



# Oregon

Kate Brown, Governor



550 Capitol St. NE  
Salem, OR 97301  
Phone: 503-378-4040  
Toll Free: 1-800-221-8035  
FAX: 503-373-7806  
[www.oregon.gov/energy](http://www.oregon.gov/energy)

November 19, 2021

Northwest Power and Conservation Council  
851 SW 6th Avenue #1100  
Portland, Oregon 97204

Council Members and Staff:

The Oregon Department of Energy (“Department”) welcomes the opportunity to offer written feedback to the Northwest Power and Conservation Council’s (“Council” or “NWPPCC”) draft of the 2021 Northwest Power Plan (“2021 Plan”). [The Department](#) helps Oregonians to make informed decisions and maintain a resilient and affordable energy system. We advance solutions to shape an equitable clean energy transition, protect the environment and public health, and responsibly balance energy needs and impacts for current and future generations.

## I. Introduction

Our comments are informed by the state’s commitment to deep decarbonization through both executive action and legislation. Executive Order 20-04 directs state agencies to [take actions](#) to reduce greenhouse gas emissions to 80 percent below 1990 levels by 2050. Meanwhile, House Bill 2021, signed into law in July 2021, requires Oregon’s large investor-owned utilities and electricity service suppliers to reduce greenhouse gas emissions associated with electricity sold to Oregon consumers to 80 percent below baseline emissions levels by 2030, 90 percent below baseline emissions levels by 2035, and 100 percent below baseline emissions levels by 2040. It is in this context that the Department looks to the 2021 Plan to offer the type of comprehensive and objective regional analysis that only the Council can provide to identify the optimal regional resource strategy for Oregon to achieve its aggressive climate policy objectives.

While the Department is supportive of several additions to the 2021 Plan compared to previous Plans, the Department also has significant concerns with other elements of the Plan as currently drafted. Our comments below focus on some of these concerns, including in the following areas: the need for more robust regional decarbonization analysis; historically low targets for energy efficiency; low natural gas price forecast; the treatment of energy storage and distributed energy resources; and resource adequacy. In sum, the Department believes it is critical for the region to have robust, objective analysis of the range of tools available to the power sector to meet its clean energy and climate objectives in a manner that can alleviate pressure on the hydropower system and minimize the potential adverse impacts of energy development.

## II. Support for New Additions to the 2021 Plan

The Council has taken significant steps forward in several areas with the 2021 Plan, including the incorporation of climate impacts into baseline forecasting; the development of more granular modeling of the regional hydropower system; and considerations of equity.

***Climate Impacts.*** It is clear Oregon's climate is already changing. In 2021 alone, Oregon has been visited again by catastrophic wildfires, historic ice storms that knocked out power to hundreds of thousands of customers in the Willamette Valley, and temperatures in late June that soared above 115 degrees in the Portland metro region. ODOE supports Council's incorporation of the direct and indirect impacts of climate change in its projections of temperature, precipitation, and river flow for its forecasts of regional electricity demand and hydropower system operations.<sup>1</sup>

We agree with the Council's determination that this method better predicts future conditions than using the observed 80-year historical records, which had been the previous practice. Furthermore, we appreciate Council staff's effort to develop regional-specific climate impact estimates using

---

<sup>1</sup> Draft 2021 Power Plan, page 4-24.

downscaled projections from the well-vetted General Circulation Models.<sup>2</sup> These efforts add considerably to the value of the 2021 Plan and can help guide other modeling efforts for the region.

**Modeling Hydropower Flexibility.** The accelerated deployment of wind and solar generation to meet our climate objectives demands that the electric sector adapt to integrate these variable output resources. Gas turbines and battery storage systems can provide the type of flexibility necessary to do this, but so too can the northwest's robust, carbon-free hydropower resource. We appreciate the Council investing significant resources to redevelop its GENESYS model to improve its modeling of the flexibility of the region's hydropower system.

