BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON

UM 2141

In the Matter of PUBLIC UTILITY COMMISSION OF OREGON, PGE Flexible Load Plan.	RENEWABLE NORTHWEST'S COMMENTS ON PGE'S FLEXIBLE LOAD PLAN **March 26, 2021**

I. INTRODUCTION

Renewable Northwest thanks the Oregon Public Utility Commission ("Commission") and Commission Staff ("Staff") for this opportunity to submit comments on PGE's Flexible Load Plan ("Plan"). Overall, we feel that PGE's approach as outlined in the plan will have a positive effect on their ability to evolve with the changing grid and enable more rapid progress on their decarbonization plans, and we support Commission acceptance. In these comments we first review some of the policy background and driving forces that provide context for review of the Plan. We then discuss the Plan through the lens of the general discipline of project, program, and portfolio management to highlight advantages of using a portfolio approach for achieving and coordinating business and policy goals. We generally do not address specific elements of the Plan, as we understand this comment opportunity to be limited to PGE's proposed move to portfolio-level planning, not to the Plan's details; we intend to engage with details in future comment opportunities. We look forward to continued engagement in this docket and PGE's other efforts to modernize and decarbonize its system.

II. COMMENTS

1. Alignment with SB 978 and EO 20-04

In January 2018, the Commission initiated a process under SB 978 (2017), investigating "how developing industry trends, technologies and policy drivers in the electricity sector might impact the existing regulatory system and incentives currently employed by the Commission."[1] The Commission's final report discussed not only the potential for flexible loads to emerge as a key

[1] SB 978, section 1(1) (2017).

resource in a modern, decarbonized grid that relies on renewable resources for energy,[2] but also the potential need to realign regulatory incentives to foster beneficial grid modernization.[3] Since Renewable Northwest had discussed the potential of performance-based regulation ("PBR") "to realign utility incentives with Oregon's public policy goals,"[4] we were pleased that the Commission's final report committed to "launch a performance-based regulation process to align utility incentives with customer objectives," inviting proposals "under the PUC's existing 'alternative form of regulation' statute."[5] We view PGE's Flexible Load Plan as building on these earlier conversations and commitments. Indeed, PGE highlights that one of the Plan's main purposes is to "[c]ommunicate to the Commission, stakeholders and policy makers that PGE is open and ready to discuss regulatory alignment to best situate the company to accelerate investment in flexible load and similar distributed energy resources."[6]

After the conclusion of the SB 978 process, on March 10, 2020 Governor Kate Brown issued Executive Order 20-04 ("EO 20-04"). EO 20-04 directs state agencies, including the Commission, to "exercise any and all discretion and authority" to reduce Oregon's GHG emissions 45% below 1990 levels by 2035 and 80% below 1990 levels by 2050.[7] In a "whereas" clause, EO 20-04 explains why achieving these targets is so important:

> [G]iven the urgency and severity of the risks from climate change and ocean acidification, and the failure of the Legislature to address these immediate harms, the executive branch has a responsibility to the electorate, and a scientific, economic, and moral imperative to reduce GHG emissions and to reduce the worst risks of climate change and ocean acidification for future generations, to the greatest extent possible within existing laws[.][8]

Throughout the EO 20-04 implementation process, Renewable Northwest has recommended that the Commission prioritize solutions that promote decarbonization as key activities to carry out the Commission's directive under EO 20-04. This recommendation has extended to load flexibility. For example, in our October 28, 2020 comments to the Commission, we called out electrification with flexible-load benefits as an appropriate focus area in EO 20-04 implementation.[9] We were therefore encouraged to see that the Plan centers decarbonization, not

[2] *See*, *e.g.*, SB 978 Report at 10 (Sept. 2018) (observing that "[d]irect load control programs have potential to become firm flexible resources that utility systems will need in order to integrate the growing variable energy resources in the future").

[3] *Id.* at 17-18; for example, the Commission pointed out that "[d]emand-side and distributed options, which might be less expensive than utility-scale investments, are … disadvantaged in a regulatory system that rewards both utility capital investments and higher electricity sales."

[4] Oregon Public Utility Commission, SB 978, Written Comments of Renewable Northwest at 4 (July 10, 2018).

[5] Oregon Public Utility Commission, *SB 978 Actively Adapting to the Changing Electricity Sector* at 3 (Sept. 2018).

[6] Plan at p. 8.

[7] EO 20-04, sections 2 & 3(A).

