Appendix B. Stakeholder comments and PGE answers

Near-Term Action Plan	
Comment	**PGE Response**
The guidelines don't prohibit PGE from making any needed improvements or upgrades tomorrow. Just because there is a structure, there is no prohibition to keeping the lights on.	We agree that the guidelines are not a barrier to PGE's ability to continue operating the distribution system.
I don't understand why PGE doesn't have - within your current plan, the solutions for current problems in Salem. I understand the need for considering future DER's and am glad that PGE is planning for incorporating DER's for the future, but what about the needs of current customers.	Currently, the two-meter solution provides a workaround for net metering customers who want to interconnect on the generation-limited feeders. The evolved regulatory framework section of the DSP discusses the barrier to proactively invest in hosting capacity on those feeders.
Why is PGE focused on potential future problems and not on the current problems, like the limited generation feeders?	We discuss this in the regulatory evolution section of the DSP report. The discussion of cost allocation will take place in association with the UM 2111 docket.
Will you address why your HCA was more costly than other states utilities?	We recognize that the costs to implement HCA vary from jurisdiction to jurisdiction. Based on our analysis and conversations with other utilities, the estimated HCA costs are comparable. We expect there will be an opportunity to review our analysis at an upcoming OPUC-led workshop on HCA.
Why are you not speaking in the filing that PGE is already doing HCA ad-hoc?	The requested focus of the HCA within the DSP is on generation. PGE evaluates HCA when we perform system impact studies for interconnections. The DSP requires evaluation across the entire system, so that is where we focused our HCA discussion.
Can you clarify if you will be using the DRIVE tool software?	We plan to use DRIVE in the near term. We have evaluated a CYME module called ICA that we plan to use for future Hosting Capacity Analysis. The testing of this module showed greater accuracy but is much more computationally intensive, so it may require new or upgraded IT infrastructure to implement.
Thank you for acknowledging these items. I think these are the biggest improvements to your upcoming filed plan. This is how we want to see HCA - a modular update base. We would ideally like to see something monthly because we have seen that the more frequent the more useful.	Thank you. We expect to work with Staff and stakeholders to determine the best path forward for implementing system-wide HCA.

Non-Wires Solutions	
Comment	**PGE Response**
If the NWS pilots go forward, will they be rate based?	As noted in the DSP, PGE sees the need for regulatory evolution to address several elements impacting DERs including specific elements pertaining to the approval and recovery process of NWS investments. We look forward to continued discussion with our DSP partners through the docket process to address this question.
The goal for phase II is to propose non-wires pilots in Aug 2022 and activity would take place in 2023. Do I have that right?	In this DSP, PGE has proposed two pilot concepts. PGE will start the project design and construction phases based on Commission acceptance of the plan and proposed actions associated with NWS.
What if a customer or group desires a NWS that imposes a cost on the system?	PGE proposes solutions to address grid needs across the territory. As shown in this DSP, PGE is learning to include a new solution option in NWS. Addressing grid needs with any solution, NWS or wired, imposes cost on the system and our customers. As described in **Section 4.6**, PGE is transitioning its decision-making process by not only analyzing solution options that are least cost and least risk but also include new decision-making elements related to equity and resilience.
Will CBO's be included in the community engagement efforts around cost-effectiveness?	Yes, we will be engaging CBO's within our community sub-group and discuss cost-effectiveness.
Does PGE consider resilience/community resilience benefits in the DSP?	As noted in **Section 5.5**, PGE is transitioning and will include resilience metrics within its distribution system investment decision-making processes.
How are folks in the equity space who aren't here being reached out to?	We can separate our answer into the long term and short-term. Long-term: Our intention is to create or leverage a compensation structure to get more players from the equity space represented within these meetings. Compensation for meeting attendance has been shared as one of the key incentives for gaining more partners – beyond organizations that are specifically funded for energy advocacy. Short-term: We are going to email our existing NWS partners for updates with our community-focused meetings that are tailored for strategizing our work with CBO's and communities.
I feel firmly the equity benefits should be rooted and started in the perspective of the communities themselves. Instead of starting something in PGE and bringing it to community-based organizations and invite them to make the first step	Incorporating equity within our business practice is an iterative process, and we strive to continuously improve. We would like to balance integrating community values with meeting regulatory exceptions and deadlines, while moving toward a more inclusive and equitable outcome.
Will advances in cost effectiveness methods replace the current risk-based cost-benefit analysis?	No, the new cost effectiveness method is largely around resource economics, and it will be used in tandem with the risk-based cost benefit analysis.
When addressing a grid need, does PGE prefer resources that are mitigating peak or resources that provide maximum value annually?	Resources that address the grid need receive the highest value in the decision-making process. Thus, the resource preference is dependent on the grid need. In the case of these NWS pilot concepts, the needs are driven by peak load and thus resources that address peak loading issues would be most beneficial.

