

ORDER NO. 12 415

ENTERED DEC 02 2014

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

LC 56

In the Matter of

PORTLAND GENERAL ELECTRIC
COMPANY,

2013 Integrated Resource Plan.

ORDER

DISPOSITION: PLAN ACKNOWLEDGED AS REVISED WITH REQUIREMENTS

We find Portland General Electric Company's 2013 Integrated Resource Plan (IRP) meets our procedural and substantive requirements. With certain revisions and additional requirements, we acknowledge the plan and its preferred portfolio as presenting the best combination of expected costs and associated risks for the company and its customers.

I. INTRODUCTION

All regulated energy utilities in Oregon must engage in an open and robust resource planning process to help ensure an adequate and reliable supply of energy at the least cost and risk to the utility and its customers.¹ Energy utilities must prepare and file IRPs within two years of acknowledgment of the last plan, and involve the Commission and the public throughout the process.

In developing an IRP, an energy utility must: (1) evaluate all resources on a consistent and comparable basis; (2) consider risk and uncertainty; (3) select a portfolio of resources with the best combination of expected costs and associated risks; and (4) create a plan that is consistent with the long-run public interest as expressed in state and federal energy policies.²

Once a utility completes a plan, we review it for adherence to the procedural and substantive IRP guidelines. We generally will acknowledge the plan, that is, find it reasonable based on information available at that time, or return it to the utility with comments. We may also decline to acknowledge specific action items if we question whether the utility's proposed resource decision presents the least cost and risk option for its customers.

¹ The Commission first established least-cost planning requirements in Order No. 89-507, and updated them twice—first in Order No. 07-002, as corrected by Order No. 07-047, and again in Order No. 12-013.

² See Order No. 07-002.

In our review, we generally do not address the need for specific resources. Rather, we determine whether the utility has proposed a portfolio of resources to meet its energy demand that presents the best combination of cost and risk.³ Acknowledgement of an IRP means only that we find the utility's preferred portfolio is reasonable at the time of acknowledgement.⁴

Moreover, our decisions in IRP proceedings do not constitute ratemaking. We may only decide questions of rate recovery in a rate case proceeding. Acknowledgment of an IRP, however, is relevant to subsequent examination of whether a utility's resource investment is prudent. As we have previously stated:

Consistency of resource investments with least-cost planning principles will be an additional factor that the Commission will consider in judging prudence. When a plan is acknowledged by the Commission, it will become a working document for use by the utility, the Commission, and any other interested party in a rate case or other proceeding before the Commission[.] Consistency with the plan may be evidence in support of favorable rate-making treatment of the action, although it is not a guarantee of favorable treatment.

Just as acknowledgement does not guarantee favorable ratemaking, a decision to not acknowledge an action item does not constitute a preliminary determination of imprudence. The purpose of the IRP process is to provide the utility with the information and opinion of stakeholders and the Commission based on information presented by the utility. The question of whether a specific investment made by a utility in its planning process was prudent will be fairly examined in any subsequent rate proceeding.

II. PGE's 2013 IRP

A. Process

In developing its 2013 plan, PGE worked with an IRP advisory group comprised of major stakeholders representing environmental interests, customer groups, state legislators, the Commission, and others. PGE conducted four public meetings and three technical workshops during 2013 to allow for stakeholder input and participation in the development of the IRP. PGE also submitted a draft IRP to stakeholders for comment.

To fulfil a commitment from an earlier IRP process, PGE also undertook a process with stakeholders and an outside consulting firm to develop low-carbon portfolio alternatives. PGE also completed or updated several studies to help inform the IRP process.

³ *Id.* at 25.

⁴ *Id.* at 16.

B. Resource Needs

The primary function of the IRP process is to evaluate the company's load and resource balance for a 20-year planning horizon, and to identify the proper additional resources that might be necessary to provide reliable service to the expected load. To do this, PGE assumed a long-term average load growth of 1.3 percent per year based on normal weather, plus a planning reserve margin calculated at 6 percent of load plus 5 percent of PGE hydro generation and 7 percent of PGE thermal generation.

In its evaluation, PGE found that its loads and resources are balanced through 2019. Accordingly, the company concludes that it requires no new major resource acquisitions in the current 2013-2017 Action Plan time horizon.