[8] *Id.* at p. 3.

[9] Comments of Renewable Northwest on EO 20-04 Draft Work Plans at p. 5 (Oct. 28, 2020).

only tying the policy to PGE's interest in discussing "regulatory alignment,"[10] but comprehensively integrating decarbonization into every facet of the Plan. PGE's focus on decarbonization in the Plan underlies our general support for PGE's Plan and the more detailed comments that we offer below.

2. Importance of Flexibility in the Evolving Grid

For a number of years, literature has predicted that the future of the electric grid will require a paradigm shift by society from the idea of electricity on demand (i.e. generation follows load) to a new normal where grid balance is achieved by loads following generation. This transformation has already begun and is being driven by a number of factors, including the growth of renewable energy both in front of and behind the meter ("BTM"), consumer choice, increasing prevalence of "smart" devices, technology advances and cost declines in battery storage, and the scientific imperative and growing policy pressure to decarbonize our society. The variable generation profiles of renewable power generators and increases in the variable loads associated with building electrification and electric vehicle ("EV") charging combine to create both a need for the power system to possess flexibility as a core characteristic and, at the same time, ways to meet that need. Research[11] and field demonstrations[12] have shown that aggregation of BTM distributed energy resources ("DERs") and incorporating operable BTM devices (e.g. water heaters, thermostats, and EV chargers) have the ability not only to shave peak loads but also to provide ancillary grid services such as power quality stabilization.[13]

Load flexibility can provide significant savings, primarily through avoided generation capacity investments, but also through deferral of the costs associated with transmission and distribution system infrastructure as well as providing ancillary services. One study from The Brattle Group suggests that in the United States there is the potential to provide 200 GW of cost effective load flexibility, representing 20% of the projected 2030 US peak, and resulting in more than $15 billion of national benefits.[14] The low-hanging fruit of this potential is the modernization of existing conventional demand-response ("DR") programs through revamped program design and customer engagement, which could account for 40% of that 2030 potential.[15] In a recent report, Vibrant Clean Energy's Chris Clack modeled the distribution side in detail and then co-optimized at the distribution-utility interface along with the overall system stack and found that DERs have the potential to save more than $400B in a scenario reflecting a 95%-by-2050 clean energy

[10] *E,g,* Plan at p. 7 (noting that "Chapter 5 attempts to open a discussion on regulatory alignment of the resource, such that customer, stakeholder, and shareholder interests are aligned around the procurement of flexible load as we decarbonize our system at the greatest benefit and at least cost to our customers").
[11] A Model-Predictive Hierarchical-Control Framework for Aggregating Residential DERs to Provide Grid Regulation Services: Preprint
[12] Pacific Northwest GridWise™ Testbed Demonstration Projects Part I. Olympic Peninsula Project
[13] K. Kok et al., "Dynamic Pricing by Scalable Energy Management Systems - Field Experiences and Simulation Results using PowerMatcher," presented at IEEE PES General Meeting 2012, San Diego, CA, 2012.
[14] The National Potential for Load Flexibility: Value and Market Potential Through 2030
[15] *Id.*

standard. These savings are in large part because DERs can shift loads, reducing peak demand and increasing utility-side grid-loading factors.[16]

Moreover, flexible resources factor into our current need to re-examine traditional approaches to resource adequacy ("RA").[17] The RA paradigm that we are currently moving away from was first conceived in the 1940s and designed for centralized fossil fuel based generators.[18] As the Commission well knows and is currently addressing in dockets such as UM 2011 (General Capacity Investigation) and UM 2143 (Investigation into Resource Adequacy), the continued applicability of the old, relatively brittle RA concept to today's evolving grid, resources, and technologies needs is being overhauled and replaced with sophisticated, probabilistic techniques that incorporate modern supply- and demand-side resources.[19] As we work through this change, flexible loads are helping to enable a new approach to RA that has the potential to reduce demand during peak or high loss-of-load-probability hours and lower the cost of ensuring reliable power supply.[20]

This modernization of DR programs requires a shift by utilities in order to develop advanced DR capabilities. PGE's Plan represents a step in that direction by treating all DR programs in a holistic and coordinated manner. As also referenced in the Plan, Lawrence Berkeley National Laboratory ("LBNL") defined four different categories of DR that act and overlap across timescales from seconds to years: shape, shift, shed, and shimmy (represented in Figure 1).[21] The overall timeline spans the range of possible grid needs that go well beyond the traditional shedding of peak loads. The overlap of different categories is also important because it means that depending on the particular grid situation, there could be multiple scenarios of different DR options to meet the grid's need.