Non-Wires Solutions	
Comment	**PGE Response**
How does PGE create hourly solar generation profiles at the feeder?	PGE uses NREL's PV Watts to determine solar generation profiles at the site level.
Does PGE consider pricing-based demand response programs within its NWS?	Pricing based programs are become reliable across large populations of participation. Localized pricing programs can see significant variability making them less reliable from a solution perspective. PGE is using an incremental approach as noted within the DSP to include pricing programs but determine its reliability impact based on the results of the pilot concepts.
What is PGE's planning horizon for distribution planning?	PGE leverages a 10-year planning horizon for planning the distribution system. Given the dynamic nature of the distribution system longer horizons may misrepresent the future system.

DER/Load Forecast	
Comment	**PGE Response**
Are you planning for increased two-way flow as increased DER implementation happens?	Yes, we are accounting for it in our planning. We are investing in updating our distribution planning tools and capabilities to allow more efficient analysis of distributed generation. We are also installing appropriate protective devices to support distributed generation anytime we perform a major substation upgrade or build a new substation.
Curious about an element of forecasting/analysis. You mentioned changes in zoning from rural to residential. But have you also looked at zoning density changes statewide (and in Portland)? For example, how our Residential Infill Project zoning change, where all properties can have multiple accessory dwelling units, might impact local load?	We are looking at all relevant changes in zoning.
Looking at the difference between population and customers. When PGE talks about 'customers' does that equal meters or billing accounts?	Depending on the context, we may use the term 'customers' differently, but generally speaking we identify a customer as nearly as possible with the point of common identification (e.g., a physical site either a residential dwelling or a place of business). We typically do not use number of meters to refer to customers since there can be many meters per site for commercial customers.
Is the effect of climate change (e.g., heat domes) taken into account for peak loads?	Yes, we account for climate change in our load forecast by incorporating both historical and projected weather trends, as well as evaluating potential future loading conditions under a range of expected probabilities of extreme weather ranging from weather (and load) conditions expected once every 2 years to once every 20 years. We are also working with Oregon State University on climate risk modeling at a more spatially resolute level that can be incorporated into our standards for hyper-local needs like subdivision new construction guidelines.
Are you considering how highly dynamic use-rates can be?	We have not incorporated dynamic rates into our DER potential study at this time. We do model a mix of existing rates and tariffs, including time-of-day pricing, as well as rebate programs such as Peak Time Rebates.