PGE notes that, although no major resources are needed at this time, the company will need to implement resource actions in the intermediate term (2018-2020) to meet the Renewable Portfolio Standards (RPS) requirements and to replace energy from the closure of the Boardman coal facility in 2020. PGE added that the 2015 IRP should reflect this upcoming resource need.

C. Preferred Portfolio

An IRP must include a representative set of resource portfolios to test performance over a range of identified risks and uncertainties. Here, PGE developed 18 candidate portfolios and tested them against 36 potential futures. Among these, PGE identified three favorable portfolios based on a comparison of overall cost, risk, and reliability performance: (1) Baseload Gas/RPS Only; (2) Diversified Baseload Gas/Wind; and (3) Natural Gas.

Of the three top performing portfolios, PGE selected the Baseload Gas/RPS Only as the preferred portfolio. PGE explains that this portfolio performs best with regard to expected cost, and achieves similarly favorable risk and reliability performance as the other two top candidates. PGE's preferred portfolio combines energy efficiency, base load natural gas plants, new renewables to meet RPS requirements, and natural gas peaking units to provide capacity.

D. Action Plan

An IRP must also include an Action Plan with resource activities that the utility intends to undertake over the next two to four years. As noted above, PGE does not propose any new major resource additions in its 2013 IRP.

PGE requests acknowledgement of its IRP with an Action Plan that includes the following:

1. Supply Side Actions:
 - a. Major resources: No new major supply-side resources.

- b. Hydro contract renewals: Retain legacy hydro resources if available and economic; and
 - c. Additional 23 MW of Dispatchable Standby Generation (DSG) by 2017.
2. Demand-side Actions:
 - a. 124 MWa of cost-effective Energy Efficiency (EE) by 2017; and
 - b. 25 MW of additional Demand Response (DR) by 2017 administered by third-party provider EnerNOC.
 3. Enabling Studies to inform next IRP:
 - a. Third-party review of load forecast methodology;
 - b. Assessment of emerging EE in conjunction with the Energy Trust of Oregon (ETO);
 - c. Assessment of distributed generation potential;
 - d. Continue feasibility studies of biomass at Boardman;
 - e. Assessment and development of operational flexibility;
 - f. Evaluation of new analytical tools for optimizing flexible resource mix; and
 - g. Assessment of longer-term gas supply options to hedge price volatility.
 4. Transmission requirements: Retain and/or acquire required service under Bonneville Transmission Administration's Open Access Transmission Tariff.

III. COMMENTS ON ACTION ITEMS

Renewable Northwest (RNW), the Citizens' Utility Board of Oregon (CUB), Northwest Energy Coalition (NVEC), Small Business Utility Advocate (SBUA), Oregon Department of Energy (ODOE), and Commission Staff all generally recommend, or do not oppose, Commission acknowledgement of PGE's IRP. However, some offered comments to PGE's proposed Action Items.

A. Supply Side Options

1. Major Resources - Action Item (1)(a)

a. Comments

All participants support PGE's conclusion that no new major supply-side resources are required at this time. Many, however, raise general concerns about PGE's IRP planning process and its portfolio modeling.

RNW notes the difficulty of analyzing renewable resources. RNW states that the cost and performance specifications can change quickly in the renewable energy field and that the relatively slow process of evaluating the IRP can result in stale data. RNW recommends that PGE retain a consultant with expertise in pricing such resources, and that PGE conduct cost sensitivity analyses that determine a trigger point on renewable

costs that would result in a possible change of the preferred portfolio. ODOE supports this latter recommendation.

In addition, RNW requests PGE make certain changes to its next IRP. RNW asks PGE to test two specific resources that were not modeled in the 2013 IRP: (1) Montana wind; and (2) energy storage technology. RNW also requests that PGE consider, for peaking capacity and flexibility analyses, demand response and storage equally with gas plants if they compete favorably in a Request for Proposal (RFP). RNW also states that PGE could better recognize the benefits of demand response and storage throughout the entire planning and procurement cycle.

Staff generally supports RNW's observations and has additional areas it wants PGE to examine in future IRPs. Specifically, Staff wants PGE to include in its portfolio analyses more resources, such as distributed solar photovoltaic (PV), combined heat and power (CHP), utility scale solar, biomass, battery storage, and conservation voltage reduction. Staff believes that including these additional resources in future IRPs would allow PGE and the IRP participants to quantitatively assess the effects of these resources on the cost and performance of a portfolio.

