

PSE Resource Adequacy Meeting with IRP Stakeholders

August 26, 2022

Overview

On August 24, 2022, Puget Sound Energy (PSE) hosted an online webinar with Integrated Resource Plan (IRP) stakeholders on Resource Adequacy:

- Share information on Puget Sound Energy's Resource Adequacy Scope
- Share E3 Resource Adequacy Modeling Results
- Overview of Western Resource Adequacy Program (WRAP)
- Overview of Northwest Regional Forecast from Pacific Northwest Utilities Conference Committee

Additionally, participants were able to ask questions and make comments using a chat box provided by the Zoom platform.

Below is a report of the questions submitted to the chat box. Answers to the questions were provided verbally by PSE staff during the meeting. Please note that questions were answered in order of relevance to the topic currently being discussed. Questions regarding other topics were answered at the end of the meeting.

To view a recording of the webinar and to hear responses from staff, please visit the project website at pse.com/irp.

Attendees

A total of 121 stakeholders, PSE staff and facilitators attended the meeting.

Registrants included:

Aaron Stoll, Aaron Tam, Alexandra Karpoff, Allison Jacobs, Amy Wheelless, Andres Alvarez, Andrew Kiss, Anthony O'Rourke, Arne Olson, Bill Will, Bob Williams, Bradley Cebulko, Brett Rendina, Brian Grunkemeyer, Brian Tyson, Carryn Vande Griend, Charlee Thompson, Chris Searcy, Cindy Vu, Claire Wendle, Clark Rein, Cody Duncan, Corey Schwab, Court Olson, Darryl Nevins, David Musgrove, Don Marsh, Doug Hart, Duane Ball, Elena Cardenas, Elizabeth Hossner, Ellyn Murphy, Fred Heutte, Garrett Lehman, Gilbert Archuleta, Gordon Baxter, Hannah Wahl, James Adcock, Jennifer Coulson, Jennifer Magat, Jesse McNeill, Jessica Zahnow, Jim Schretter, Jisong Wu, Joe Hooker, Joel Nightingale, John Crosson, John Hejkal, John Mannetti, Jon Sdao, Kim Zamora Delgado, Laura Hatfield, Laurie Hutchinson, Laxman Subedi, Leslie Almond, Lori Hermanson, Lorin Molander, Marc Alberts, Mark Boissevain, Markus Virta, Matthew Pagan, Meredith Mathis, Michael Berry, Michael M, Michael P Dunnigan, Michael Rooney, Mike Elenbaas, Mike Hermanson, Natasha Bryan, Nathan Critchfield, Nelli Doroshkin, Nick Gemperle, Patrick Leslie, Peter Besenovsky, Phil Haines, Philip Jones, Philipp Schmidt-Pathmann, Phillip Popoff, Ping Liu, Brian Duncan, Aliza Seelig, Rachel Clark, Ray Outlaw, Rebecca Sexton, Renchang Dai, Rhett Hurless, Ruoshui Li, Ryan Roy, Ryan Sherlock, Sarah Edmonds, Sashwat Roy, Scott Williams, Sean Yovan, Sergio Dueñas, Seth Baker, Sheri Maynard, Sophie Glass, Stephanie Chase, Steve Edburg, Stewart Rosman, Tina Lee, Tyler Tobin, Virginia Lohr, Vivek Balasubramaniam, Wendy Gerlitz, Will Henderson, Willard Westre, Zeia Lomax, 13 call-in attendees.

Questions Received

Questions from attendees are posted in the order in which they were received. The meeting began at 1:00 PM PDT and ended at 4:45 PM PDT.

