

Resource Needs Assessment Update for the All-Source Request for Proposals for a 2016 Resource

INTRODUCTION

The purpose of this document is to report updates to PacifiCorp’s initial capacity load and resource balance that support the All-Source Request for Proposals for a 2016 resource (“RFP”). This document fulfills the Company’s commitment to provide a resource needs assessment as outlined in the 2011 Integrated Resource Plan (“2011 IRP”) Update Action Plan.¹ The needs assessment covers the 10-year period 2013 through 2022 with a focus on 2016, the year for which the next significant resource acquisition was identified in the 2011 IRP Update.²

This document describes how updates to the load forecast and changes to existing and firm planned resources affect capacity requirements and the need for a major 2016 resource. As indicated in the 2011 IRP Action Plan, the Company is conducting a system-wide (except Oregon) RFP for residential/commercial sector direct installation energy efficiency savings for delivery by 2016. The Company conducted a preliminary bid evaluation to determine how much incremental cost-effective energy efficiency can be obtained by 2016. The results of this energy efficiency bid analysis are factored into this needs assessment.

In addition, because the latest load forecast is lower than the one used for the 2011 IRP Update, the Company developed a high load growth scenario and associated initial capacity load and resource balance to assess the capacity position impact and potential risk of underestimating resource requirements. This high load growth needs assessment is described in the last section of this report.

