Integrated Resource Planning

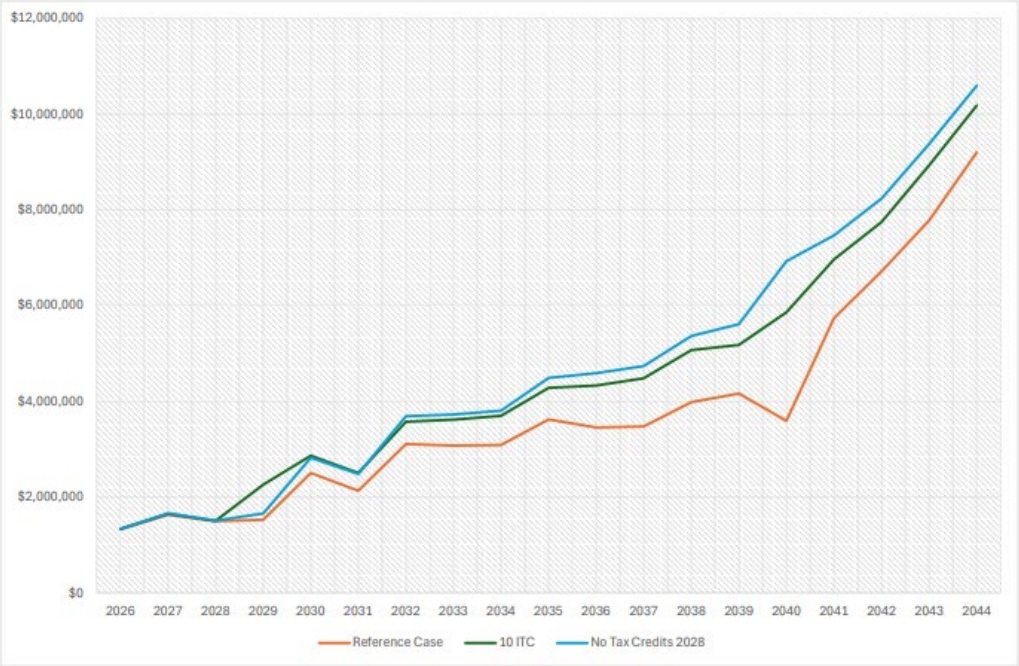
STAKEHOLDER FEEDBACK: July 2025

Received: 07/22/2025
Stakeholder: Bruce Landrey
Organization: Landrey & Company, Inc.
Applicable Public Meeting Date: 06/04/2025

STAKEHOLDER FEEDBACK 1.

Am I reading the following correctly:
Figure 89 – incremental revenue requirement increases by $9-10 billion annually by 2044

Figure 89. Annual incremental revenue requirement by tax scenario ($k)



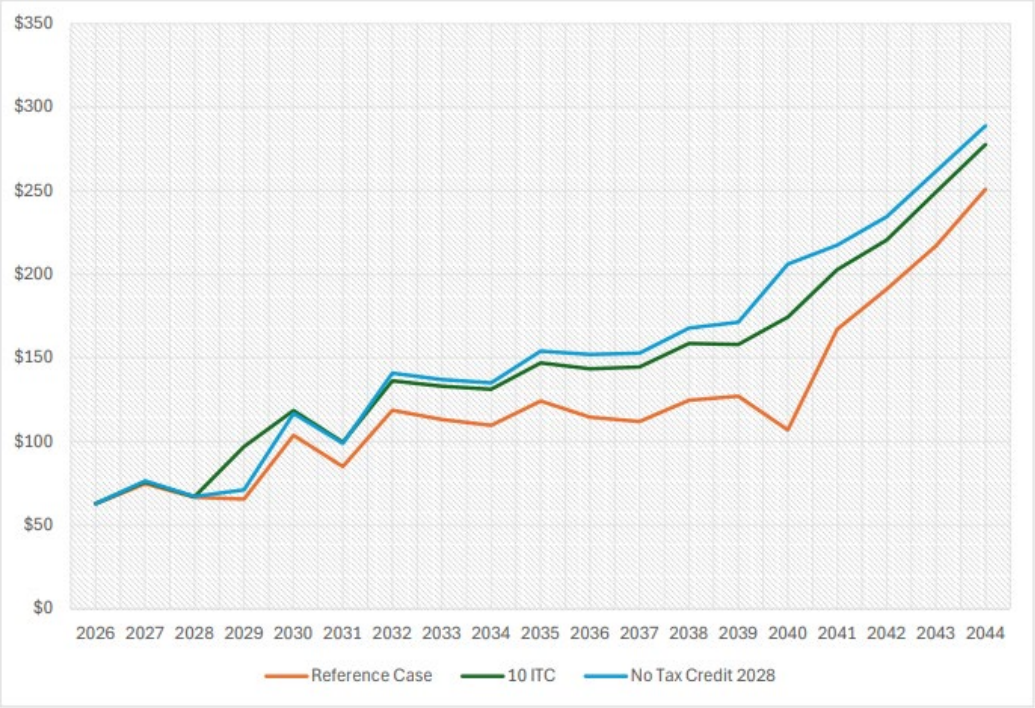
PGE RESPONSE 1.