DER/Load Forecast	
Comment	**PGE Response**
Has the model been validated against real world adoption?	Given that this is our first round of using AdopDER for purposes of forecasting DER adoption, we have not had the ability to validate the model's forecasts with actuals. We plan to do so going forward and this will help improve the model's accuracy over time. However, in building the model we did calibrate our statistical models to known adoption by withholding a sample of the historical data to 'train' the model. See **Appendix C** of the DSP Part II for more detail on this methodology.
Now that HB 2021 is out and there is authorization for rate and market design, are you all looking at dynamic rate tariffs?	We have not incorporated dynamic rates into our DER potential study at this time. We do model a mix existing rates and tariffs, including time-of-day pricing, as well as rebate programs such as Peak Time Rebates. We recognize the important role that pricing can have on helping reach decarbonization goals and are open to exploring this further.
Are you taking low- and moderate-income variables into your model?	AdopDER incorporates many different variables, including income, when disaggregating the forecast into the locational feeder-level. The relative influence that income plays in driving adoption will differ based on the established correlations between past adoption and other findings from our literature review.
When considering data on people with low-to -moderate income, I suggest referencing the data from the ETO's 'Solar within Reach' program and the state Solar + Storage rebates program. Both programs serve low-income homes and service providers and should have helpful data.	We will work with ETO to leverage their Solar-within-Reach data whenever possible in terms of understanding the long-run adoption potential of these customers. We have reached out to Oregon DOE to understand the geographic uptake of the statewide solar + storage rebate program and will likewise seek to model the influence of these additional incentives in future modeling runs.
This [ODOE low-income solar + storage rebate program] data from the state has been around since 2020. It feels wrong in that it is flawed in representing/modeling recent adoption in other communities. Why can't we update this now?	We leverage NREL's Gen Market Demand Model to develop service-area wide estimates of Solar market share, which we then apply to individual sites based on our algorithm which includes income-levels. We will look at updating the model to account for the low-income solar more explicitly + storage state-level rebate, but do not expect relative influence on overall levels of adoption will be much of a driver. We will work with Energy Trust to include the likely influence of this tax rebate in any future improvements to how we characterize low-and-moderate income solar + storage adoption in AdopDER.
Was the input used from the existing solar systems on the feeder knowing their capacity, tilt, and orientation?	In this case [identifying solar PV potential for incorporating into a NWS project] we are talking about the forecast, which includes any historical PV adoption on the feeder, plus expected future installations. Currently, our model does not incorporate tilt and orientation for the historical adoption – but it is one area we expect greater collaboration and data sharing with Energy Trust, which will be beneficial. For the forecast, AdopDER does make assumptions about tilt, orientation, and azimuth from PVWatts but is not specific to each individual rooftop. Doing so would be an interesting exercise but is also computationally intensive. We are open to exploring the benefits of including more granular data about solar potential where available and when it would add the most value to the planning process.

DER/Load Forecast	
Comment	**PGE Response**
Is the current forecast based on the initial distribution system planning forecast that Cadeo worked on with you or is this the new NREL work you're doing right now?	Yes, the current forecast is built using AdopDER, which Cadeo developed for PGE. The AdopDER model leverages NREL's dGen Market Demand Model for estimating adoption rates for rooftop solar PV in our service area and combines those with site-specific characteristics from other sources to assign adoption to the granular feeder-level. We are working on a project with EPRI and NREL to update dGen to more accurately reflect PGE's customers and what factors influence their decision making when looking at solar, storage, and EVs. We expect to be able to leverage new capabilities going forward given the significant work PGE is doing with NREL around the SALMON project and other areas.
Can you breakdown the numbers for your solar forecast?	The annual number of forecasted rooftop solar MW-dc and MWa are included in **Chapter 3** of the DSP Part II filing.
Are all non-water heater flex load programs up and running or are they in the pilot phase?	Currently, we are running a multifamily water heater flexible load pilot and are submitting plans to launch a single-family pilot offering in 2023. In terms of the resource potential modeled in AdopDER, we are modeling both current pilots and future pilots to better understand the total potential of these resources.
What is solar PV?	In the context of our DER forecast, solar PV refers to rooftop residential and commercial solar photovoltaics (PV).
What was your plan for gross load at the substation level and what you are planning on doing with it?	We evaluated how our construction of bottom-up feeder-level load profiles (re-constituted from aggregating individual AMI usage data for all customers on the feeder) matched the SCADA measurements from the feeder breaker. The intention for using the SCADA data was to identify more granular distribution system losses between the substation and the end customer. However, after analysis we determined that due to inability to match front-of-the meter generation for the sample data year (2019) we had to revert to relying on AMI load profiles.
Are you incorporating line losses into the gross load aggregation?	Yes, we included it in AdopDER as an estimate of line losses from previous distribution studies. We also attempted to quantify line losses specific to each feeder, but due to issues identified with matching the SCADA data to the AMI data (primarily, missing data and confounding influence of front-of-the-meter generation) we reverted to relying on existing distribution loss estimates for this round.