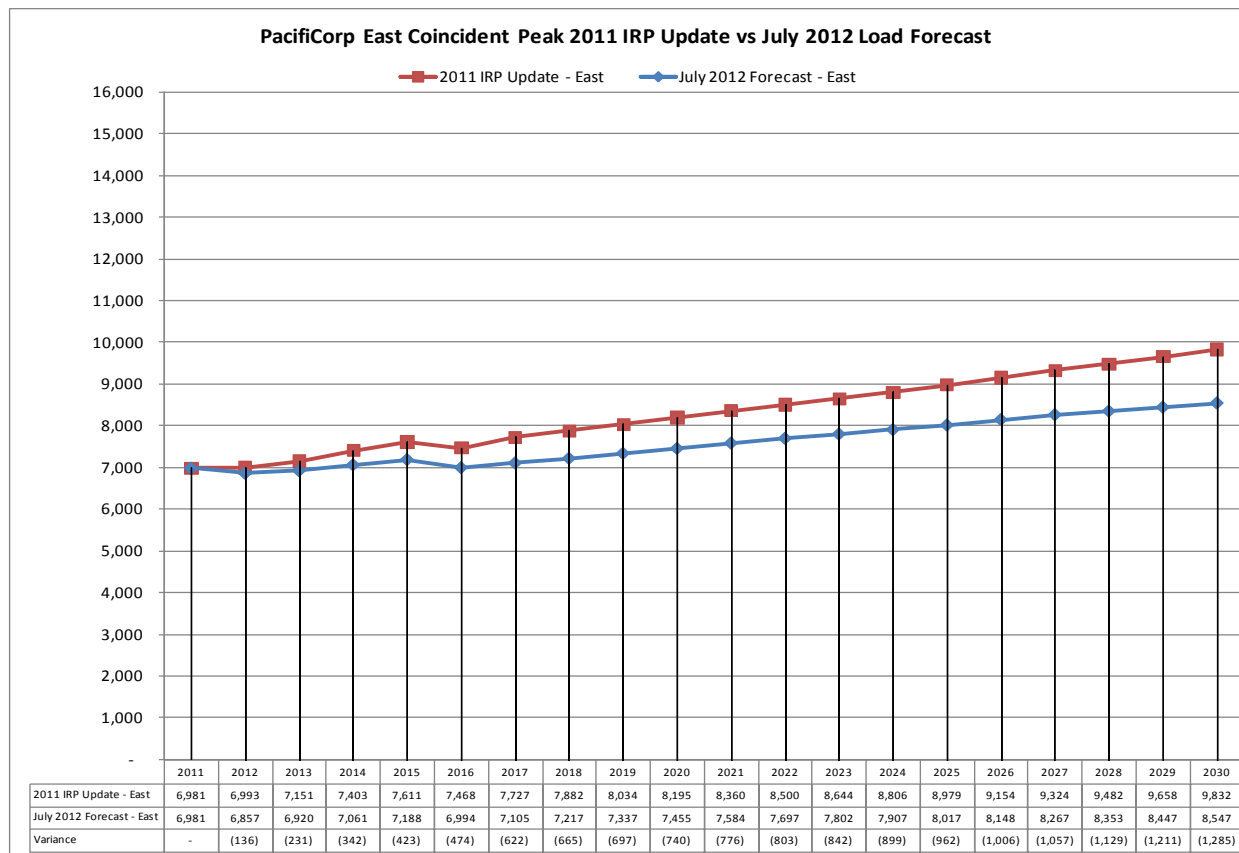
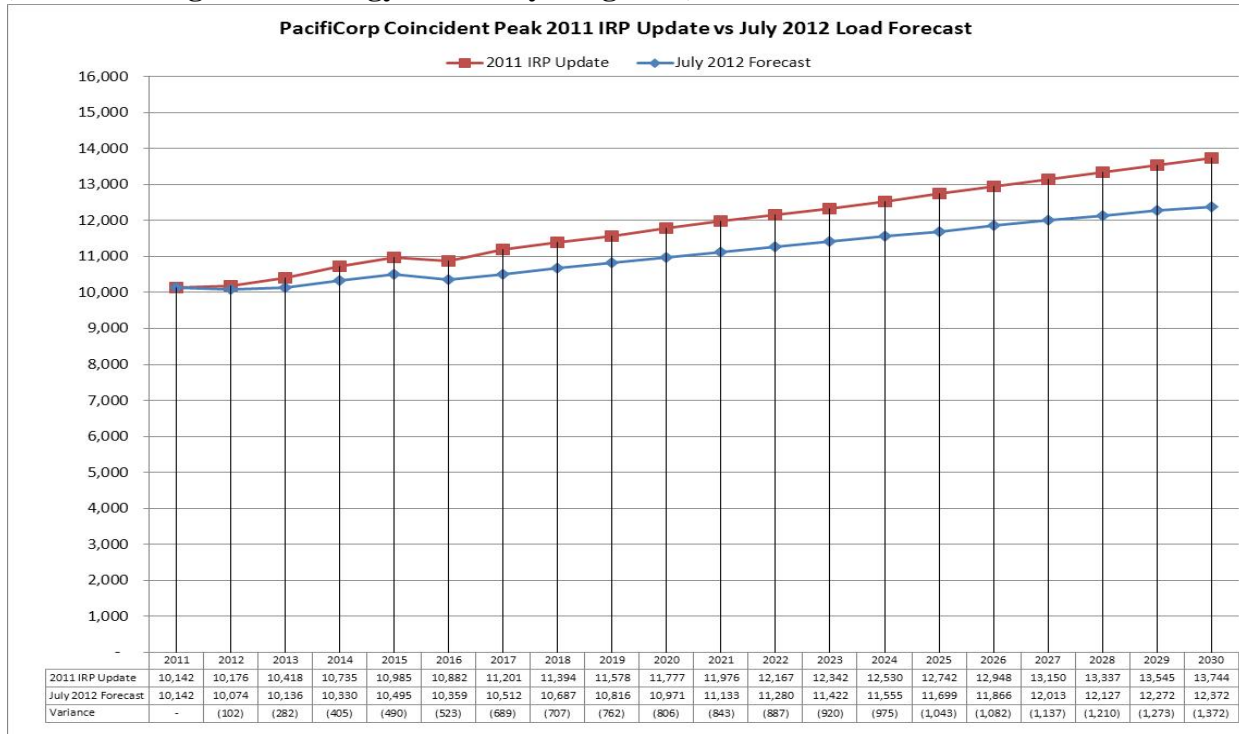
LOAD FORECAST UPDATE