The values in Figure 89 represent the total revenue requirement associated with IRP costs in each year, excluding baseline existing resource costs. The ~$9-10 billion shown in 2044 reflects the total amount of costs that the IRP forecasts would need to be recovered in 2044 for this resource portfolio. The term "incremental" here refers to costs above and beyond the existing portfolio and other revenue requirement costs.

STAKEHOLDER FEEDBACK 2.

Figure 90 – average cost of generation jumps from ~$60 mwh in 2026 to $250-$300 mwh by 2044

Figure 90. Annual portfolio generation cost by tax scenario ($/MWh)



PGE RESPONSE 2.

Yes, that interpretation of these values in Figure 90 is correct. According to the current IRP forecast, by 2044 portfolio generation costs are modeled to be approximately around $250-280/MWh. The percentage increase is less than what's seen in Figure 89, because load is increasing over the same time period.

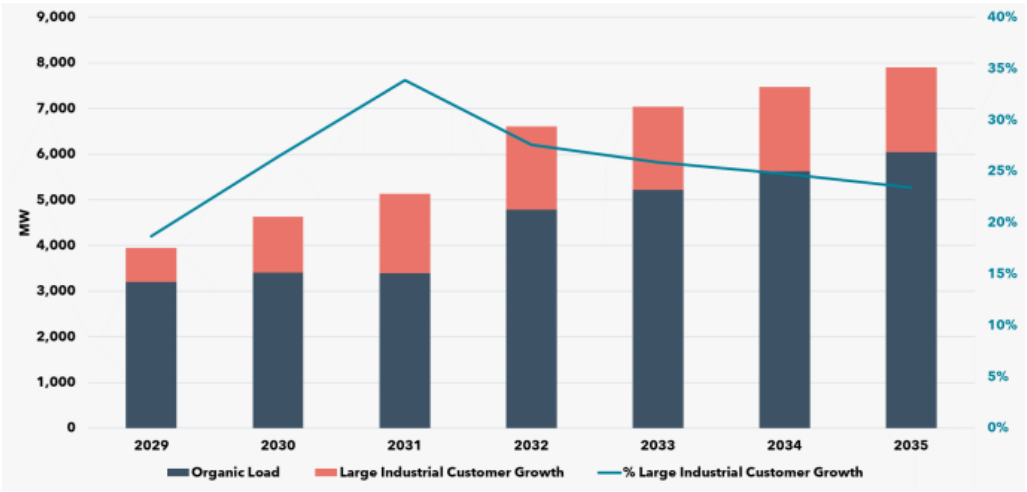
STAKEHOLDER FEEDBACK 3.

Figure 77 – shows incremental load growth for large industrials (data centers) at 2 GWe by 2043

PGE RESPONSE 3.

Figure 77 shows the quantity and proportion of resource additions associated with meeting large industrial customer growth through 2035. It does not directly show the quantity of load growth expected from large industrial customers. PGE provided information on the forecasted load from large industrial customer growth, which underlies the analysis shown in Figure 77, in our February 2025 Roundtable (slides 29 – 32). The figure on slide 32 shows that load growth from large industrial customers is forecast to be around 350 MWa in 2030 and approximately 1000 MWa in 2043. Additional detail about this component of the load forecast is provided in Section 3.1.3 of the IRP Update.