RNW, NWECA, and Staff believe that PGE's preferred portfolio relies too heavily on gas-fired resources. RNW fears that such a high reliance on a single resource exposes PGE and its customers to more risks based on the historic price volatility of natural gas. Staff adds that PGE's analysis assumes a natural gas price forecast that does not differ across the high, base, and low gas price scenarios. Staff is concerned that the result of this assumption could be a bias toward a natural gas resource based on an underestimation of the cost risk of gas-dependent portfolios. RNW and Staff recommend that the company seriously review renewable-based portfolios that are comparable in risk and cost to the preferred gas-based portfolio.

CUB also observes that PGE owns a minority interest in the Colstrip coal plant located in Montana and that the plant may be impacted by the Environmental Protection Agency's (EPA) proposed Section 111(d) rules. CUB would like to see more analyses involving operating restrictions and shutdown scenarios for the Colstrip coal plant, even though it recognizes that PGE is a minority owner in the plant. Staff supports CUB's comments, and states its expectation that PGE will thoroughly examine and analyze various shutdown scenarios for the coal plant as part of its next IRP process.

b. Resolution

We conclude that PGE's IRP supports the conclusion that no new major resources are needed during the Action Plan time horizon.

We also share the concerns raised about PGE's IRP portfolio modeling. For its next IRP planning cycle, we direct PGE to hold a series of workshops with stakeholders (with at least one attended by the Commissioners) to develop a wide range of multiple portfolios

for meeting its incremental capacity and energy needs. The portfolios should include, but are not limited to:

- Increased renewable resource generation comparable in risk and cost to a portfolio based on natural gas
- Maintaining an open position (*e.g.*, buying spot or short-term electricity)
- Using the Boardman facility powered with biomass as a peaker or base-load plant
- Accelerating:
 - Energy Efficiency programs
 - Demand response programs, and
 - Development of Distributed Generation Resources
- Developing new storage facilities

We also direct PGE to thoroughly examine and analyze various shutdown scenarios for Colstrip in its next IRP process.

2. *Hydro Contract Renewals - Action Item (1)(b)*

a. Comments

PGE has numerous contracts for shares of hydro facilities. Several of these contracts will expire during the 20-year IRP planning horizon. PGE plans to renew certain contracts to the extent it is cost-effective to do so. These contracts include:

- Wells: PGE has a contract with Douglas County PUD for 147 MW of capacity and 85 MWa of energy through August, 2018.
- NextEra: PGE receives 3 percent of the output of two hydro projects for a total of 58 MW (30 MWa) under a contract that expires in 2015.
- Portland-Hydro: PGE receives 10 MWa of energy and 36 MW of capacity through August 2017.

RNW supports the Commission granting PGE the flexibility to capture these renewals without engaging in a full RFP process, provided they are cost-competitive relative to low-carbon flexible capacity bids.

Staff supports the PGE's proposal to seek to renew all cost-effective hydro contacts that expire during the IRP planning horizon. Staff also agrees with RNW that PGE should generally pursue renewables that are cost-effective and competitive.

b. Resolution

We agree that PGE should seek to renew its expiring hydro-facility contracts to the extent it is cost-effective to do so and acknowledge the company's pursuit of cost-effective hydro contract renewals.

3. *Distributed Generation: Dispatchable Standby Generation – Action Item (1)(c)*

a. Comments

PGE's Distributed Generation (DG) program includes its dispatchable standby generation (DSG) program and its Distributed PV solar program. DSG uses diesel-fueled back-up generators at commercial and industrial sites to supply capacity for its portfolio and enhanced reliability for the host customer. PGE can remotely start the generators to both displace the owner's load and supply excess power to the grid. PGE proposes to add 23 MW of DSG (for a total of 116 MW) by 2017.

NWEC and Staff generally support PGE's programs. Despite some initial concerns whether PGE had adequately evaluated DG technologies, Staff recognizes the value of PGE's DG program, encourages PGE to maintain it, and recommends we acknowledge the action item.

b. Resolution

We support PGE's proposal to continue its DG program and expressly acknowledge Action Item (1)(c) to add 23 MW of DSG by 2017.