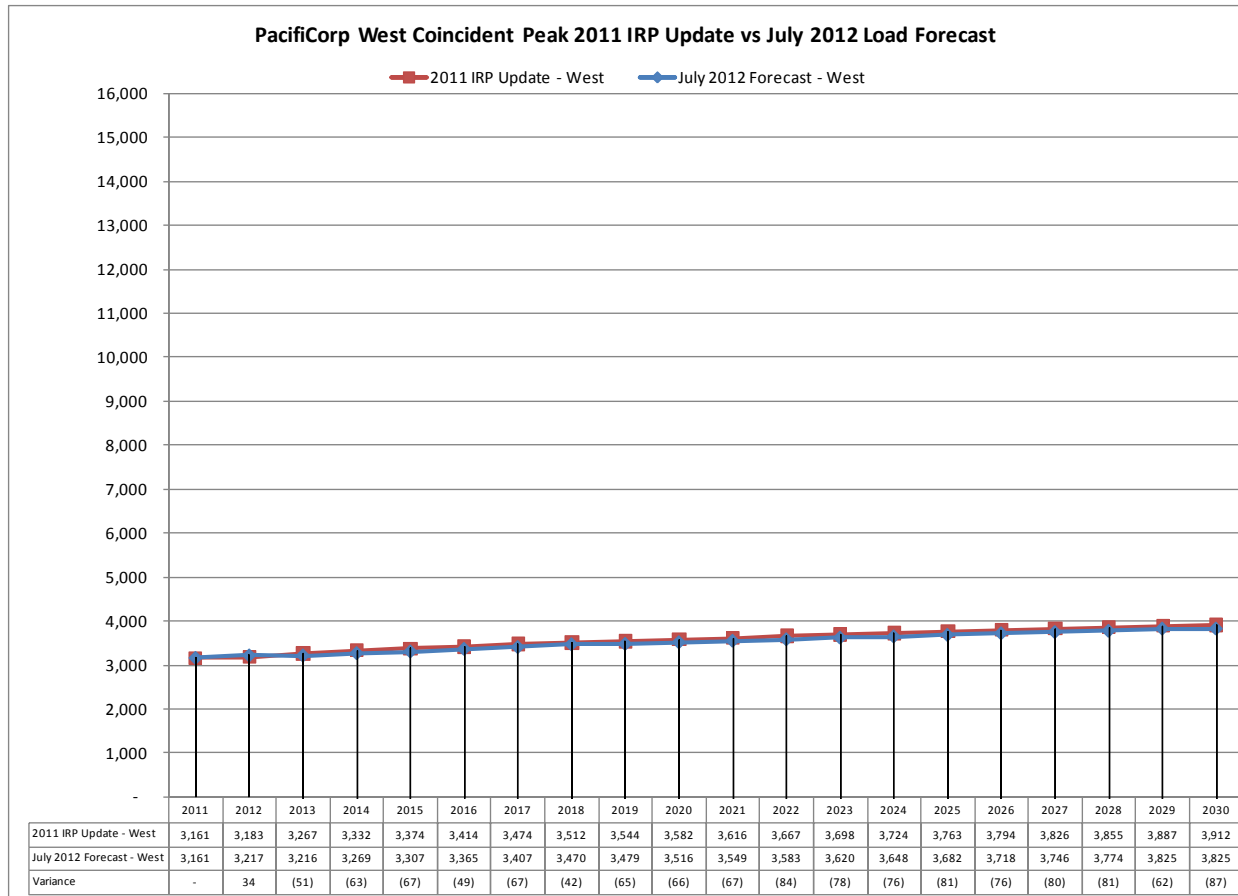
This needs assessment update is based on a new load forecast prepared in July 2012. Figures 1 through 3 compare the July 2012 load forecast with the November 2011 forecast used for the 2011 IRP Update for the system, PacifiCorp East (PACE), and PacifiCorp West (PACW) Balancing Authority Areas, respectively. The Figures illustrate the significant and steadily widening gap between forecasts: on an average annual basis for 2013 through 2016, system peak loads are now lower by 425 MW, and for the 10-year period 2013 through 2022, peak loads are lower by an annual average of 639 MW.

¹ See Action Item 2, page 6 of the 2011 IRP Update, filed with the Public Service Commission of Oregon on March 30, 2012. The commitment is to “examine the timing and type of post-2014 gas resources and other resource changes as part of the 2012 business planning process and all-source bid evaluation for 2016 resources”, and “[c]ontinue conducting the all-source RFP for potential acquisition of peaking/intermediate/baseload resources by the summer of 2016 to fill any remaining resource need indicated by an updated load and resource balance reflecting the results of DSM RFPs, acquisition of front office transactions, reserve margin sensitivity analysis, and other relevant information.

² The Lake Side II natural gas-fired plant is under construction with a 2014 in-service date, and is thus considered an existing resource for this resource needs assessment.

Figures 1-3. Peak Load Forecast Comparisons, Megawatts (Before Savings from Energy Efficiency Programs)





The load decreases are mainly attributable to reduced industrial sector loads in Utah and Wyoming, as well as load request cancellations and postponements prompted by continued weak economic conditions, permitting issues, and industrial technology shifts.

The new load forecast also reflects a small reduction due to a change in the industrial forecast methodology. The new forecast methodology uses a regression analysis of historical load and economic drivers in place of the Company's probability assessment of customer-provided forecasts. For PACE, this methodology change resulted in a 290 gigawatt-hour load decrease or 33 average MWs in 2016.