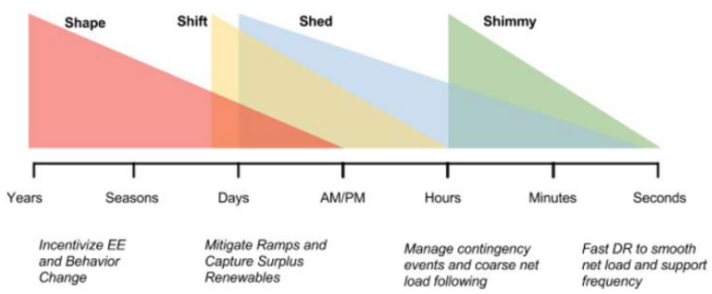


Figure 1: Demand Response types represented over timescale for grid service dispatch frequency and/or response.

With a portfolio-level approach as PGE has proposed, planners can determine the optimal combination of DR applications while remaining product-agnostic. In this sense, a particular DR approach could be represented by a capability versus timeline curve. With an overarching portfolio perspective, a combination of various capabilities can be implemented as a specific

[16] Executive Summary: Why Local Solar For All Costs Less
[17] Ensuring DER inclusion in capacity markets may require a rethink of resource adequacy
[18] The Economic Ramifications of Resource Adequacy White Paper, p. 6
[19] There's a paradigm shift coming. And it isn't about renewables.
[20] Why Climate Advocates Should Be Interested in Resource Adequacy
[21] http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442452698 (Alstone, et al 2017) (from SDR PIM paper)

solution (*i.e.* combination of DR resources) for a specific need. This type of coordinated and optimized approach would be all but impossible with a siloed project-by-project structure.

3. Benefits of holistic project portfolio management

One of the biggest benefits of using project portfolio management ("PPM") is the ability to stay grounded in the big picture. PPM enables an organization to look at all the projects that are aligned toward the same goals, prioritize them based on consistent criteria, and ultimately select the set of projects that best balances business goals, risk, and resource availability.[22]

Another benefit of using PPM is that it fosters collaboration rather than competition by centering consistent goals. From a systems-thinking perspective, the portfolio can be considered the overall system with a particular purpose (*i.e.* strategic goal), and the projects within the portfolio are subsystems. Keeping a subsystem's goals in harmony with the overall goal is one of the criteria for successful systems.[23] PGE discusses how they are re-organizing in order to break down silos and align priorities with the overall strategic goals.[24]

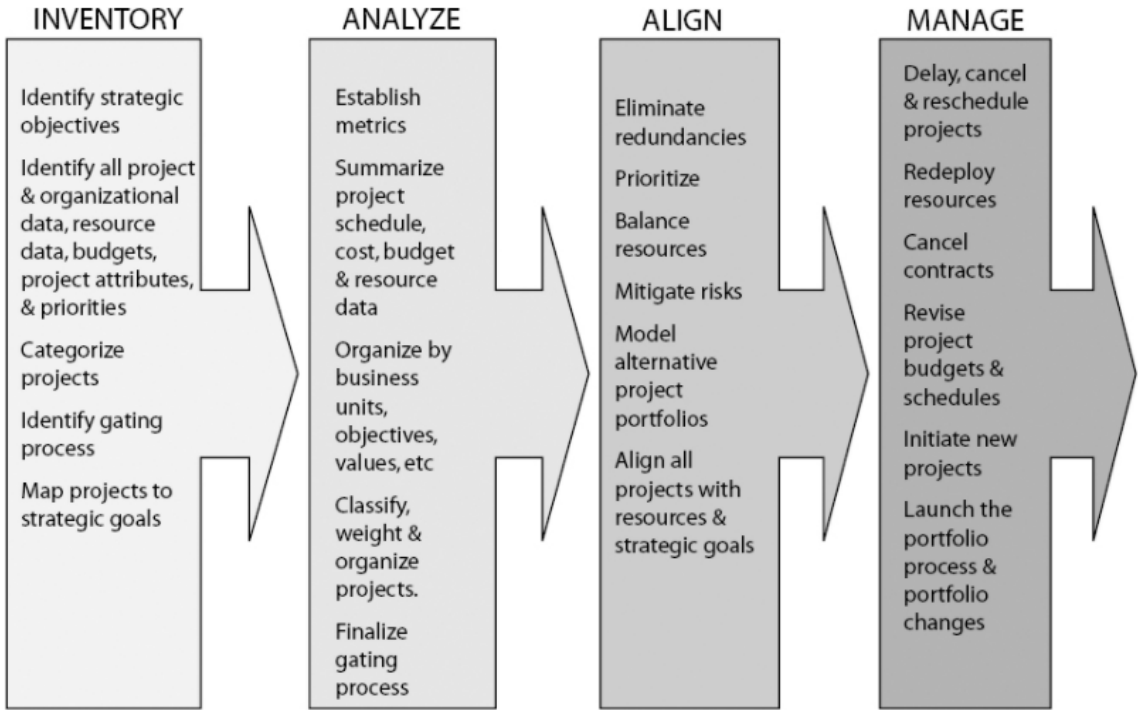
A portfolio approach should not only help to align PGE's project activities with its strategic goals but also help to optimize financial resources. PGE highlights how the project-by-project approach employed thus far has led to each project needing its own set of supporting resources, budgets, and regulatory filings. Shifting to a portfolio approach should enable support functions to be merged and shared across all of the projects, and then to be assigned to the right projects as part of the overall project prioritization and budgeting process. Optimizing the support functions at this portfolio level will likely result in cost savings and improved efficiency through better coordination. Additionally, PGE staff could more easily share lessons learned across all projects and thus help to avoid mistakes being repeated on multiple projects.