B. Demand-Side Actions

1. *Energy Efficiency (EE) - Action Item (2)(a)*

PGE developed targets for cost-effective Energy Efficiency (EE) in conjunction with the Energy Trust of Oregon (ETO) through the year 2032. PGE determined that, for the action item planning horizon (2017), the company could acquire about 124 MWa (158 MW) of cost-effectiveness EE measures.

a. Comments

The participants raise two issues with regard to this Action Item. First, CUB, Staff, and NWEC support PGE's proposed action item, but note that Senate Bill 838 funding constraints might reduce PGE's ability to acquire all cost-effective EE targets by as much as 2 MWa per year. CUB urges we not acknowledge PGE's EE goals until the company develops a plan to meet its IRP targets in light of these constraints. Staff recommends reducing the EE target by 2 MWa per year, for an overall target

acquisition of 114 MWa. NWECA asks PGE to work with shareholders to find a solution to this issue before the end of 2014.

Second, SBUA disagrees with the use of the Total Resource Cost (TRC) test used to determine cost effectiveness. SBUA contends that the TRC test will eliminate many long-recognized EE measures. Staff does not support SBUA's concern about the use of the TRC test and also notes that this IRP docket is not the appropriate forum to consider the issue.

b. Resolution

We recognize PGE's commitment to work with the ETO to identify and pursue future cost-effective EE measures, as well as the concerns raised about the SB 838 funding cap.

We acknowledge PGE's Action Item (2)(a) as revised to read:

114 MWa of cost-effective Energy Efficiency (EE) by 2017, with a target increase to 124 MWa in the event that statutory cost limitations are relieved through legislative, or other appropriate regulatory, action.

We share concerns that, without legislative or regulatory action, PGE may not be able to achieve all cost-effective EE. We note that the parties to PGE's pending rate case, docket UE 283, have submitted a stipulation recommending the Commission open a new docket to address, among other things, solutions to any barriers that prevent the ETO from obtaining all cost-effective energy efficiency.⁵ Accordingly, we will be addressing this issue again as we review that stipulation in docket UE 283.

2. Demand Response (DR) - Action Item (2)(b)

PGE contracted with EnerNOC in 2013 to administer a new Automated Demand Response (ADR) pilot that has two phases. The first phase runs through June 2015, at which time it will be evaluated. If the evaluation is favorable, the ADR pilot will continue through 2016, at which time it will be evaluated again. If the second evaluation is positive, PGE will submit the ADR program as an ongoing capacity resource in its 2017 Annual Power Cost Update and Power Cost Adjustment Mechanism. The company expects the program to deliver 25 MW by the end of 2017.

a. Comments

Staff recommends acknowledgement of Action Item (2)(b), but identifies several issues related to DR that it believes should be further studied and improved. Staff questions PGE's reliance on a 2012 report prepared by the Brattle Group that studied DR potential in the company's service territory. Staff disagrees with some of the assumptions

⁵ *In the Matter of Portland General Electric Company, Request for a General Rate Revision*, Docket No. UE 283, Third Partial Stipulation at 2 (Sept 25, 2014).

embedded in the report and opines that enrollment levels could be improved with additional outreach to customers.

Staff also recommends that PGE continue to pursue other DR approaches, such as Critical Peak Pricing (CPP) and direct load control, once its computer and equipment upgrades provide the proper functionality. Staff states it will closely watch how events develop under the EnerNOC contract and will continue to work with PGE in this regard.

As an additional matter, Staff notes that PGE did not include Conservation Voltage Reduction (CVR) as an Action Item. Although Staff agrees that PGE has adequately met the requirements of Order No. 10-457 to commence the process of implementing CVR, Staff expects that the results of PGE's current CVR study will allow the company to include it in future IRP portfolio analyses.

b. Resolution

We acknowledge Action Item (2)(b), but share Staff's belief that PGE should pursue other DR options in light of looming energy and capacity needs. We direct PGE to notify Staff of any proposed changes to the EnerNOC contract baseline.

We also direct PGE to include a portfolio level analysis of CVR in its next IRP.

C. Enabling Studies to Inform the Next IRP

PGE proposes to perform seven research studies to inform its next IRP. We separately address each study and the participants' comments.

1. Third-Party Review of Load Forecast Methodology - Action Item (3)(a)

Pointing to recent slow load growth, PGE proposes to retain a third party to conduct a review of its load forecasting methodology.

a. Comments

Staff generally supports the study, but does not believe a third party should conduct it. Staff observes that the PGE, Staff, and stakeholders have the necessary degree of technical skills to conduct the study. Staff recommends the Commission not acknowledge a third-party study, but instead require PGE to convene a series of workshops with interested parties to examine PGE's load forecast methodology in detail.

b. Resolution.