It is critical that Oregon understand the true limits of the hydropower system to integrate renewable generation as we push to meet our climate goals in the years ahead. However, the Department has heard from several stakeholders concerns that this new modeling has now attributed *too much* flexibility to the region's hydropower resource compared to its historic operations, or what would be prudent in the future to achieve the multiple objectives of the region's hydropower system. While we support efforts to develop a more granular understanding of the flexibility of the hydropower system, we also appreciate the need for accuracy and encourage the Council to continue refining its modeling in this regard.

**Equity Considerations.** The Department also supports the Council's efforts to address the existing data gap related to diversity, equity, and inclusion in the power planning process for the first time. Section 5 of the 2021 Plan, for example, addresses conservation standards and the need to ensure equity in the adoption of energy efficiency measures. We would like to see additional consideration given to inequities associated with the supply-side of the system. Specifically, proximity of historically underrepresented and low-income communities to local air pollution from generating facilities, or land-

---

<sup>2</sup> Draft 2021 Power Plan, page 3-12.

use impacts from transmission infrastructure. Incorporating this type of information could help states across the region to prioritize future investments or retirements of existing assets in the power sector.

### III. Areas of Concern with the 2021 Plan

While the Department recognizes the immense amount of work—by the Council members, their state advisory staff, the Council’s power division, and the region’s many stakeholders—that went into the development of the 2021 Plan, we have identified several areas of concern that should be addressed to improve the value of this Plan for the region. Ideally, ODOE would like for the Council to revisit these issues before publication of the final 2021 Power Plan. If it is not practical to address these issues given the timeframe required to finalize the Plan, we encourage the Council to open investigations into these issues as soon as possible upon completion of the 2021 Plan.

**Deep Decarbonization.** The Council’s decarbonization scenario is not sufficiently aggressive to model the level of GHG reductions necessary in Oregon to achieve its climate policy objectives. The Department supports the inclusion of a Pathways to Decarbonization scenario in the Plan, which appears to model a reduction in GHG emissions of approximately 40 percent below 1990 emissions by 2050. We appreciate that the reason the Plan includes this decarbonization scenario is that the incremental demand on the electric system from a more aggressive decarbonization scenario led to a resource expansion path beyond the capabilities of the structure of the analysis. We further acknowledge that the scenario modeled does provide a directional analysis of the possible impacts expected from decarbonization.

However, Oregon is committed to an 80 percent reduction in economy-wide emissions below 1990 levels by 2050, as well as 100 percent decarbonization of the power sector by 2040. We also note that Washington has adopted a goal of net-zero emissions by 2050, and that many other states across the west have adopted similarly aggressive decarbonization goals. As a result, there is an urgent need in

these states, including in Oregon, for independent modeling (the type the Council can provide) to understand the likely significant impacts on the identified optimal resource strategy (e.g., higher loads due to electrification, more energy efficiency, more storage, more aggressive renewable build out). Other research efforts have modeled aggressive decarbonization scenarios including the Clean Energy Transition Institute [Northwest Deep Decarbonization Pathways Study](#), and E3 [Pacific Northwest Pathways to 2050](#).

Notably, we believe that the Council is uniquely situated with its decades of northwest-specific modeling experience, its highly regarded reputation in the region, and its extensive engagement with regional stakeholders to build upon these efforts to provide meaningful guidance to Oregon and the region. Analysis by the Council that reflects an 80 percent economy-wide emissions reduction below 1990 levels by 2050 would add considerably to this existing body of work, and lend credibility and relevance to the Council's regional power planning. If not feasible to include this type of analysis in the 2021 Plan, we encourage the Council to engage in this type of analysis as soon as practical after publication of the Plan.

**Energy Efficiency.** The Council's work is crucial to ensuring Oregon and the region identify and pursue all cost-effective energy efficiency. The region has saved over 7,200 average megawatts from energy efficiency since 1978, which is 20 percent more electricity than the entire state of Oregon consumed in 2019. The Council's decades of work have established the region as a national leader on energy efficiency by consistently meeting increased demand for electricity through energy efficiency. We offer two recommendations on energy efficiency: (1) adoption in the 2021 Plan of a regional energy efficiency target of at least 1,000 aMW, and (2) a re-evaluation of the Council's cost-effectiveness methodology for energy efficiency following publication of the 2021 Plan.

