

PGE'S PROPOSED 2016 IRP ACTION PLAN

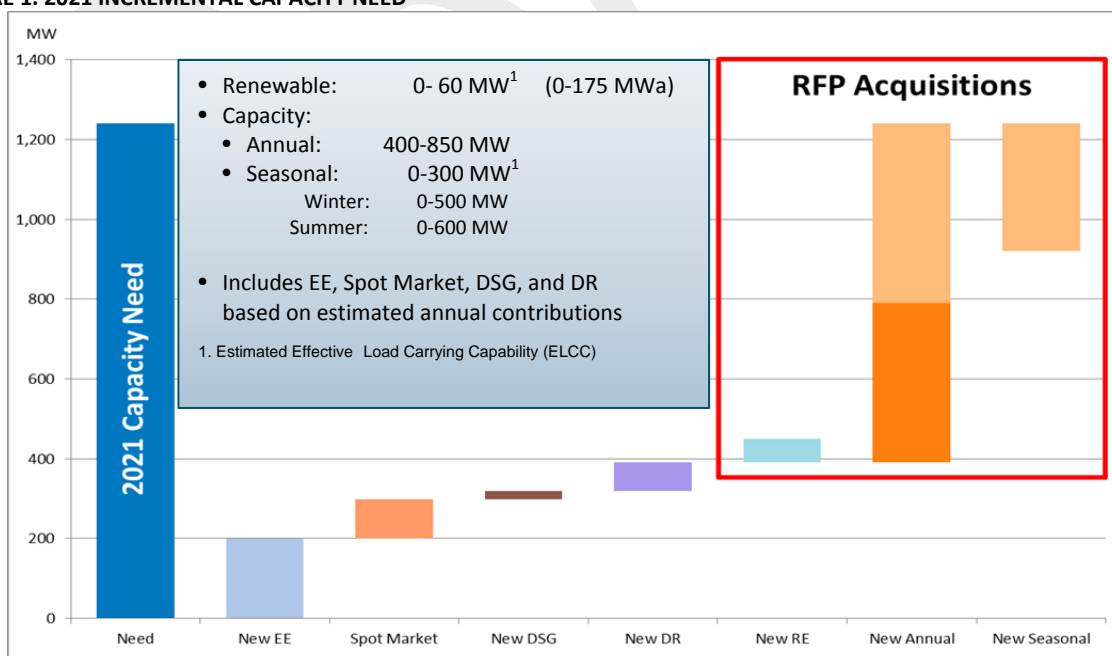
This chapter describes the proposed set of actions PGE intends to undertake over the next two to four years to acquire the identified resources and provide the best combination of expected cost and risk for PGE and its customers. PGE's near-term action plan includes the four-year period of 2017 through 2021 and is comprised of steps that will:

- Increase PGE and customer use of cost-effective demand-side resources including energy efficiency.
- Pursue acquisition of incremental renewable and efficient thermal energy resources to comply with policy, maintain resource adequacy, and benefit customers.
- Preserve existing competitive generating resources while managing emissions.
- Reduce reliance on coal-fired generation and support PGE's decarbonization efforts.

The Company's long-term strategy will focus on further reducing carbon emissions in its portfolio and on evolving its resource mix towards meeting Oregon's 50% renewable portfolio standard by 2040. PGE's near- and long-term strategies will position the Company to effectively adapt to a wide array of economic and environmental futures, while maintaining safe and reliable service for customers at a reasonable cost.

To accomplish these goals, PGE describes three categories of action: demand-side, supply-side, and integration. PGE also includes Enabling Studies in the Action Plan, which are undertaken to inform the next IRP or IRP Update. **Figure 1, 2021 Incremental Capacity Need**, visually represents the proposed resource action options, which are further described in the subsequent text.