EXISTING RESOURCE UPDATE

Total existing resources are down by an average of 208 MW for 2013-2022. Notable changes to the existing resources, which include two resource type recategorizations affecting line item comparisons, are summarized below:

- The Lake Side II gas plant was recategorized from a planned to an existing resource, resulting in a 624 MW increase in resource peak capacity contribution for 2014 and beyond.

- The capacity contribution for all wind resources was changed to 4.2%, reflecting a recent analysis of historical wind generation output measured over summer peak load hours.³ In contrast, the capacity contribution for all wind resources in the 2011 IRP Update averaged about 12%. This change resulted in a 140 MW capacity contribution decrease.
- Hydroelectric capacity decreased 90 MW by 2016. Capacity increased for certain units, such as Swift 2 (59 MW) Clearwater 1 and 2 (32 MW), and Lemolo 1 (18 MW). Previously these plants were listed based on historical generation rather than capacity since they cannot provide spinning reserves. They do, however, have storage capability and as such can generate at nameplate for a sustained one-hour period to meet system coincident peak loads. More than offsetting these increases were corrections to account for a capacity input reporting error in the System Optimizer model.⁴
- The planned retirement of the Klamath River hydro units was moved back one year, from the end of 2019 to the end of 2020.
- The 200 MW Utah capacity purchase was recategorized from a firm purchase to a thermal resource, affecting the east-side line item comparison for these two resource categories for the last year of the three-year agreement, 2013.
- Firm purchases are up by 96 MW for 2014 through 2016, primarily reflecting front office transaction acquisitions at the Mona market hub.
- Thermal unit capacity increased by an average of 21 MW for 2013-2022, exclusive of the recategorized 200 MW Utah capacity purchase in 2013. The increase reflects several small changes to coal unit ratings, including the planned conversion of the Naughton Unit 3 to natural gas in 2015.

In addition to these resource changes, non-owned reserves increased by 4 MW for 2014-2016 and 35 MW for 2017-2022. The increase starting in 2017 is due to the drop in reserves for the 2011 IRP Update. For the 2011 IRP Update, Qualifying Facilities were assumed to change from self-supply to full requirements customers in 2017, and thus were no longer offsetting loads. Reserves were thus accounted for through the planning reserve margin applied to the higher loads. To avoid double-counting, the non-owned reserves were reduced by a like amount. In contrast, the current assumption is that Qualifying Facilities will continue supplying their own loads for the duration of the planning period due to favorable gas prices.

CAPACITY IMPACT OF 2012 ENERGY EFFICIENCY PROPOSALS

PacifiCorp conducted a preliminary analysis of the possible impact of proposals received through the 2012 Request for Proposals (RFP) for Direct Install/Direct Distribution energy efficiency measures issued by PacifiCorp. The energy efficiency RFP was designed to identify programs, delivery costs, and commercially responsible vendors to aid PacifiCorp in the acquisition of energy efficiency

³ For a description of the methodology, see Exhibit No. 201 of testimony prepared for the recent Idaho qualifying facility avoided cost proceeding. The testimony can be accessed using the following hyperlink:

http://www.puc.idaho.gov/internet/cases/elec/GNR/GNRE1103/intervenor//PACIFICORP%20DBA%20ROCKY%20MOUNTAIN%20POWER/20120131BROWN%20DIRECT_EXHIBIT%20201.PDF

⁴ The input error was caused by old custom hydro resource set-up code within the System Optimizer model that was overriding hydro capacity entered through the model's user interface. Note, that System Optimizer is being upgraded for the 2013 IRP and the upgraded model does not have custom coding capability, so this type of error will not reoccur.

resources for residential, including low income, and/or commercial customers in five of the Company’s six states service areas (California, Washington, Idaho, Utah and Wyoming).

Table 1 below shows the results of the RFP capacity impact assessment, indicating that the incremental capacity position impact is 5.25 MW by 2016. Because this capacity is relatively small in relation to the overall system peak load requirements and is currently not backed with signed contracts, it is not included in the initial load and resource balance results reported later in this report. A description of the methodology applied follows the table.

Table 1. Direct Install/Direct Distribution Incremental Energy Efficiency Impacts
(Megawatt Capacity at the Generator)

Location	2013	2014	2015	Total
PACW	0.31	0.31	0.31	0.93
PACE	1.44	1.44	1.44	4.32
System	1.75	1.75	1.75	5.25

After receipt of the proposals, PacifiCorp conducted an initial assessment for completeness including information on savings estimates and minimum levels of organizational experience in delivering similar offers. Proposals not meeting the requirements were not considered further. Complete proposals were then reviewed in detail. In some cases, this review generated proposal specific questions including some related to savings or budget estimates, savings sources and documentation. Proposers provided responses to questions within a time frame specified by PacifiCorp.