Figure 77. Cumulative Resource Additions for Large Industrial Customer Growth



STAKEHOLDER FEEDBACK 4.

- Why is the average capacity factor used for wind ~44% when the NWPPC says the Gorge average is 32%, and the Biglow Canyon historical average is 27.1%
- If Trump's Billionaires Big Bill ended the tax credits for wind and solar should the numbers in the IRP be revised.

PGE RESPONSE 4.

The simulated wind resource capacity factors represent PGE's best efforts to use publicly available data and tools in the 2023 IRP. Differences between these simulated values and observed actual performance may arise due to a number of factors, including: general site location, turbine placement/layout, technological assumptions (hub height, characteristics that define the turbine power curve, etc.), impact of wake effects, assumed versus actual outages and losses, and variances in actual weather conditions relative to the NREL data used for modeling, among others. PGE will evaluate the data and assumptions to characterize resource options during the analysis for the forthcoming IRP. We welcome any feedback regarding sources of information that might be useful in this process.

Planning exercises such as the IRP Update are produced in a planning environment that is constantly evolving. The assumptions made regarding federal tax credit policy in the IRP Update were made with the best available knowledge at the time of analysis. In order to address the uncertainty surrounding federal policies on renewable energy tax credits at the time of analysis, PGE included two scenarios that considered potential changes to these policies. These sensitivities are described in Section 2.5.1, Section 5.1.3 and Section 6.6 of the IRP Update. Going forward, PGE will incorporate updated assumptions regarding these policies to represent the best available knowledge as we begin development of the 2026 IRP.

STAKEHOLDER FEEDBACK 5.

- What is the forecasted effect on residential rates under the IRP scenarios
- What initiatives is PGE taking to change the policies that led to these scenarios – eg, revisions to HB2021, ending tax credits for data centers etc.

PGE RESPONSE 5.

PGE's IRP does not attempt to forecast customer rates due to the more limited scope of IRP analysis and the many rate design and total revenue requirement complexities. PGE is an active participant in public policy discussions and is regularly in discussions with officials and other interested stakeholders to advance policy that promotes PGE customer interest.

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RESOURCE NEEDS

STAKEHOLDER FEEDBACK 6.

PGE Summary of query: *Interest in whether the HB 2021 need talked about at the OPUC meeting is being modeled as annual or monthly or hourly.*

PGE RESPONSE 6.

The GHG emissions limits of HB 2021 are annual targets which PGE models as annual limits that reduce over time to demonstrate continual emissions reduction progress. This is further described in the 2023 CEP/IRP Update in Section 3.5.1 HB 2021. Hourly analysis is also conducted for test year 2030 to demonstrate the Preferred Portfolio's ability to meet both hourly retail load requirements and GHG compliance needs. This is further described in the 2023 CEP/IRP Update in Appendix D.

STAKEHOLDER FEEDBACK 7.

PGE Summary of query: Interest in adding large data center loads on a conditional firm basis to minimize potential grid upgrades.

PGE RESPONSE 7.

PGE's Preferred Portfolio relies on the company's corporate load forecast. Additional portfolio sensitivities are analyzed to investigate key planning uncertainties, including various load futures. For example, a portfolio excluding large customer entrants is further described in the 2023 CEP/IRP Update in Section 6.3.1 Large industrial customer growth, finding about 26 percent of the resource additions in the Preferred Portfolio through 2030 can be attributed to growth in large industrial customer load. Actual large customer growth, such as data centers, will continue to be analyzed in future IRPs with load forecasts adjusted as new information becomes available.
PGE is engaging in Docket UM 2377 to add a data center customer class and has made proposals within that docket to address potential unwarranted cost shifting as a result of increasing data center loads.

STAKEHOLDER FEEDBACK 8.

PGE Summary of query: I Interest in QF renewals and other contract renewals – whether they are assumed to occur and reduce need, or not.

PGE RESPONSE 8.