FIGURE 1. 2021 INCREMENTAL CAPACITY NEED





1. **Demand-side Actions:**

- a. **Energy Efficiency:** PGE continues to work collaboratively with the Energy Trust of Oregon (ETO) to assure sufficient funding for acquisition of all cost-effective Energy Efficiency (EE), subject to consumer adoption constraints. PGE supports the cost-effective deployment of EE, targeting the addition of 135 MWa (176 MW)¹ from 2017 through the end of 2020, with support throughout the action plan window for continued acquisitions beyond 2020.
- b. **Demand Response:** PGE will pursue Demand Response (DR) targeting the aggregate capacity addition of 77 MW winter and 69 MW summer by 2020, with actions to implement programs for continued growth beyond 2020.
- c. **Conservation Voltage Reduction:** PGE will pursue the following strategic initiatives in order to begin CVR deployment in 2018 and have its CVR program realize a minimum savings of 1 MWa in 2020, and see continued program growth beyond 2020:
 - i. **Advanced Metering Infrastructure (AMI) Voltage Data Bandwidth Expansion.** PGE will pursue the expansion of its current AMI structure to enhance its ability to retrieve customer voltage data at the meter base at regular and frequent intervals.
 - ii. **Data analytics research and development.** PGE will continue to research and develop data analytics software and tools that will allow the Company to provide an interactive user interface where engineers can efficiently monitor and evaluate voltage data and set an alarm for those meter voltages that travel outside the acceptable voltage bandwidth.
 - iii. **Dynamic CVR Expansion.** PGE will expand its current dynamic CVR program in order to complete a system-wide implementation of CVR.

See **Chapter 6 - Resource Options** for additional discussion on EE, DR, and CVR.

2. **Supply-side Actions:**

- a. **Renewable Resources:** PGE will pursue the acquisition of approximately 0-175 MWa of RPS compliant renewable resources by 2018-2020, with a preference for maximizing the benefit of tax credits for customers. PGE's Requests for Proposal will be open to all RPS compliant resources, including unbundled Renewable Energy Certificates (REC).
- b. **Capacity Resources:** PGE's capacity need in 2021, after actions for EE, DR, CVR, RPS, DSG, and assumed imports, is approximately 819 MW.² PGE will pursue the acquisition of capacity and, based on the nature of PGE's capacity

¹ Gross value at busbar.

² Annual capacity value.



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needs, the Company may acquire an aggregate 800-850 MW through a mix of approximately 400-850 MW of annual resources, 0-600 MW of summer resources, and 0-500 MW of winter resources if available and dependent on the range of seasonal product pricing.³

- c. **Standby Resources:** PGE will pursue expansion of Dispatchable Standby Generation (DSG) by 20 MW. The incremental 20 MW targets a fleet total of approximately 131 MW by 2020 to meet standby capacity needs (non-spin) with continued actions (such as contract negotiation and execution) to achieve additional annual standby targets, if needed, beyond 2020. See **Chapter 6 - Resource Options** for additional discussion on DSG.
- d. **Hydro Contract Renewals:** PGE will continue to seek renewal, or partial renewal, of expiring legacy hydro contracts, to the extent they can be renewed cost-effectively for customers. As in the 2013 IRP, and as discussed in **Appendix D – Existing Resources**, this is a proposal for an alternative acquisition method under Guideline 2a of the Commission's Competitive Bidding Guidelines (Order No. 06-446).
- e. **Energy Resources:** PGE does not propose any specific actions for energy resources. Energy value brought by RPS or capacity resources will be evaluated through the RFP processes.

3. Integration Actions

- a. **Energy Storage:** Pursuant to House Bill (HB) 2193, and not later than January 1, 2018, PGE will submit one or more proposals to the Commission for developing a project that includes one or more energy storage systems that have the capacity to store at least five megawatt hours of energy.

4. Enabling Studies: research actions to inform the next IRP:

- a. **Wholesale Market Risk:** PGE will pursue a study to evaluate the financial and physical risks of the wholesale market given shifts in the region which may move the system to a regional capacity deficit.
- b. **Energy Imbalance Market:** PGE will pursue a study to determine how Western EIM participation influences operational assumptions. PGE will compare current planning assumptions used when modeling the day-ahead, hour-ahead, and real-time operations, with actual operations to better align planning tools with operational realities.
- c. **Energy Storage:** PGE will develop tools and methodologies to assess technical and economic feasibility of regionally located energy storage facilities, including pumped hydro storage.
- d. **Customer Insights:** PGE will design and conduct research to quantify customers' (residential, general business, and key business customers)

³ Seasonal capacity products have capacity contribution values of less than 100%. For example, a contract for 300 MW of summer and winter capacity is equivalent to approximately 240 MW of an annual resource. See **Chapter 3 – Resource Need Assessment** for additional discussion.



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perceptions and receptivity to a variety of resource options to meet future energy needs.

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