

STAKEHOLDER FEEDBACK: December 2022

Received	Stakeholder	Question/Comment/Response
11/16/2022	Elizabeth Graser-Lindsey	<p>Questions from Nov. 2022 meeting besides ones recorded in Chat:</p> <p>0. Why doesn't your staff say the words rather than the acronym the first time during their presentation to be friendly with the audience?</p> <p>The acronym list was not at the end of the slide show this month. Why don't you make the complete acronym list a second meeting attachment each meeting?</p> <p>1. Why is energy efficiency labeled non-cost-effective?</p> <p>Shouldn't that be determined by the analysis?</p> <p>Why aren't other categories of supply and demand called non-cost-effective?</p> <p>Why isn't Wyoming transmission or E OR transmission called non-cost effective?</p> <p>What is the cost point that is "non-cost effective"?</p> <p>2. I asked about the reference-case portfolio with base values (as I recall the language of the answer I received). I was referred to July 2022 and looked at p. 9. I see Reference listed in one column, but no values. I also don't know if that is the complete list of references. The goal is to understand this portfolio.</p> <p>3. I asked why there isn't a high roof-top solar portfolio. (Someone else asked as well).</p> <p>4. I tried to understand the data you have concerning roof-top solar contribution and electric vehicle (EV) demand. I was sent to July 2022 slide 39. What is TE and BE? Is that transportation and building energy? At 2030 I see 3,300 to 4,000 MW, but I still don't know the roof-top solar contribution or home battery contribution or the predicted EV demand (this was my specific question). I asked about the EV and heat pump adoption rates also.</p> <p>Nov. 2022 slide 52 shows 155 MW for community solar contribution.</p> <p>Nov. 2022 slide 11 shows 400 MWa for energy efficiency. Is that comparable with the other values? Are you looking at the effect of current and higher subsidies? Are you comparing energy efficiency cost with energy cost and transmission cost for peak demand (e.g. heat wave) days?</p>

Do you have costs (\$/MW) for roof-top solar, community solar and energy efficiency?

5. What is a MW transmission cost for different MW supplies (i.e. locations)?

Thanks,

Elizabeth Graser-Lindsey

11/29/2022

RESPONSE: Hi Elizabeth,

Thank you for your comments and questions. I will coordinate with our team to get back to you with some answers. As for the first question about acronyms, I apologize we didn't do our best yesterday when presenting. I will remind presenters to use the full name when they are speaking. We will provide the acronym slide in December, I accidentally left that off. Below is a list of the acronyms we used yesterday.

DER: distributed energy resource
 DSP: distribution system plan
 NCE: non-cost-effective
 DR: demand response
 EE: energy efficiency
 ELCC: effective load carrying capacity
 COU: consumer owned utility
 IOU: investor owned utility
 GHG: greenhouse gas
 MWh: megawatt hour/ MW: megawatt / MWa: megawatt average
 ACS: asset controlling supplier
 ROSE-E, PGE-zone, Sequoia, and AURORA: models PGE uses for IRP analysis
 CBRE: community based renewable energy
 CBI: community benefit indicators (rCBI=resource CBI; pCBI=portfolio CBI; iCBI=informational CBI see slide 45)
 CEP: clean energy plan
 NEI: non-energy impacts
 BPA: Bonneville Power Administration
 RA: regional adequacy
 DSG: dispatchable standby generation
 Tx: transmission
 SOA: south of Allston
 O&M: operation and maintenance
 CF: conditional firm
 RPS: renewable portfolio standard
 NPVRR: net present value of revenue requirement

Hi Elizabeth,

Our team has responded to your remaining questions below. Thank you again for your participation and let us know if we can help you with additional comments or questions.

1. Why is energy efficiency labeled **non-cost-effective**? Shouldn't that be determined by the analysis? Why aren't other categories of supply and demand called non-cost-effective? Why isn't Wyoming transmission or EOR transmission called non-cost effective? What is the cost point that is "non-cost effective"?

Energy Trust determines the energy efficiency potential for PGE. As a part of their analysis, they determine the cost-effective and non-cost-effective potential. The determinant of what is cost effective vs. what is not cost-effective is based on a cost-effective test called the Total Resource Cost (TRC) test. Their process is documented [here](#) - 2019 IRP, External Study B, starting on page 440 of 678. Page 8 of the study shows the calculation to determine the different potentials including the TRC test. This process is largely unchanged for the 2023 IRP.