Qualified Facility (QF) energy and capacity estimates are updated for each IRP and included in IRP analysis for the needs assessment in a way that aligns with currently contracted and online resources, as well as firm known/planned resource additions. PGE assumes a 75% QF renewal rate based on direction from the OPUC. Modeled QF resources are further described in the 2023 CEP/IRP Update in Appendix C. Other contracts are assumed not to renew, with the exception of the Hydro and capacity Contract Extension scenarios discussed in [Reference]

RESOURCE OPTIONS

STAKEHOLDER FEEDBACK 9.

PGE Summary of query: Interest in the option of transmission as a resource option, i.e., just a transmission right (procured from an entity) that connects to a market, as a resource.

PGE RESPONSE 9.

This aligns with how transmission options are currently modeled in the IRP. The transmission options available each have an online/access year and associated set of proxy resources accessed. If a portfolio selects a transmission option in a given year, it indicates that the model sees a need to expand PGE's transmission network for GHG reduction or resource adequacy purposes at that time. Certain transmission options provide market access opportunities for additional capacity benefits beyond those provided by the proxy resources selected by the model. Transmission options and market access benefits were identified by consultants Energy Strategies and Energy GPS, further described in the 2023 CEP/IRP Update in Appendix J.

STAKEHOLDER FEEDBACK 10.

PGE Summary of query: Interest in evaluating availability/access to import floating offshore wind sited anywhere along the west coast, not just adjacent to Oregon.

PGE RESPONSE 10.

The current federal administration has taken a range of actions this year aimed at energy independence and deregulation, the full impacts of which are uncertain but likely to delay and increase the cost of renewable energy development. Some actions are likely to result in increased uncertainty in the path to greater commercialization of offshore wind. Due to uncertainties or lack of new final rules, some anticipated changes such as this are not necessarily directly incorporated into this analysis. Additionally, PGE's modeling of offshore wind has been limited to sites off the Oregon coast in part due to limited availability of information needed to characterize further options in modeling. With the current state of development of offshore wind off the west coast, the availability of information may limit PGE's ability to

define options outside of Oregon. PGE will consider expanding the scope of offshore wind analysis to include proxy resources outside of Oregon in the next IRP if sufficient information exists to define such options.

STAKEHOLDER FEEDBACK 11.

PGE Summary of query: Interest in modeling storage as new resource options.

PGE RESPONSE 11.

PGE plans to expand the utility-scale storage options evaluated in the next IRP, including longer duration storage, such as 100 hour batteries.

STAKEHOLDER FEEDBACK 12.

PGE Summary of query: Interest in using NREL Advanced Technology Baseline database to inform resource options and economics.

PGE RESPONSE 12.

NREL's ATB is the primary dataset that PGE uses to inform supply-side resource options and economics and works to incorporate the most up-to-date version available into the current IRP analysis being conducted.

STAKEHOLDER FEEDBACK 13.

PGE Summary of query: Include in the analysis data from PGE's RFPs and PCAM filing or maybe similar info from nearby utilities.

PGE RESPONSE 13.

PGE includes proxy resource options that represent RFP shortlist bids. This is further described in the 2023 CEP/IRP Update in Section 3.2 2023 RFP results and assumptions will be updated in the next IRP based on best available information at that time. Bidder data provided in RFP proceedings is protected information and not available for use outside of those proceedings. Separately, data from PCAM filings is not used as the current cost analysis within the IRP is focused on incremental impacts due to projections for new proxy generating resource and transmission additions.

STAKEHOLDER FEEDBACK 14.

PGE Summary of query: Please address whether a state transmission authority would be beneficial.

PGE RESPONSE 14.

This is outside the scope of IRP analysis.

PRICE FUTURES

STAKEHOLDER FEEDBACK 15.

PGE Summary of query: Most interested in price future uncertainties focused on hydro conditions, weather futures, and market clean energy.

PGE RESPONSE 15.

These topics and associated assumptions will be revisited and updated in the next IRP.

STAKEHOLDER FEEDBACK 16.

PGE Summary of query: Does weather include more frequent and/or severe wildfires? How is that risk handled?

PGE RESPONSE 16.