Information in the responses was utilized in combination with proposal information to compare how proposer’s savings assumptions compared with those utilized in current demand side management efforts. This comparison focused on high volume technologies with known savings trends such as CFLs. Proposals with more complex opportunities such as commercial lighting were reviewed for baseline and operating hour assumptions. The comparison was focused on measures and assumptions delivering the majority of the savings in each proposal. Adjustments were made to unit energy savings or at an overall proposal level to better align the proposed savings with the savings levels consistent with current planning assumptions. These adjustments included removing a measure where savings were unlikely to materialize.

Preliminary cost effectiveness screening was performed on each proposal utilizing the 2011 decrement values – medium carbon scenario. This screening incorporated the savings adjustments described above. Recognizing proposal cost estimates and initial measure mixes might be revised during negotiations, this screening was designed only to screen out savings associated from proposals where screening generated b/c ratios substantially less than 0.5.

Multiple proposals were received for the identified market sectors. To partially account for the effect of overlap from multiple proposals, savings associated with all proposals for a sector; i.e., residential or small commercial, were summed up and divided by the number of unique proposals for that sector. The calculated average savings value for each sector was included as proxy values for the impact for the direct distribution/direct install proposal(s).

An estimate of the incremental or additive impact of these proposal(s) was then developed. This estimate was applied to acknowledge that many proposals focused on accelerating the adoption of measures already in current programs; even without contracting for added delivery capability, some of these resources were likely to be acquired. The energy impacts were converted to capacity impacts utilizing a conversion factor based on prior resource plan modeling.

The estimated capacity impacts were further allocated to PACE and PACW using percentages calculated from the aggregate of adjusted savings proposals where state level-data was granular and accessible. PacifiCorp converted these PACE and PACW estimates to generation values utilizing an average of state-specific line losses. Finally, the capacity impacts were allocated equally into three years starting in 2013.

ALL-SOURCE RFP INITIAL LOAD AND RESOURCE BALANCE

The initial load and resource balance compares the annual peak capacity obligation—consisting of firm system load and sales at the time of the system coincident peak, plus sufficient planning reserves—with the corresponding capability of PacifiCorp’s existing and firm planned resources, *absent new resource additions*. If the annual obligation exceeds the resource capability, then the system has a capacity need or short capacity position. System Optimizer is used to determine the annual capacity positions, accounting for the specified planning reserve margin (13%), as well as the optimized capacity transfers between PACW and PACE.

Table 2 presents the capacity load and resource balance used for the All-Source RFP portfolio modeling. This load and resource balance incorporates a 13-percent target capacity planning reserve margin as determined by the reserve margin study conducted for the 2011 IRP. As shown in the system capacity position line item, with no new IRP resources added, PacifiCorp expects to have a 1,171 MW capacity deficit in 2013, reaching 1,770 MW by 2016 and 2,503 MW by 2022.

Table 2. Capacity Load and Resource Balance, Megawatts (13% Planning Reserve Margin)