DER/Load Forecast	
Comment	**PGE Response**
How are folks in the equity space who aren't here being reached out to?	We can separate our answer into the long term and short-term. Long-term: Our intention is to create or leverage a compensation structure to get more community from the equity space represented within DSP meetings. Compensation for meeting attendance has been shared as one of the key incentives for gaining more partners – beyond organizations that are specifically funded for energy advocacy. Short-term: We are going to email our existing DSP partners for updates with our community-focused meetings that are tailored for strategizing our work with CBOs and communities.
I feel firmly the equity benefits should be rooted and started in the perspective of the communities themselves. Instead of starting something in PGE and bringing it to community-based organizations and invite them to make the first step.	Incorporating equity within our business practice is an iterative process, and we strive to continuously improve. We would like to balance integrating community values with meeting regulatory exceptions and deadlines, while moving toward a more inclusive and equitable outcome.

Grid Needs Analysis	
Comment	**PGE Response**
Why does the icon above the poles look like a Wi-Fi connection?	This is because the Distribution Automation Team at PGE is using LTE Verizon and our wireless field area network (FAN).
Does automation encompass how BTM (behind the meter) assets are sync/sourcing with the feeder?	Distribution automation (DA) currently splits our feeders into different switchable sectors that may or may not have behind the meter DERs. The goal with the current DA program is to maximize the number of customers that are safely restored after a fault event in our system.
Did you say earlier, because there are DERs that you have to think about minimum load more?	Electricity used to flow one way; now it can flow back into our equipment (e.g., feeders, substations). This results in different analyses. We need to make sure that our equipment and customers are properly protected from this reverse power flow.
Do you know if that network is for both the grid assets (reclosers, substation comms, etc.) and the MDM (meter data management)?	Both AMI and SCADA use PGE's telecommunication network. AMI wireless network collects data from meters and uses PGE's communication infrastructure to backhaul data to MDM. Grid assets like reclosers and substations also use communication infrastructure. It could be wireless field area network (FAN), direct fiber, or third-party service (Verizon Cell modem connection) for connectivity.

Grid Needs Analysis	
Comment	**PGE Response**
Why isn't there a stakeholder process or input for the grid needs? Specifically, why aren't you prioritizing generation-limited feeders?	We will be implementing community engagement for our grid needs starting this year, for our 2024 capital cycle. Currently, the two-meter solution provides a workaround for net metering customers who want to interconnect on the generation-limited feeders. **Section 7.4** discusses the barrier to proactively investing in hosting capacity on those feeders.
Are the 67% and 80% thresholds company standards/ industry standards or a little bit of both?	They are company standards to establish system flexibility for planned and unplanned outages.
(1) Are you looking at the state building energy code changing over the next few years? **(2) What goes into the numbers you're putting together for energy modeling?** **(3) What information goes into the sort of modeling and forecasting you're doing when you're considering a development?**	(1) Yes, absolutely. We are looking at state building energy codes. (2) We look at other communities that were built and we try and find a community with a similar profile. We use load data from these other communities to develop a metric for how much load is expected for each building type (multi-use, single family, etc.). (3) Some key information that would go into forecasting would be zoning type, heating/cooling equipment, and other factors such as the presence of solar panels.
Is the forecast at an hourly level or granular?	Historically and now, we are planning to peak, so we're looking at the maximum amount of load that we would be required to serve. In the future we will be moving towards a more granular analysis.
With regard to electric vehicle loads, what sort of modeling and the numbers are you expecting in this kind of neighborhood (North Bethany)?	The project that was presented in the workshop was completed a couple of years ago and planned even earlier, so we did not have any forecasting for transportation electrification at that time. Moving forward, our load forecast incorporates DERs, including TE.
How representative is a new substation of typical projects and investments you know would this represent?	Most new substations that PGE has constructed over the last 15 years have been driven by new large load editions. We strive to first add capacity at existing substations when possible.
Concerning the nature of data centers, would high temperatures create a peak for them? I remember PGE staff saying they are not as weather dependent.	Data centers are not as weather dependent as other sectors, but we see them peak when their chillers are online in the summer. However, data centers operate with a high load factor, meaning that their load is close to their peak consistently (unlike, for example, a residential home where load will drop off at night when people are sleeping).
How are you considering the future guidelines of loading levels and N-1 conditions as you are thinking about penetration of customer assets?	We are incorporating our DER forecast starting with the 2024 capital cycle. We will evolve to a more granular analysis (more than just peak analysis) which will help us better understand the impact of DERs, and customer assets, on our system.
It would be helpful for a broader audience if there were multiple definitions of stress – as opposed to N-1, so people can easily understand what kind of stress(es) is impacting the system.	We do now need to consider the impacts of reverse power flow on our system during minimum load conditions. We are also exploring the flexible feeder concept that we have seen deployed in Europe.