We do not acknowledge Action Item (3)(a). We find a study to review PGE's load forecast methodology would be useful, but agree that PGE, Staff, and stakeholders have the necessary expertise and experience to provide useful input that the company can use

to improve its load forecasting methodology. We direct PGE to convene the workshops proposed by Staff.

2. *Assessment of Emerging EE with the ETO - Action Item (3)(b)*

PGE proposes to work with the ETO and other parties to better understand future EE opportunities, to assess the potential for emerging/future EE measures and technologies, and identify how best to develop and acquire cost-effective opportunities.

a. Comments

NWEC and Staff support PGE's proposal, but observes that the company has not proposed any specific acquisition goals or activities beyond those expected of a prudent utility. As such, Staff concludes this matter is not appropriate for acknowledgement.

b. Resolution

We do not acknowledge Action Item (3)(b), because PGE has not proposed any specific action during the Action Plan time horizon. We also note that PGE is required by our rules to seek and acquire all cost-effective resources, and support the company's continued work with the ETO to identify and study cost-effective EE opportunities and measures.

3. *Distributed Generation Study - Action Item (3)(c)*

PGE proposes to pursue studies and research initiatives with the goal of assessing potential business models and policies that expand the installation of cost-effective distributed generation. PGE expects the focus will primarily be on distributed solar PV. NWEC, CUB, and RNW generally support policies to expand the deployment of distributed generation (DG).

a. Comments

Staff supports acknowledgement, but recommends that the studies include all potential DG sources, not just distributed solar PV.

b. Resolution

We acknowledge Action Item (3)(c), with the condition that the studies include all potential DG sources, including CHP projects.

4. *Boardman Biomass Technical/Economic Viability - Action Item (3)(d)*

PGE proposes to further assess the technical and economic feasibility of re-powering Boardman as a biomass facility after the cessation of coal-fired operations at the plant.

a. Comments

Staff supports PGE's plan for continued assessment, but points out that PGE is not proposing any new action during the Action Plan time horizon. For that reason Staff recommends the Commission not acknowledge Action Item (3)(d).

b. Resolution

We believe that using biomass to power Boardman has potential and support PGE's plan to continue to assess the possible conversion of the facility. However, because PGE has not proposed any specific action during the Action Plan time horizon, we do not acknowledge Action Item (3)(d).

5. *Assessment and Development of Operational Flexibility - Action Item (3)(e)*

PGE plans to continue to examine its dynamic capacity needs, as well as alternatives to address those needs with both generational/operational means and market-based solutions. PGE recognizes this will require exploring participation in an evolving regional marketplace, including the Energy Imbalance Market (EIM).

a. Comments

RNW recommends that PGE's study include a review of a broad range of supply side options, from market opportunities to energy storage. ODOE comments that energy storage technologies should be included in some IRP resource portfolios.

Staff recommends the Commission acknowledge Action Item (3)(e). Staff also recommends that PGE perform more intra-hour modeling in future IRPs and updates, and evaluate joining the existing PacifiCorp-CAISO EIM.

b. Resolution

We acknowledge Action Item (3)(e). We agree with PGE and the participants that an assessment and development of operational flexibility is an important consideration going forward. We direct PGE to conduct a comprehensive analysis of all flexible resource options, including institutional and operational options that lower the need for reserves and lower the cost of reserves.

We also direct PGE, by June 30, 2015, to conduct a comprehensive cost-benefit analysis of joining the PacifiCorp-CAISO EIM and present the results at a workshop with the Commissioners. In its analysis, PGE must estimate the diversity benefits of joining the EIM, estimate the benefits of going to five minute dispatch, evaluate the potential reliability benefits of participating in the EIM, and estimate the potential benefits of deferring or eliminating the need for new generation and other flexible resources.

PGE must create a steering committee, which includes representatives of Staff, stakeholders, and industry experts, to oversee the study.