The Department encourages the Council to adopt a regional energy efficiency target for the Action Plan period of the 2021 Power Plan of *at least* 1,000 aMW, which we note would still represent a

significant reduction from the target adopted in the previous Power Plan. We encourage adoption of this target now, along with further near-term evaluation to quantify the many diverse benefits of energy efficiency. Adopting a range instead of a single target would make it challenging to measure success and would remove the incentive to acquire resources beyond the low end of the target. This could result in leaving energy efficiency on the table that could deliver additional benefits to meeting capacity and decarbonization objectives simply because those benefits are not adequately captured by current modeling. A higher-end, single point target is important because it would support stable but significant regional energy efficiency efforts, infrastructure, and jobs. In 2019, there were nearly 43,000 jobs in the energy efficiency in Oregon alone.<sup>3</sup> This type of target would help to mitigate the risk of backsliding should there be a large scale-down of efficiency programs and activities. Reduced capacity to deliver energy efficiency over time cannot be easily replaced or ramped up.

The diverse benefits of energy efficiency that current modeling may not adequately capture include:

- Decarbonization. Saving 7,200 aMW from energy efficiency since 1978 with little to no environmental footprint enabled the region to avoid building many new power plants. According to the Council's analysis, this annually avoids greenhouse gas emissions of approximately 22 million metric tons of carbon dioxide. Energy efficiency is a pillar of the region's and Oregon's decarbonization plans.
- Capacity. There is value to the power grid in the reduction of kWh of energy from investments in energy efficiency, but there is also significant value in the kW capacity reductions in the coincident peak demand that can accompany investments in energy efficiency.
- Resilience, Reliability, and Reserves. Low-probability, high-impact events can be very expensive. Reduced system demand from more efficient buildings and equipment could mitigate some of the impacts of these types of events. Energy efficiency also provides

---

<sup>3</sup> Oregon Department of Energy, *2020 Biennial Energy Plan: Energy by the Numbers*. Page 39. Available online: <https://www.oregon.gov/energy/Data-and-Reports/Documents/2020-BER-Energy-by-the-Numbers.pdf#page=39>

resilience benefits for individual customers who can better withstand severe weather events in well-insulated buildings with high-efficiency appliances. Energy efficiency also makes our electrical system more reliable, dependable, and can help mitigate transmission constraints. Energy efficiency also works as a highly valued reserve, and how it functions as a reserve should be fully analyzed.

- Economic Impacts. Investment in energy efficiency increases local economic growth and jobs. Energy efficiency has also been shown to improve health outcomes from less air pollution, and can help reduce the energy burden on disadvantaged communities.
- Enabling Flexibility. Increasingly, investments in energy efficiency measures may be paired with demand response capabilities to provide new flexibility to the electric grid. This type of flexibility will become more important in the years ahead to cost-effectively integrate the growth in output from variable wind and solar projects, as well as distributed energy resources, that is necessary to meet clean energy policy objectives.

For the 2021 Plan, adoption of a single target of at least 1,000 aMW would allow the Council to send a clear signal that the region continues to prioritize energy efficiency and that it recognizes the varied benefits of energy efficiency beyond the traditional metric of kWh of energy saved, even if those benefits are not adequately quantified with current tools. Going forward, the Department encourages the Council to engage with regional stakeholders in a public process to reconsider how its cost-effectiveness methodology for energy efficiency can better represent the full range of benefits that investments in efficiency can deliver.

**Natural Gas Price Forecast.** The assumed price of natural gas affects the resource strategies selected by models. Given the historic volatility of natural gas prices in the United States, combined with expanding liquefied natural gas exports, the Department suggested in our comments to the Mid-Term Assessment of the Seventh Power Plan that the Council should revise its natural gas price forecast to evaluate more risk of higher gas prices in the near-term future.