Based on this process, non-cost-effective (NCE) potential can be defined as part of the Achievable potential that was deemed non-cost-effective under the previous set of avoided costs developed for UM1893 (OPUC reference number) in 2021 based on the 2019 IRP outputs. Thus, the IRP does help define cost-effective vs non-cost-effective but it lags by one cycle based on the current rules and policies. In part to address the issues of this lag, we are modeling the non-cost-effective potential in the IRP this time. Therefore, if a non-cost-effective technology is selected in the IRP, it is an early indication that when Energy Trust runs their analysis in the future, that technology would be deemed cost-effective, barring changes to costs or other elements.

This process is unique to distributed energy resources (DERs) and is the reason why we have cost-effective vs non-cost-effective potential for DERs. These include energy efficiency and demand response that can use any technology from thermostats and customer sited batteries to EV related managed charging programs. The reason for why this is a different process for DERs is a policy question with a sizable history.

The cost of the different non-cost-effective technologies was shared on slides 11 and 12 of the November roundtable - https://assets.ctfassets.net/416ywc1laqmd/3lvg7tPLLkie7L8QjDS91t/45dd54a03de06c047106741ba77e0858/IRP_Roundtable_November_22-10-Final.pdf

2. I asked about the **reference-case portfolio** with base values (as I recall the language of the answer I received). I was referred to July 2022 and looked at p. 9. I see Reference listed in one column, but no values. I also don't know if that is the complete list of references. The goal is to understand this portfolio.

Thank you for this question. I believe, we are talking about two separate pieces here – scenarios and portfolios

1. Scenarios refer to a set of different cases across three categories – need futures, prices futures, and cost futures.
 - a. The need future represent the MW and MWa need across different conditions such as market access, DER adoption, etc. The values are provided in slides 6-15 from July [roundtable](#)
 - b. The price futures represent the different potential electricity price variation we expect across the western interconnection or the western grid. The values are provided in slides 44-50 from the July [roundtable](#)
 - c. The cost futures represent the potential cost trajectories of the different resources being considered within the IRP. - Slides 6-12 from the June 2021

[roundtable](#). Within the different cases, there is one set | 4
called the reference case.

2. Each portfolio is subjected to each of scenario including the reference case. We have not evaluated any portfolio as on 11/21/22. We have defined the portfolios and shared the definitions in the November roundtable. Draft portfolio results will be provided in the December roundtable. Over time, we will score the portfolios to determine a preferred portfolio.

Based on 1 and 2, there is no such thing as a reference case portfolio. However, there are reference case futures associated with the need, electricity price, and technology cost.

3. I asked why there isn't a **high roof-top solar portfolio**.

High rooftop solar adoption is a scenario as defined in the previous question. Specifically, it is included in the low need future because higher solar adoption would mean we need fewer supply side resources. This is defined on Slide 9 of the July [roundtable](#).

Each portfolio will be run with a high solar adoption need future scenarios.

4. Question: "I tried to understand the data you have concerning **roof-top solar contribution** and **electric vehicle (EV) demand**. I was sent to July 2022 slide 39. What is TE and BE? Is that transportation and building energy? At 2030 I see 3,300 to 4,000 MW, but I still don't know the roof-top solar contribution or home battery contribution or the predicted EV demand (this was my specific question)."

Please note that TE=transportation electrification and BE=building electrification. These represent a set of different technologies that use electricity instead of an alternative fuel to provide the same work. The impact of electrification and solar PV on the load is provided on Slide 14 of the July [roundtable](#). This slide is the same as slide 39 but is represented in a way to answer your question about the individual impacts. Happy to provide the waterfall graphic for a specific year of interest.

5. Question: "I asked about the EV and heat pump adoption rates also."

The EV adoption methodology and results are detailed in in the July [roundtable](#) (slide 26-43). Slide 28 highlights the various DER adoption presentations that include more details on the different adoption rates.

6. Question: "Nov. 2022 slide 52 shows 155 MW for **community solar contribution**. Nov. 2022 slide 11 shows 400 MWa for **energy efficiency**. Is that comparable with the other values?"

Clarification that slide 52 shows 155 MW of "Community Based Renewable Energy", or CBRE, proxy resources. The "community-scale solar" is one portion of this resource total and is equivalent to 50 MW by 2030, with the others being comprised of Solar + storage microgrids, and in-pipe conduit hydropower. In a relative sense the energy efficiency potential is significant. On average Energy Trust saves about 30MWa per year. 155MW of CBRE resources is the estimated potential of that resource by 2030. So, it is unlikely there is headroom on acquiring more of that resource.