6. *Evaluation of New Analytical Tools for Optimizing Flexible Resource Mix to Integrate Load and Variable Resources - Action Item (3)(f)*

PGE proposes to examine and identify new tools to optimize the mix of flexible peaking and storage resources to minimize costs in a system with increasing levels of variable energy resources (VERs) and proportionally shrinking flexible capacity capability.

a. Comments

The company believes that future IRPs will need to look at intra-hour operational parameters that were formerly exclusive to real-time and day-ahead system operators. Staff supports the company's proposal.

b. Resolution

We acknowledge Action Item (3)(f). We agree that determining how to optimize the mix of flexible peaking and storage resources will be an important consideration for future IRPs. At the same time, we urge PGE to examine all options—physical, operational, and institutional.

7. *Assessment of Longer-Term Gas Supply Options to Hedge Price Volatility - Action Item (3)(g)*

Due to its increasing dependence on natural gas, PGE proposes to examine potential strategies, costs, and risks of pursuing longer-term supply sources for acquiring and managing natural gas

a. Comments

Staff generally supports the study of long-term natural gas procurement strategies, but observes that PGE is not proposing any specific action in regard within the time frame of the Action Plan.

b. Resolution

We do not acknowledge Action Item (3)(g). Although we agree that PGE should assess all gas supply options to manage gas price volatility, the company proposes no specific action or deliverable needing acknowledgement.

D. Transmission - Action Item (4)

PGE has determined its best alternative for meeting its transmission requirements is to retain and acquire service under Bonneville Power Administration's Open Access Transmission Tariff.

We do not acknowledge Action Item (4) because PGE is not proposing any new action item.

IV. OTHER ISSUES**A. Non-Physical RPS Compliance Alternatives****1. Comments**

Staff notes that PGE's failed to provide an updated analysis on the potential for meeting the Renewable Portfolio Standard (RPS) requirements through non-physical compliance methods. Staff points out that the Commission previously required PGE to evaluate all possible RPS compliance options in this planning cycle.

PGE responds that its 2011 IRP update considered such alternatives. The company notes that no deficiencies were identified with that chapter at that time and its analysis and conclusions remains valid.

2. Resolution

In Order No. 10-457, we directed PGE to evaluate alternatives to physical compliance with RPS requirements in a given year. We adhere to this requirement and expressly direct PGE to develop and evaluate multiple RPS compliance strategies—including alternatives to physical compliance—and recommend a least-cost strategy in its next IRP Update and future IRPs.

B. Renewable Contribution to Capacity**1. Comments**

Several participants note the new importance of the value assigned to a renewable generator's contribution to system capacity. ODOE observes this value is used to evaluate IRP resource portfolio options, to calculate the avoided costs payments to wind and solar Qualifying Facilities (QFs), and to determine the incremental cost of utility compliance with the RPS.

Staff notes that IRP proceedings are not well suited to determine this value because they are not contested case hearings. Staff adds matters are further complicated because each utility uses different methods to calculate this value.

For these reasons, ODOE, Staff, and RNW request the Commission to open a docket to establish the appropriate methodology for calculating the capacity contribution of VERs.

2. Resolution

We recognize the increasing importance and use of the value assigned to a renewable generator's contribution to system capacity. We understand the participants' desire for a more targeted and robust review of the methods used by the utilities to calculate this value. We take under advisement the recommendation to open an investigation into this matter, and will consider it at an upcoming meeting where we can hear comment from all utilities and stakeholders.

C. Climate Change and Section 111(d) and (b) Considerations

1. Comments

Staff and other participants express concern about the potential effects of climate change on a utility's system operations. Some recommended we adopt a new IRP guideline related to climate change or the EPA's proposed rules in Section 111(d) and (b).

PGE agrees that utilities should evaluate potential risks and impacts to power generation due to climate change, but does not support a new IRP guideline to address either climate change or Section 111(b) and (d) outcomes. PGE states that both of these topics impact several gas and electric utilities in Oregon and that it would be more appropriate to consider them as part of a broader discussion than one issue in one company's IRP proceeding.

Staff does not propose this docket be used to consider changes to IRP guidelines, but expects PGE to work with it and the stakeholders to develop options for how the company will model and analyze all known and expected requirements arising from potential Section 111(b) and (d) rules. Staff also encourages PGE and the stakeholders to begin the process of exploring how to analyze the potential physical aspects of climate change on normal daily operations.

2. Resolution

Although we agree that a utility should evaluate potential impacts to its system operations stemming from climate change and Section 111(b) and (d) issues, we decline to adopt a separate IRP guideline to address this issue. We support PGE, Staff, and stakeholders working together to develop the scope of an analysis of climate change impacts on system resources and operations.