The Department notes that the natural gas price forecast adopted by the Council shows a high-end price of approximately \$5/mmBtu by 2025.<sup>4</sup> Meanwhile, according to the U.S. Energy Information Administration, natural gas spot prices have been steadily climbing since Summer 2020, with prices eclipsing \$5.50/mmBtu in October 2021.<sup>5</sup> The Council's mid-range forecast for 2021 is less than \$3.00/mmBtu. While EIA shows continued robust domestic production of natural gas,<sup>6</sup> there has been a significant increase in U.S. exports of LNG in the last two years.<sup>7</sup> Given global demand and significantly higher natural gas prices in foreign markets, the Department expects upward pressure to remain on domestic natural gas prices. As a result, we believe that the Council should revisit its natural gas price forecast to ensure that the 2021 Plan adequately captures the risk of higher gas prices on the identified resource strategy.

**Modeling of Battery Storage.** The cost of lithium ion battery storage systems continues to decline at a rapid pace, with prices declining 13 percent in 2020 alone according to Bloomberg New Energy Finance.<sup>8</sup> This decline in costs has made it difficult to keep up with the changing pace of expected deployment of grid-connected battery storage systems.

For example, the California Independent System Operator had approximately 550 MW of grid-connected battery storage on its system at the end of 2020. In September of this year, however, CAISO had 1,500 MW of connected battery storage capacity, and expects to reach 3,000 MW by the end of

---

<sup>4</sup> Draft 2021 Power Plan, page 6-50.

<sup>5</sup> U.S. Energy Information Agency, *Henry Hub Natural Gas Spot Price*. Available online: <https://www.eia.gov/dnav/ng/hist/rngwhhdm.htm>

<sup>6</sup> U.S. Energy Information Agency, *U.S. Natural Gas Marketed Production*. Available online: <https://www.eia.gov/dnav/ng/hist/n9050us2a.htm>

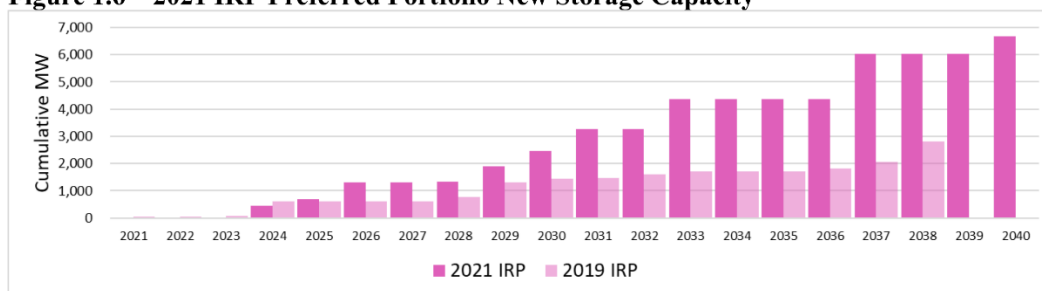
<sup>7</sup> U.S. Energy Information Agency, *Liquefied U.S. Natural Gas Exports*. Available online: <https://www.eia.gov/dnav/ng/hist/n9133us2m.htm>

<sup>8</sup> Bloomberg New Energy Finance, *Electric Vehicle Outlook 2021*. Available online: <https://about.newenergyfinance.com/electric-vehicle-outlook/>



2021—a six-fold increase in just 12 months.<sup>9</sup> This trend has also now been reflected by the CAISO in its 2021-22 Transmission Planning Process, which includes more than 9,300 MW of battery capacity in its base case (compared to little more than 1,000 MW in its 2020-21 Transmission Planning Process).<sup>10</sup> Department staff also closely track the integrated resource plans of Oregon’s investor-owned utilities and are beginning to see similar trends here. The following figure from PacifiCorp’s 2021 IRP, for example, shows the dramatic increase in the selection of battery storage in its identified preferred portfolio between its 2019 and 2021 IRPs:<sup>11</sup>

**Figure 1.6 – 2021 IRP Preferred Portfolio New Storage Capacity\***



\*Note: Resources are shown in the first full year of operation (the year after the year-end online dates).