Calendar Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
East										
Thermal	6,198	6,614	6,454	6,448	6,447	6,447	6,447	6,447	6,447	6,447
Hydro	134	139	139	134	134	131	134	134	134	134
Class 1 DSM	329	329	329	329	329	329	329	329	329	329
Renewable	85	85	84	84	84	84	84	84	83	81
Purchase	729	404	404	215	115	115	115	115	90	90
Qualifying Facilities	85	75	74	74	74	74	74	74	74	27
Interruptible	303	280	292	292	292	292	292	292	292	292
Transfers	626	585	586	585	586	584	443	585	585	586
East Existing Resources	8,488	8,510	8,361	8,161	8,061	8,056	7,918	8,060	8,034	7,985
Load	6,920	7,061	7,188	6,994	7,105	7,217	7,337	7,455	7,584	7,697
Sale	1,043	743	743	743	657	657	657	657	177	177
East Obligation	7,963	7,804	7,931	7,737	7,762	7,874	7,994	8,112	7,761	7,874
Planning reserves	858	883	898	897	913	928	944	959	917	931
Non-owned reserves	103	103	138	138	138	138	138	138	138	138
East Reserves	961	986	1,036	1,035	1,051	1,066	1,082	1,097	1,055	1,069
East Obligation + 13% Planning Reserves	8,925	8,790	8,967	8,772	8,814	8,940	9,076	9,209	8,816	8,944
East Position	(437)	(280)	(606)	(612)	(753)	(884)	(1,158)	(1,149)	(782)	(958)
East Reserve Margin	8%	9%	5%	5%	3%	2%	(1%)	(1%)	3%	1%
West										
Thermal	2,524	2,524	2,524	2,520	2,503	2,503	2,503	2,503	2,503	2,500
Hydro	776	750	776	782	780	778	722	724	647	618
Class 1 DSM	-	-	-	-	-	-	-	-	-	-
Renewable	36	36	36	36	36	36	36	36	36	19
Purchase	426	199	204	11	11	11	1	1	1	1
Qualifying Facilities	87	99	99	89	89	89	89	89	89	89
Transfers	(627)	(587)	(588)	(587)	(587)	(588)	(445)	(587)	(588)	(587)
West Existing Resources	3,223	3,022	3,052	2,852	2,833	2,830	2,907	2,767	2,689	2,641
Load	3,216	3,269	3,307	3,365	3,407	3,470	3,479	3,516	3,549	3,583
Sale	327	327	227	177	177	177	177	177	177	113
West Obligation	3,543	3,596	3,534	3,542	3,584	3,647	3,656	3,693	3,726	3,696
Planning reserves	405	442	433	459	464	473	475	480	484	480
Non-owned reserves	9	9	9	9	9	9	9	9	9	9
West Reserves	414	451	442	468	474	482	484	489	493	489
West Obligation + 13% Planning Reserves	3,958	4,047	3,976	4,010	4,058	4,129	4,140	4,182	4,219	4,185
West Position	(735)	(1,025)	(925)	(1,158)	(1,225)	(1,299)	(1,233)	(1,415)	(1,531)	(1,545)
West Reserve Margin	(8%)	(15%)	(13%)	(20%)	(21%)	(23%)	(21%)	(25%)	(28%)	(29%)
System										
Total Resources	11,711	11,532	11,413	11,013	10,894	10,886	10,825	10,827	10,723	10,626
System Obligation	11,507	11,401	11,466	11,280	11,347	11,522	11,651	11,806	11,487	11,570
Reserves	1,376	1,437	1,478	1,503	1,525	1,548	1,566	1,586	1,548	1,559
Obligation + 13% Planning Reserves	12,882	12,837	12,943	12,783	12,872	13,069	13,216	13,392	13,035	13,129
System Position	(1,171)	(1,305)	(1,531)	(1,770)	(1,978)	(2,183)	(2,391)	(2,565)	(2,312)	(2,503)
Reserve Margin	3%	2%	(0%)	(3%)	(4%)	(6%)	(8%)	(9%)	(7%)	(9%)

INCREMENTAL IMPACT OF LOAD AND RESOURCE UPDATES ON THE CAPACITY POSITION

Using the capacity load and resource balance prepared for the 2011 IRP Update as the starting point, the load and resource updates resulted in an average net 481 MW improvement to the capacity position for 2013-2022. The change in the capacity position for 2016 was a net 468 MW improvement. (These changes do not include the 5.25 MW cumulative capacity increase for 2015 resulting from the energy efficiency RFP assessment.) Figure 4 shows the change in annual capacity position for the all-source RFP and 2011 IRP Update. Table 3 shows the annual changes for the detailed line items for PACE, PACW, and the system.

