show that in the cases defined with medium or high natural gas prices and medium or low CO₂ prices, there are very few occurrences of coal unit early retirements or natural gas conversions. This is observed whether base case or stringent case Regional Haze investments are assumed.
- In the cases defined with high CO₂ price, low gas price and high coal cost assumptions (cases C04, C05, C08, and C09), the majority of the existing coal-fired facilities retire early and in the

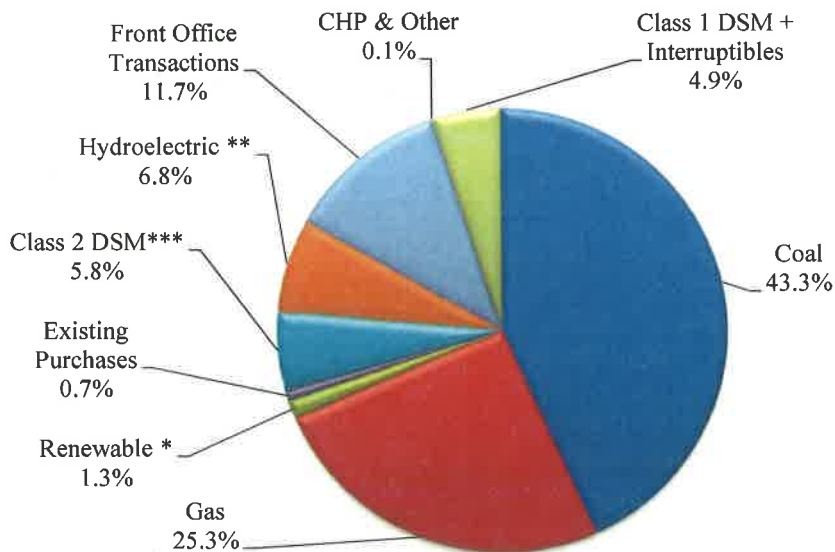
Figure 8.28 – Current and Projected PacifiCorp Resource Capacity Mix for 2013 and 2022

2013 Resource Capacity Mix with Preferred Portfolio Resources



* Renewable resources include wind, solar and geothermal. Wind capacity is reported as the peak load contribution.
 ** Hydroelectric resources include owned, qualifying facilities and contract purchases.
 *** The contribution of Class 2 DSM represents incremental acquisition of DSM resources over the planning period.

2022 Resource Capacity Mix with Preferred Portfolio Resources



* Renewable resources include wind, solar and geothermal. Wind capacity is reported as the peak load contribution.
 ** Hydroelectric resources include owned, qualifying facilities and contract purchases.
 *** The contribution of Class 2 DSM represents incremental acquisition of DSM resources over the planning period.

CHAPTER 9 – ACTION PLAN

CHAPTER HIGHLIGHTS

- The 2013 IRP action plan identifies steps to be taken during the next two to four years to implement the IRP. The preferred portfolio reflects a snapshot view of the future that accounts for a wide range of uncertainties, and is not intended as a procurement commitment.
- Achieve renewable compliance with unbundled renewable energy credit purchases.
- Manage the expanded Utah Solar Incentive Program to encourage the installation of the entire approved capacity.
- Acquire economic front office transactions or power purchase agreements as needed through the summer of 2017
- Continue to pursue the Energy Imbalance Market activities in California and the Northwest Power Pool
- Manage and improve the longer term natural gas hedging process and products, and continue to work with stakeholders.
- Acquire up to 1,425 – 1,876 GWh of cost effective Class 2 energy efficiency by the end of 2015 and 2,034 – 3,180 GWh by the end of 2017.
- Develop a pilot program in Oregon for Class 3 time-of-use program as an alternative approach to Class 1 irrigation load control program for managing irrigation load in the west.
- Continue to permit and develop the Naughton Unit 3 natural gas conversion project.
- Complete the installation of the baghouse conversion and NO_x burner compliance projects at Hunter Unit 1 as required by the end of 2014.
- Complete the installation of selective catalytic reduction compliance projects at Jim Bridger Unit 3 and Jim Bridger Unit 4.
- Evaluate alternative compliance strategies that will meet Regional Haze compliance obligations for Cholla Unit 4.
- Establish a stakeholder group process to review the System Operational and Reliability Benefits Tool (SBT).
- Complete the Sigurd to Red Butte 345kV transmission line according to the construction plan.
- Evaluate through the resource acquisition paths, the fundamentals-based shifts in environmental policy, enactment of regulatory policies, and different load trajectories.
- Continue to use competitive solicitation processes and pursue opportunistic acquisitions identified outside of a competitive procurement process that provide clear economic benefits to customers.