While the Council’s decarbonization scenario selects 800 MW of battery storage,<sup>12</sup> battery storage does not appear in the Council’s recommended resource strategy. We do not have an adequate understanding of how the Council modeled battery storage to understand why the recommended resource strategy did not select it. That said, given the rapid decline in battery storage costs, and what we are observing in CAISO and utility IRPs in Oregon, we encourage the Council to revisit its assumptions

<sup>9</sup> California Independent System Operator, *California ISO Shows Dramatic Impact of Storage Added to the Grid*. Press Release: September 13, 2021. Available online: <http://www.caiso.com/Documents/California-ISO-Shows-Dramatic-Impact-of-Storage-Added-to-the-Grid.pdf>

<sup>10</sup> Bishara, J., *Preliminary Policy and Economic Assessment and Study Updates*. Presented at 2021-2022 Transmission Planning Process Stakeholder Meeting. November 18, 2021. Slides 23 & 25 on pages 11-13. Available online: <http://www.caiso.com/InitiativeDocuments/Presentation-2021-2022TransmissionPlanningProcess-Nov18-2021.pdf>

<sup>11</sup> PacifiCorp, *2021 Integrated Resource Plan*. Pages 11-12. Available online: <https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2021-irp/Volume%20I%20-%209.15.2021%20Final.pdf>

<sup>12</sup> Draft 2021 Power Plan, page 6-84.

on its modeling of energy storage. We believe that battery storage is likely to contribute significantly to the region's resource mix in the years ahead, and can provide a key source of flexibility to help maintain system reliability and integrate wind and solar resources while alleviating pressure on the region's hydropower system and reducing the need to dispatch gas peaker plants.

***Treatment of Distributed Energy Resources.*** The 2021 Plan treats customer-sited DERs as a reduction in demand, rather than as a resource to meet load, as is done with utility-scale generation and energy efficiency. As DERs become more prevalent in the northwest, we encourage the Council to characterize DERs as a resource that can help to meet system needs, rather than as simply a source of demand reduction.

Portland General Electric and PacifiCorp are both piloting programs to operate customer-sited solar and storage resources for grid services. For example, PGE has partnered with Virtual Peaker to operate up to 525 customer-sited facilities.<sup>13</sup> Similarly, PacifiCorp will be expanding its Wattsmart batteries program to Oregon customers.<sup>14</sup> In addition, in its recently-filed Distribution System Plan, PGE estimates that as much as 25 percent of the flexibility needed by its system to accommodate HB 2021's 100 percent clean energy supply requirements could come from customers and DERs.<sup>15</sup> Characterizing customer-sited DERs as supply-side resources will better enable planning for the potential benefits as well as integration challenges associated with DERs.

***Resource Adequacy.*** The Department appreciates the objective, independent analysis of the adequacy of the regional power system that the Council provides. We have feedback on four separate

---

<sup>13</sup> PGE UM 1856 PGE Draft Storage Potential Evaluation 2021 Annual Energy Storage Update. <https://edocs.puc.state.or.us/efdocs/HAD/um1856had162631.pdf>

<sup>14</sup> Rocky Mountain Power, Wattsmart Batteries program. <https://www.rockymountainpower.net/savings-energy-choices/utah-wattsmart-battery-program.html>

<sup>15</sup> Portland General Electric, *Distribution System Plan Part 1*. October 2021. Page 9. Available online: [https://assets.ctfassets.net/416ywc1laqmd/i9dxBweWPkS2CtZQ2ISVg/b9472bf8bdab44cc95bbb39938200859/DS\\_P\\_2021\\_Report\\_Full.pdf](https://assets.ctfassets.net/416ywc1laqmd/i9dxBweWPkS2CtZQ2ISVg/b9472bf8bdab44cc95bbb39938200859/DS_P_2021_Report_Full.pdf)

elements of the Council's resource adequacy analysis: hydropower flexibility, transmission constraints, unit commitment, and climate resilience.