Figure 4. Capacity Position Comparison, All-Source RFP versus 2011 IRP Update

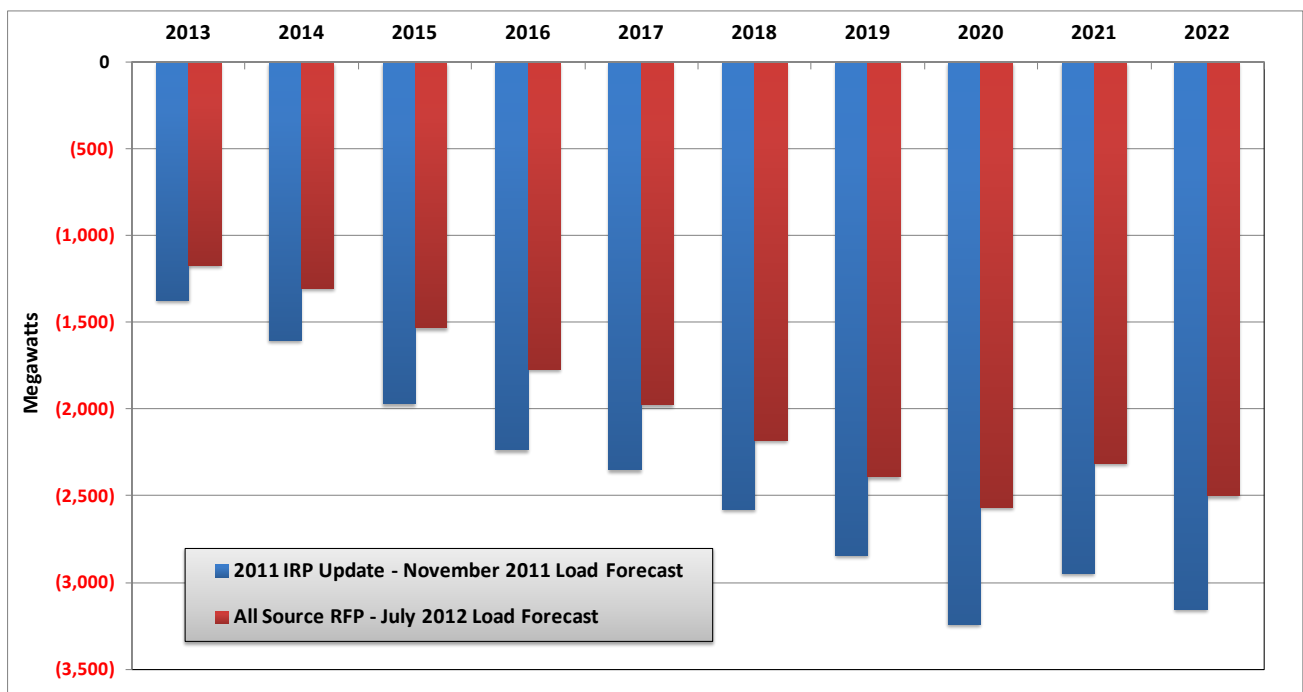


Table 3. Capacity Load and Resource Balance Comparison, All-Source RFP less 2011 IRP Update (Megawatts)

Calendar Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
East										
Thermal	214	14	26	22	27	27	27	27	27	27
Hydro	2	7	7	6	6	3	6	6	6	6
Class 1 DSM	0	0	0	0	0	0	0	0	0	0
Renewable	(91)	(91)	(89)	(89)	(89)	(89)	(89)	(89)	(88)	(83)
Purchase	(76)	99	99	99	(1)	(1)	(1)	(1)	(1)	(1)
Qualifying Facilities	(9)	(19)	(19)	(19)	(162)	(162)	(162)	(162)	(162)	(209)
Interruptible	22	(1)	11	11	11	11	11	11	11	11
Transfers	(121)	(4)	2	(5)	160	(4)	75	198	4	(1)
East Existing Resources	(58)	6	37	24	(48)	(215)	(132)	(10)	(202)	(250)
Load	(231)	(342)	(423)	(474)	(622)	(665)	(697)	(740)	(776)	(803)
Sale	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
East Obligation	(233)	(344)	(425)	(476)	(624)	(667)	(699)	(742)	(778)	(805)
Planning reserves	3	(57)	(70)	(76)	(82)	(88)	(92)	(98)	(102)	(106)
Non-owned reserves	5	5	5	5	33	33	33	33	33	33
East Reserves	8	(52)	(65)	(71)	(50)	(56)	(60)	(65)	(70)	(73)
East Obligation + 13% Planning Reserves	(225)	(396)	(489)	(547)	(674)	(722)	(758)	(807)	(848)	(878)
East Position	167	402	526	571	625	508	626	797	645	628
East Reserve Margin	2%	5%	6%	7%	7%	5%	6%	8%	7%	6%
West										
Thermal	(5)	(5)	(5)	(4)	(2)	(2)	(2)	(2)	(2)	1
Hydro	(76)	(122)	(102)	(96)	(97)	(86)	(97)	74	(3)	(32)
Class 1 DSM	0	0	0	0	0	0	0	0	0	0
Renewable	(52)	(52)	(52)	(52)	(52)	(52)	(52)	(52)	(52)	(52)
Purchase	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Qualifying Facilities	7	19	19	9	3	3	3	3	3	3
Transfers	120	1	(4)	2	(161)	1	(76)	(199)	(4)	1
West Existing Resources	(8)	(161)	(147)	(144)	(311)	(138)	(226)	(178)	(60)	(82)
Load	(51)	(63)	(67)	(49)	(67)	(42)	(65)	(66)	(67)	(84)
Sale	15	15	15	15	15	15	15	15	20	(12)
West Obligation	(36)	(48)	(52)	(34)	(52)	(27)	(50)	(51)	(47)	(96)
Planning reserves	(4)	(6)	(6)	(4)	(6)	(3)	(6)	(6)	(6)	(12)
Non-owned reserves	(1)	(1)	(1)	(1)	3	3	3	3	3	3
West Reserves	(6)	(7)	(8)	(5)	(4)	(0)	(3)	(4)	(3)	(9)
West Obligation + 13% Planning Reserves	(42)	(55)	(60)	(39)	(56)	(27)	(53)	(55)	(51)	(105)
West Position	34	(106)	(87)	(105)	(256)	(111)	(173)	(124)	(10)	23
West Reserve Margin	(7%)	(16%)	(13%)	(20%)	(21%)	(23%)	(23%)	(19%)	(27%)	(26%)
System										
Total Resources	(67)	(156)	(110)	(119)	(360)	(353)	(359)	(188)	(263)	(332)
System Obligation	(269)	(392)	(477)	(510)	(676)	(694)	(749)	(793)	(825)	(901)
Reserves	2	(60)	(72)	(77)	(54)	(56)	(63)	(69)	(73)	(83)
Obligation + 13% Planning Reserves	(267)	(451)	(549)	(586)	(729)	(750)	(812)	(862)	(898)	(984)
System Position	200	296	439	467	370	397	453	674	636	651
Reserve Margin	2%	2%	3%	3%	2%	2%	2%	4%	4%	4%