Introduction

PacifiCorp's 2013 IRP action plan identifies the steps the Company will take during the next two to four years to implement the plan that covers the 10 year resource acquisition time frame, 2013-2022. Associated with the action plan is an acquisition path analysis that anticipates potential major regulatory actions and other trigger events during the action plan time horizon that could materially impact resource acquisition strategies.

The resources included in the 2013 IRP preferred portfolio were used to help define the actions included in the action plan, focusing on the size, timing and type of resources needed to meet load obligations, and current and potential future state regulatory requirements. The preferred portfolio resource combination was determined to be the lowest cost on a risk-adjusted basis accounting for cost, risk, reliability, regulatory uncertainty and the long-run public interest.

The 2013 IRP action plan is based upon the latest and most accurate information available at the time of portfolio study. The Company recognizes that the preferred portfolio upon which the action plan is based reflects a snapshot view of the future that accounts for a wide range of uncertainties.

Resource information used in the 2013 IRP, such as capital and operating costs, incorporate the Company's most up to date cost information. However, it is important to recognize that the resources identified in the plan are proxy resources and act as a guide for resource procurement and not as a commitment. Resources evaluated as part of procurement initiatives may vary from the proxy resource identified in the plan with respect to resource type, timing, size, cost and location. Evaluations will be conducted at the time of acquiring any resource to justify such acquisition, and the evaluations will comply with then-current laws, regulatory rules and orders.

In addition to the action plan, progress on the prior action plan, and the acquisition path analysis, this chapter covers the following topics:

- Procurement delays
- IRP Action Plan linkage to the business plan
- Resource Procurement Strategy
- Assessment of owning assets vs. purchasing power
- Managing carbon risk for existing plants
- Purpose of hedging
- The treatment of customer and investor risks for resource planning

The Integrated Resource Plan Action Plan

The 2013 IRP action plan, detailed in Table 9.1, provides the Company with a road map for moving forward with new resource acquisitions.

	<p>fourth quarter of 2013.</p> <ul style="list-style-type: none"> Issue a request for information 180 days after filing the 2013 IRP to solicit updated market information on utility scale solar costs and capacity factors.
<p>1e.</p>	<p><u>Capacity Contribution</u></p> <ul style="list-style-type: none"> Track and report the statistics used to calculate capacity contribution from wind resources and available solar information as a means of testing the validity of the peak load carrying capability (PLCC) method.
<p>Action Item</p>	<p>13. Distributed Generation Actions</p>
<p>2a.</p>	<p><u>Distributed Solar</u></p> <ul style="list-style-type: none"> Manage the expanded Utah Solar Incentive Program to encourage the installation of the entire approved capacity. Beginning in June 2014, as stipulated in the Order in Docket No. 11-035-104, the Company will file an Annual Report with program results, system costs, and production data. These reports will also provide an opportunity to evaluate and improve the program as the Company will use this opportunity to recommend changes. Interested parties will have an opportunity to comment on the report and any associated recommendations.
<p>2b.</p>	<p><u>Combined Heat & Power (CHP)</u></p> <ul style="list-style-type: none"> Pursue opportunities for acquiring CHP resources, primarily through the Public Utilities Regulatory Policies Act (PURPA) Qualifying Facility contracting process. For the 2013 IRP Update, complete a market analysis of CHP opportunities that will: (1) assess the existing, proposed, and potential generation sites on PacifiCorp’s system; (2) assess availability of fuel based on market information; (3) review renewable resource site information (i.e. permits, water availability, and incentives) using available public information; and (4) analyze indicative project economics based on avoided cost pricing to assist in ranking probability of development.
<p>Action Item</p>	<p>14. Firm Market Purchase Actions</p>
<p>3a.</p>	<p><u>Front Office Transactions</u></p> <ul style="list-style-type: none"> Acquire economic front office transactions or power purchase agreements as needed through the summer of 2017. <ul style="list-style-type: none"> Resources will be procured through multiple means, such as periodic market RFPs that seek resources less than five years in term, and bilateral negotiations. Include in the 2013 IRP Update a summary of the progress the Company has made to acquire front office transactions over the 2014 to 2017 forward period.
<p>Action Item</p>	<p>15. Flexible Resource Actions</p>