Grid Needs Analysis	
Comment	**PGE Response**
Where can I find a deeper dive into the engineering and math behind the projects listed within the DSP?	A summary of each solution/project is in **Appendix J**. This does not include a deep dive into the engineering math behind the projects as this would be overly detailed. However, we do discuss the reason for the solution/ project and alternatives we considered.

Human-Centered Design & Planning	
Comment	**Response**
It would be helpful to have a user-friendly catalog of NWS options that's digestible to the average community member.	Yes, we agree that would be very helpful. For example, our products team is working on streamlining these options, providing bundles, and then building a website where customers may receive a more user-friendly experience for sorting through these options.
Is engaging with CBOs the only avenue PGE is working through to suggest NWA projects or is there going to be means to propose NWA demos?	No, we're going to work on engagement with each of our partners and we plan to refer to CBOs as local experts when referring to equity and community-based issues.
There should be a catalog of both utility needs and wants and customer needs and wants. Both of those need to be organized for the DSP process and outcome.	We have noted your response. We recognize this is important and will continue improving on transparency and inclusion for this process.
Is there a straw proposal?	Yes, we have some concepts in mind, but we want to hear from you to make sure we don't duplicate any efforts.
Has PGE done any scoping on the initial solar concept?	We are initially looking at single-family homeowners and multi-family property owners.
Can we know some of the concepts and ideas you all have for solar before we begin the ideation process?	We are considering financing options as well as looking at the multi-family space.
How do we create more projects that move forward clean energy and proliferate community benefits across products?	We do not have all the answers at this time, but a good first step is strategic collaboration. We look forward to working together and supporting our partners – like Multnomah County, as we move forward with this work across our products.
Could someone in the winter receive credits for the extra generation they'll have in the following summer?	No, not at this time. Currently, we envision this would be given at the time of the solar installation to reduce the upfront cost. It's sort of like an advanced credit.
I don't really understand information from solar installation and potential bill credits from export generation. Would you mind walking me through this?	By rewarding the customer for future export generation, the customer could receive credits in advance to help reduce the cost of the solar installation.
With stakeholders particularly the focus on low-income communities, how much interest you've heard from community-based organizations and partners?	We have heard interest from both community-based organizations and partner organizations for specifically including CBOs in equitable community benefits and low-income program offerings. We are currently working on a framework for effectively including CBOs across PGE plans, products, and programs. The Community Workshops within the DSP are an example of steps PGE is taking for proactive inclusion of CBOs.
Where exactly does equity fit into the rubric category, does it get blended into another category and how it how should that be done?	This is currently fluid because we are still figuring out the metrics behind equity and cost benefits.

Solution Identification	
Comment	**PGE Response**
Does savings mean savings for PGE or savings for the customer?	We consider the most cost-effective solution that mitigates the grid need to avoid impacting customer rates. When PGE is able to save money on a project, those savings are used for other capital investments, thus stretching PGE's capital to achieve more. This benefits customers.