HIGH LOAD GROWTH CAPACITY POSITION SCENARIO

PacifiCorp developed a high load growth scenario based on the following assumptions and analysis:

- Residential, commercial and industrial high economic drivers from IHS Global Insight.
- A statistical analysis of potential future outcomes for the industrial class that reflects greater uncertainty as the forecast progresses in time. The selection of forecast values was based on the 95th percentile of the range of probable outcomes.

Table 4 presents a comparison of the load and resource balances for the high load and base load forecast scenarios. For 2016, peak loads are 232 MW higher while reserve requirements increase by 30 MW, resulting in a total 263 MW decrease in the capacity position. The capacity deficit grows to 412 MW by 2022.

Table 4. High-Level Capacity Load and Resource Comparison, High Load versus Base Load Forecast Scenarios (Megawatts)

Calendar Year		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
High Load Scenario											
	Load	10,256	10,509	10,718	10,591	10,751	10,944	11,084	11,258	11,434	11,595
	Reserves	1,391	1,460	1,507	1,533	1,556	1,581	1,601	1,623	1,587	1,600
	Obligation + 13% Planning Reserves	13,018	13,040	13,195	13,045	13,142	13,360	13,519	13,716	13,375	13,485
	System Position	(1,308)	(1,508)	(1,783)	(2,032)	(2,248)	(2,472)	(2,694)	(2,889)	(2,653)	(2,860)
Base Load Scenario											
	Load	10,136	10,330	10,495	10,359	10,512	10,687	10,816	10,971	11,133	11,280
	Reserves	1,376	1,437	1,478	1,503	1,525	1,548	1,566	1,586	1,548	1,559
	Obligation + 13% Planning Reserves	12,882	12,837	12,943	12,783	12,872	13,069	13,216	13,392	13,035	13,129
	System Position	(1,171)	(1,306)	(1,530)	(1,769)	(1,978)	(2,183)	(2,335)	(2,508)	(2,257)	(2,447)
Difference, High less Base Load Scenario											
	Load	120	179	223	232	239	257	268	287	301	315
	Reserves	16	23	29	30	31	33	35	37	39	41
	Obligation + 13% Planning Reserves	136	202	252	262	270	290	303	324	340	356
	System Position	(137)	(202)	(253)	(263)	(270)	(288)	(359)	(381)	(396)	(412)

13% VERSUS 12% PLANNING RESERVE MARGIN SENSITIVITY

PacifiCorp developed a capacity load and resource balance based on a 12% planning reserve margin. Table 5 shows the capacity position impact relative to the balance developed using the 13% reserve margin. The one-percentage point decrease in the PRM results in an average increase of 106 MW in the system capacity position for 2013-2022.

System Optimizer modeling for the RFP using the updated load and resource balance indicated that the need for a significant thermal resource is deferred to 2025. Consequently, the Company did not perform System Optimizer runs to report how a 12% planning reserve margin would affect the need

for a significant resource in 2016. Based upon the updated load and resource balance, a reduction in the resource need resulting from a 12% planning reserve margin would simply reduce acquisition of front office transactions and DSM resources.

Table 5. Capacity Position Comparison, 12% PRM less 13% PRM

Calendar Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
System Position - Megawatts	(97)	(102)	(102)	(104)	(106)	(108)	(109)	(111)	(108)	(109)