Wildfire risk is not explicitly represented in the IRP matrix of price futures or granularity of climatic data used. PGE's approaches to wildfire risks are thoroughly evaluated through PGE's Wildfire Mitigation Plan (WMP) efforts and also incorporated in the Distribution System Plan (DSP). PGE's approach evaluates resilience risks and contemplates strengthening capacities and system resources to minimize risks, stresses, and shocks to the system.

PORTFOLIOS

STAKEHOLDER FEEDBACK 17.

PGE Summary of query: Given the need for new solar and wind resources, will PGE try to expedite these projects to help them meet the federal cut-offs for the Investment Tax Credit, which helps reduce rate increase pressure on PGE customers?

PGE RESPONSE 17.

PGE is focused on navigating the uncertainty surrounding federal renewable energy tax incentives and is working to secure least cost, least risk clean energy projects, and is pursuing options to expedite project development through several pathways. Pricing for the 2023 RFP has been refreshed to capture tariff and tax credit policy changes and seek projects that could be in service by the end of 2027 to maximize tax credit eligibility and dampen customer price impacts. The 2025 RFP (recently issued) similarly seeks information from bidders to identify mitigation strategies related to federal policy changes. These efforts were discussed during PGE's Second Quarter 2025 Conference Call on July 25, 2025. Slides and meeting recording are available on PGE's Investor Relations webpage.

STAKEHOLDER FEEDBACK 18.

PGE Summary of query: Interest in better quantification of community and system benefits in the IRP and RFP processes.

PGE RESPONSE 18.

PGE continues to refine approaches to quantify community benefits in each successive CEP/IRP. The community based renewable energy (CBRE) request for offer (RFO) is PGE's main channel for acquiring projects that deliver unique community benefits, such as resiliency, local jobs, and energy cost savings. Launched in November 2024, it was the first solicitation following Order 24-096 and included a scoring rubric developed with the community benefits and impacts advisory group (CBIAG) input to evaluate community benefits. In the 2025 All-Source RFP, issued in July 2025, PGE is requiring bidders to describe community benefits associated with proposed projects. Information gleaned from these processes will inform future refinements to community benefits approaches in future planning and resource acquisition activities.

STAKEHOLDER FEEDBACK 19.

PGE Summary of query: Interest in assessing the effects of more frequent and longer lasting extreme weather events.

PGE RESPONSE 19.

As part of the 2023 CEP/IRP Update, 30 years of historical weather driven PGE retail load data from 1994 through 2023 were simulated at an hourly granularity. This load simulation included observations from recent extreme weather events, such as the June 2021 Heat Dome and cold weather events in 2022 and 2023, influencing measures of system reliability in the form of capacity need. PGE incorporates new weather driven load events as historical observations enter the 30-year record of simulated load data. For a more detailed discussion on the influence of weather variability in the IRP's resource adequacy assessment, reference Aug. 7, 2024 CEP/IRP Roundtable 24-4 – Capacity Need.

STAKEHOLDER FEEDBACK 20.

PGE Summary of query: Interest in the effects of bifurcated day-ahead markets in the West, with PGE and other load serving entities participating in one and not the other.

PGE RESPONSE 20.

PGE's IRP models include hourly limitations in market availability for purposes of meeting emissions compliance and modeling of resource adequacy assumes binding limitations in market access during periods of extreme reliability conditions. Beyond this scope, additional analysis of day-to-day trades and activities are more granular than what are assessed in the IRP's 20-year forward looking planning exercise. IRP Planning models do not account for market barriers or market seams issues that might emerge from bifurcation of the Western day-ahead markets.

STAKEHOLDER FEEDBACK 21.

PGE Summary of query: Interest in scenarios assessing building electrification and data centers.

PGE RESPONSE 21.

PGE investigates and will continue to analyze a wide range of load growth scenarios in the IRP, including variations in building and transportation electrification, new large industrial load additions, data center growth, and more.

STAKEHOLDER FEEDBACK 22.

PGE Summary of query: Interest in assessment of the capacity of the work force to build out the projects at the speed by which they will be required.

PGE RESPONSE 22.

This is outside the scope of IRP analysis but reflects an important aspect of Action Plan implementation that is further assessed outside of this planning process during resource acquisition activities.