7. Question: "Are you comparing energy efficiency cost with energy cost and transmission cost for peak demand (e.g. heat wave) days?"

Energy efficiency savings are calculated by Energy Trust. Evaluations of energy efficiency technologies are usually weather normalized and in some cases might be aggregated across different years, which may include years with hotter weather. Transmission costs are based on equipment rating, which accounts for the expected capacity based on electrical standards, which account for extreme weather.

8. Do you have costs (\$/MW) for roof-top solar, community solar and energy efficiency?

For rooftop solar, we use estimates of solar technology cost trends produced by the National Renewable Energy Laboratory through their Annual Technology Baseline (ATB) study. The solar PV costs (\$/W) for our rooftop solar forecasts for our reference/low/high adoption scenarios are detailed in a March 2022 presentation to the DSP technical working group (see [slide 23](#)). For “community-scale” solar, we leverage the costs of Oregon Community Solar Program for the low-income carveout, with a 20% cost savings applied. See column “PGE/PAC Carveout” on Table 5 of the OPUC Staff report under Docket No. 1930 available here: <https://edocs.puc.state.or.us/efdocs/HAU/um1930hau175534.pdf>. For energy efficiency, we calculate a \$/MWh cost because energy efficiency does not have a nameplate MW number. These values were shown in the November roundtable.

9. What is a MW transmission cost for different MW supplies (i.e. locations)?

Desert SW: \$23.04/kw-month

Wyoming: \$20.46/kw-month

Note: Costs estimates are still in draft form and subject to change.

Dollars are in real levelized terms.

11/16/2022

IRP Meeting

Thank you for attending our IRP public meeting last week. Following up on questions during the November roundtable, please find the information about supply side options previously provided during IRP public meetings.

February 2021, starting on slide 28:

<https://assets.ctfassets.net/416ywc1laqmd/5fZx2C5US1n7iSasPRjU4x/b752f1a798fe5e39255129e760af70ee/irp-roundtable-21-1.pdf>
[\[assets.ctfassets.net\]](https://assets.ctfassets.net)

June 2021, starting on slide 6:

https://assets.ctfassets.net/416ywc1laqmd/3cvd1UgpapBboirkYJLTeD/132bb6ab8ce967f92c33549560400ef5/IRP_Roundtable_June_21-4.pdf
[\[assets.ctfassets.net\]](https://assets.ctfassets.net)

November 2021, starting on slide 22:

<https://assets.ctfassets.net/416ywc1laqmd/1UeTCdvEqHlpH1MRPOGo85/45b03c61b37dfaba7e0a434c8a8cfb3d/IRP-Roundtable-November-21-8.pdf>
[\[assets.ctfassets.net\]](https://assets.ctfassets.net)

April 2022, focus on solar only, starting on slide 7:

https://assets.ctfassets.net/416ywc1laqmd/7b7HWYRGD36HHCHeWbBqYS/c17bd893aa9118ad2911293e680ed35f/IRP_Roundtable_April_22-4.pdf
[\[assets.ctfassets.net\]](https://assets.ctfassets.net)

May 2022, focus on hybrid resources only, starting on slide 18:

https://assets.ctfassets.net/416ywc1laqmd/4YnCZf5PtWTE5ska7tclxS/a18af0034e3fd9730f0a3f168619c87/IRP_Roundtable_May_22-5.pdf
[\[assets.ctfassets.net\]](https://assets.ctfassets.net)

June 2022, starting on slide 22:

https://assets.ctfassets.net/416ywc1laqmd/2e732S4plWpR59ID7ZDV8q/270c1816f005d6816e63ac88e9e61879/IRP_Roundtable_June_22-5.pdf
[\[assets.ctfassets.net\]](https://assets.ctfassets.net)

August 2022, draft ELCC values with proxy resources, starting on slide 14:

https://assets.ctfassets.net/416ywc1laqmd/1ltEzsTlgoFoOfVxtuGob/4bff485e57a30ad1549d061094a44347/IRP_Roundtable_August_22-7.pdf
[\[assets.ctfassets.net\]](https://assets.ctfassets.net)

We will share your questions and our answers in the next online stakeholder feedback pdf, posted in January – IRP Team