4. Feedback on specific aspects of the Plan's proposed portfolio management approach

Like the benefits of using a portfolio approach to managing programs and projects, best practices are also well documented. In this section, we look at where the Plan's approach emulates established best practices.

The Project Management Institute ("PMI") outlines a proven portfolio management process that enables continuous improvement and optimization, as shown in the figure below[25]:

[22] https://www.ecosys.net/blog/10-benefits-of-project-portfolio-management/
[23] Donella Meadows, Thinking in Systems: A primer
[24] Plan, p. 35
[25] Figure from Miller, J. (2002). A proven project portfolio management process. Paper presented at Project Management Institute Annual Seminars & Symposium, San Antonio, TX. Newtown Square, PA: Project Management Institute. https://www.pmi.org/learning/library/proven-project-portfolio-management-process-8503



The Plan gives an overview of how PGE plans to implement its portfolio management. In Chapter 2, the company reviews its strategic goals; it also defines categories for project evolution stages with specific metrics and stage gates that it will use in its new program development framework. Chapter 3 lays out focus areas and strategies for achieving its overall goals for flex loads as a resource, highlighting synergies between products that can be bundled for more efficient deployment.

PGE is already engaging in many of the activities in the "inventory" and "analyze" blocks in the figure above. We recommend that activities in the "align" block receive stakeholder scrutiny to ensure approved budgets are invested in the right projects. PGE discusses their already ongoing internal reorganization to break down silos and eliminate redundancies. Prioritization should involve stakeholder engagement and a visible ranking process, especially to the extent it reflects not just internal goals but also public policy goals. Similarly, external review is an important tool to make sure risks have appropriate mitigation strategies. In the proposal, PGE discusses how it will manage its pipeline of projects and adjust as necessary to emerging conditions. The company's ability to continuously examine how best to allocate resources among its different flexible load projects is one of the primary reasons to accept this Plan, as it should enable PGE's approach to be more agile in nature and less constrained by strict adherence to traditional, linear waterfall methods.

PGE's proposed approach also incorporates a number of other "best practices" aspects. These include the reporting structure and frequency, the use of demonstration projects to vet ideas, product lifecycle management, and a coherent set of metrics and stage gates that ensure all programs are evaluated in the same manner.

III. CONCLUSION

Renewable Northwest again thanks Staff for this opportunity to respond to PGE's Flexible Load Plan proposal. Overall, we applaud PGE for its commitment to adapt to the new energy landscape by working to maximize the value streams that the demand side can provide. We believe the portfolio approach will enable the company to better integrate new renewables and to more effectively reach their strategic goals, including in particular the company's commitment to decarbonization. We look forward to further engagement with Staff, PGE, and other stakeholders on the details of the Flexible Load Plan.

Respectfully submitted this 26th day of March, 2021,

/s/ Micha Ramsey
Micha Ramsey
Principal
Dr. Micha Ramsey Consulting, LLC

/s/ Max Greene
Max Greene
Regulatory & Policy Director
Renewable Northwest