Hydropower flexibility: As noted above, we appreciate the Council's effort to develop hourly-specific hydroelectric system constraints to better represent the actual flexibility of that system,<sup>16</sup> which will be particularly relevant to the integration of increasing levels of wind and solar generation in the years ahead. We are aware that some stakeholders have identified concerns with the degree of flexibility—particularly large intra-day swings in output—associated with individual hydropower projects in the Council's redeveloped GENESYS model. It is our understanding that these concerns are centered on the potential adverse impacts on fish species in the Columbia River Basin that may result from these types of operations.

The Department does not have a perspective on whether the Council's hourly-specific hydroelectric modeling has adequately hit the mark in terms of accurately representing the real-world flexibility that exists at these projects, or that is practical or feasible going forward. That said, given the importance of this type of analysis to the integration of wind and solar on the power system, combined with concerns about adverse impacts on non-power objectives of the river system, we encourage the Council to revisit its assumptions on modeling of the hydropower system. Moreover, ODOE is aware that the Council held a three-day technical conference in August 2021 focused largely on this very issue.<sup>17</sup> We would encourage the Council to consider ways to engage regional stakeholders in a discussion of the parameters for modeling hydropower flexibility in a less technical, more accessible manner.

Transmission constraints: Given the scale of new wind and solar development anticipated in the northwest and across the west in the decades ahead, the region may need to develop new transmission assets to ensure the deliverability of these generation resources to meet loads during times of system

---

<sup>16</sup> Draft 2021 Power Plan, page 4-24.

<sup>17</sup> RAAC/SAAC – Adequacy/GENESYS Technical Conference. August 4-6, 2021. Available online: <https://www.nwcouncil.org/meeting/raacsaac-adequacygenesys-technical-conference-august-4-2021>

peak. These constraints may become more consequential as a result of increased electric loads driven by electrification of end-uses, including transportation. As an alternative to new transmission investment, some of these constraints could be mitigated by the deployment of battery storage or the strategic deployment of DERs, including energy efficiency. The Department encourages the Council to engage with regional stakeholders to identify these types of transmission constraints and to collect data from transmission providers to provide some regional expectation of the level of investment necessary (in transmission or in alternative mitigation solutions) to ensure the deliverability of these generating resources to contribute to maintaining resource adequacy.

Unit commitment: The re-developed GENESYS model identified potential challenges to maintaining the Council's adequacy criteria for the power system in the near-term. The reason for this was driven *not* by insufficient capacity being online, but rather insufficient market prices (driven by increasing levels of renewables, particularly mid-day solar) causing units not to commit to service in the market.<sup>18</sup> While the suppression of mid-day prices in the wholesale markets by solar output is a real phenomenon, we question whether market operators would actually de-commit units from the market mid-day if operators know that those units will be needed to maintain reliability later in the day. The Council acknowledged that re-running its analysis and forcing those thermal units to commit to the market regardless of available price resulted in a power system that met the Council's adequacy criteria. We encourage the Council to supplement its findings from the GENESYS model in this regard with analysis from market operators that own thermal units (such as PGE or PacifiCorp) to provide insight into how they might actually operate their units in the market under the circumstances described.

Climate resilience events: Climate change is increasing the frequency and severity of extreme weather events in Oregon and the northwest—from hundreds of thousands losing power due to a

---

<sup>18</sup> Draft 2021 Power Plan, page 4-24 to 4-25.

severe ice storm,<sup>19</sup> to the temperature in Portland peaking at 115 degrees (exceeding its previous all-time record high set in 1965 by +9 degrees),<sup>20</sup> to wildfire smoke knocking the AC intertie from the northwest-to-California offline.<sup>21</sup> And these three severe-impact events all occurred in Oregon this year within the span of approximately 150 days.

The Department does not have a specific recommendation for how the Council's analysis of regional power system adequacy should consider these types of severe impact events, but we believe strongly that a regional conversation about how to do so needs to occur. Going forward, we encourage the Council to consider how to better incorporate an analysis of these types of events into its modeling of power system adequacy. We recognize that a broader consideration of outlier events (though given the increasing frequency of these types of severe events, it is becoming less clear how much of an outlier they may actually be in the future) may result in analysis suggesting significant new investments are necessary to maintain an adequate regional power system. We also recognize that there may be innovative ways to address these issues, such as through a more granular analysis of local resource adequacy and a consideration of the role of distributed energy resources to meet system needs.