We also direct PGE to work with Staff and stakeholders to explore options to model and perform analysis in its next IRP related to known, and expected, Section 111(b) and (d) requirements, and to present its results at a workshop with Commissioners.

V. ORDER

IT IS ORDERED that:

1. The 2013 Integrated Resource Plan filed by Portland General Electric Company is acknowledged with the revisions and additional requirements set forth in this order.
2. Portland General Electric Company will file its next Integrated Resource Plan no later than two years from the date of this order.

Made, entered, and effective DEC 02 2014.

Susan Ackerman

Susan K. Ackerman
 Chair

John Savage

John Savage
 Commissioner

Stephen M. Bloom

Stephen M. Bloom 16-
 Commissioner



PGE's 2013 IRP ACTION PLAN WITH COMMISSION RESOLUTIONS**1. Supply Side Actions:**

- a. Major resources: No new major supply-side resources – **Acknowledge**
- b. Hydro contract renewals: Retain legacy hydro resources if available and economic – **Acknowledge**
- c. Additional 23 MW of Dispatchable Standby Generation (DSG) by 2017 – **Acknowledge**

Additional Commission Requirements:

PGE required to hold a series of workshops with stakeholders (with at least one attended by the Commissioners) to develop a wide range of multiple portfolios for meeting its incremental capacity and energy needs. The portfolios should include, but are not limited to:

- Increased renewable resource generation comparable in risk and cost to a portfolio based on natural gas
- Maintaining an open position (*e.g.*, buying spot or short-term electricity)
- Using the Boardman facility powered with biomass as a peaker or base-load plant
- Accelerating:
 - Energy Efficiency programs
 - Demand response programs, and
 - Development of Distributed Generation Resources
- Developing new storage facilities

PGE required to examine and analyze various shutdown scenarios for Colstrip in next IRP process.

2. Demand Side Actions:

- a. 114 MWa of cost-effective Energy Efficiency (EE) by 2017, with a target increase to 124 MWa in the event that statutory cost limitations are relieved through legislative, or other appropriate regulatory, action – **Acknowledge**
- b. 25 MW of additional Demand Response (DR) by 2017 administered by third-party provider EnerNOC - **Acknowledge**

Additional Commission Requirements:

PGE to notify Staff of any proposed changes to the EnerNOC contract baseline.

PGE to include a portfolio level analysis of CVR in its next IRP.

3. Enabling Studies to inform next IRP:

- a. Third party review of load forecast methodology – **Not Acknowledge**
- b. Assessment of emerging EE in conjunction with the Energy Trust of Oregon (ETO) – **Not Acknowledge**
- c. Assessment of distributed generation potential – **Acknowledge with condition that PGE consider all DG resources, including CHP projects**
- d. Continue feasibility studies of biomass at Boardman – **Not Acknowledge**
- e. Assessment and development of operational flexibility – **Acknowledge**
- f. Evaluation of new analytical tools for optimizing flexible resource mix - **Acknowledge**
- g. Assessment of longer-term gas supply options to hedge price volatility – **Not Acknowledge**

Additional Commission Requirements

PGE to convene a series of workshops with interested parties to examine PGE's load forecast methodology.

PGE to conduct a comprehensive analysis of all flexible resource options, including institutional and operational options that lower the need for reserves and lower the cost of reserves.

By June 30, 2015, PGE to conduct a comprehensive cost-benefit analysis of joining the PacifiCorp-CAISO EIM and present the results at a Commissioner workshop. PGE required to estimate the diversity benefits of joining the EIM, estimate the benefits of going to five minute dispatch, evaluate the potential reliability benefits of participating in the EIM, and estimate the potential benefits of deferring or eliminating the need for new generation and other flexible resources. PGE also required to create a steering committee, which includes representatives of Staff, stakeholders, and industry experts, to oversee the study.

4. Transmission - Not Acknowledge

5. Other Issues

PGE to develop and evaluate multiple RPS compliance strategies, including strategies with alternatives to physical compliance, and recommend a least-cost strategy in its next IRP Update and future IRPs.

PGE to work with Staff and stakeholders to explore options to model and perform analysis in its next IRP related to known, and expected, Section 111(b) and (d) requirements, and to present its results at a workshop with Commissioners.