#### **IV. Conclusion**

The Oregon Department of Energy commends the Council, its state advisory staff, and the Power Division staff for the hard work that went into the development of the Draft 2021 Power Plan.

The Council is the only entity capable of providing the type of regional, objective analysis of the

---

<sup>19</sup> AP Staff and OPB Staff, *Northwest storm leaves hundreds of thousands without power*. February 14, 2021. Available online: <https://www.opb.org/article/2021/02/14/northwest-storm-leaves-hundreds-of-thousands-without-power/>

<sup>20</sup> Goldberg, Jamie, *Portland records all-time high temperature of 116, setting new record for third day in a row*. June 29, 2021. Available online: <https://www.oregonlive.com/weather/2021/06/portland-records-all-time-high-temperature-of-113-setting-new-record-for-third-day-in-a-row.html>

<sup>21</sup> Sickinger, Ted. *Oregon wildfire robs California of critical electricity supply from Pacific Northwest during heatwave*. July 16, 2021. Available online: <https://www.oregonlive.com/wildfires/2021/07/oregon-wildfire-robs-california-of-critical-electricity-supply-from-pacific-northwest-during-heatwave.html>

northwest power system that is so critical to informing efforts in states like Oregon in pursuit of our aggressive clean energy and climate change policy objectives. In summary, we encourage the Council to make changes to the 2021 Power Plan in the following areas:

- **Deep Decarbonization.** Model an economy-wide 80 percent reduction in GHG emissions from 1990 levels by 2050 to identify an optimal resource strategy for the northwest.
- **Energy Efficiency.** Adopt a single-point target of at least 1,000 aMW in the 2021 Plan, and re-evaluate the Council’s cost-effectiveness methodology for energy efficiency to account for the diversity of benefits provided by investments in efficiency beyond kWh savings.
- **Natural Gas Price Forecast.** Revisit the Council’s natural gas price forecast to represent significantly more upside risk of higher prices in the near-term and into the future.
- **Modeling of Battery Storage.** Revisit the Council’s assumptions about battery storage given rapid advancements and cost declines, and trends in CAISO and utility IRPs.
- **Treatment of Distributed Energy Resources.** Characterize DERs, like utility-scale projects and energy efficiency, as a resource to meet system needs rather than as a reduction in demand.
- **Resource Adequacy.** Build on existing analysis to refine modeling of hydropower flexibility, evaluate transmission constraints, more accurately characterize unit commitment issues, and consider how to incorporate climate resilience into power system adequacy analysis.

Finally, the Department notes that this is the first time that since 1983 that an “action plan” is not included in the Power Plan. Without clear targets and actions, it is difficult for the many entities in the region – stakeholders, utilities, state agencies, and other organizations – to understand their part in the path the Council has developed for the region. An action plan would be helpful in laying out the actions needed to address issues and uncertainties in the analysis, and the Department encourages inclusion of an action plan in the 2021 Power Plan.

As noted throughout this document, we would prefer that the Council address the issues we have highlighted in our comments to the maximum extent practical before finalizing the 2021 Power

Plan. Recognizing that in some cases it may not be possible, we encourage the Council to revisit these issues as soon as possible following publication of the 2021 Power Plan, with priority given (1) to modeling a more robust deep decarbonization scenario for the region, and (2) to initiating a process to re-evaluate its cost-effectiveness methodology for energy efficiency.

We appreciate your consideration of our comments to the 2021 Power Plan. Please contact Adam Schultz ([adam.schultz@energy.oregon.gov](mailto:adam.schultz@energy.oregon.gov)), Lead, Electricity & Markets Policy Group, with any follow up questions or if the Department can provide assistance as the Council finalizes the 2021 Power Plan.

Sincerely,

A handwritten signature in cursive script that reads "Janine Be". The signature is written in black ink on a white background.

Janine Benner, Director