Name	Time Sent	Comment
Sophie Glass, Triangle Associates	1:00 p.m.	https://www.pse.com/IRP/Get-involved
Claire Wendle, Triangle Associates	1:02 p.m.	https://www.pse.com/IRP/Get-involved
Michael P Dunnigan, Potel Co.	1:02 p.m.	Wayne Gould (Potelco)
Virginia Lohr, WA Clean Energy Coalition	1:04 p.m.	Are you saying that we could ask questions through 5 PM?
Virginia Lohr, WA Clean Energy Coalition	1:04 p.m.	Thanks for the clarification
James Adcock Electrical Engineer	1:06 p.m.	Being a Broken Record Here, but IRP Law requires "Participation" not mere "Presentation."
Virginia Lohr, WA Clean Energy Coalition	1:06 p.m.	It
Sergio Dueñas, Western Energy Storage Taskforce	1:07 p.m.	What are the key deadlines/milestones that would limit PSE's ability to take feedback on these matters within this IRP cycle?
Sergio Dueñas, Western Energy Storage Taskforce	1:08 p.m.	(My question refers to feedback on the RA analyses and results)
Sophie Glass, Triangle Associates	1:09 p.m.	Thank you Sergio - we will answer your question
Bradley Cebulko, Strategen	1:09 p.m.	Slide 8: Phillip, will you please expand upon why it is appropriate to analyze CCA within the load forecast after the portfolio analysis? Isn't the load forecast a necessary component of the portfolio analysis?
Sophie Glass, Triangle Associates	1:10 p.m.	Thank you, Jim. PSE welcomes your feedback during this meeting but the input will be used for the next IRP cycle.
James Adcock Electrical Engineer	1:12 p.m.	Not looking to "Give Feedback" but rather actual "Participation" in the IRP Process.
Don Marsh, Sierra Club	1:12 p.m.	++ on James' comment. Participation is key.
Sophie Glass, Triangle Associates	1:13 p.m.	Thank you Jim and Don. Noted. This is the only "info session" this year with the hope that the other meetings really informed the existing IRP efforts.
Virginia Lohr, WA Clean Energy Coalition	1:14 p.m.	You say that there will be 30 minutes at the end of the presentation for us to ask questions, but that is not reflected in the agenda. The agenda shows PSE presenting information through 4:30. For stakeholders to participate fully, it helps if we know when we will be able to have input and how much time PSE has allocated within each section for us to ask questions and have input.
Sophie Glass, Triangle Associates	1:15 p.m.	Thanks, Virginia. We added more time to the original meeting plan to have opportunities for q and a within each agenda topic. As a rule of thumb, we are hoping for 25-30% of any agenda item to be devoted to q&a
Don Marsh, Sierra Club	1:16 p.m.	I'm not sure what the rules are during an "info session." Can we ask questions and discuss during the presentations, or only at the end when everyone is tired?

Name	Time Sent	Comment
Sophie Glass, Triangle Associates	1:16 p.m.	Definitely throughout, Don!
Sophie Glass, Triangle Associates	1:16 p.m.	We are about to break for questions and answers
Don Marsh, Sierra Club	1:16 p.m.	Thanks for the clarification!
Don Marsh, Sierra Club	1:18 p.m.	I have a question on the slide about PSE's responses.
Sophie Glass, Triangle Associates	1:19 p.m.	Thanks, Don. We will go back to that slide in a moment
James Adcock, Electrical Engineer	1:24 p.m.	Raise Hand Slide 8 "Conservation Planning"
Sophie Glass, Triangle Associates	1:14 p.m.	Noted, Jim.
James Adcock, Electrical Engineer	1:33 p.m.	In regards to PSE statements about excluding IRP Participants from giving meaningful input to Conservation Program, please note my exception. I don't believe that the legal agreements that led to CRAG allows PSE to ignore IRP Participants input into those Conservation Programs.
Fred Heutte, NWECC	1:37 p.m.	One of the questions I have about the relationship between the WRAP and PSE planning is how the WRAP PRM aligns with PSE's unique "planning margin" method
James Adcock, Electrical Engineer	1:37 p.m.	Wrap "Program Design Overview" Slide -- what exact range of historical weather years do you use for "Determining historical summer and winter CCHs" ?
Sophie Glass, Triangle Associates	1:38 p.m.	Thanks, Jim. PSE will provide information in the feedback form about ways for IRP stakeholders to be involved in the conservation program processes
Sophie Glass, Triangle Associates	1:38 p.m.	Thanks, Fred - we will get to your question soon.
Sophie Glass, Triangle Associates	1:38 p.m.	Thanks, Jim. We will get to your question re: exact range of historical weather years
Fred Heutte, NWECC	1:38 p.m.	It is also unclear how the WRAP's multi-year data collection and analysis will line up with PSE's IRP assessments of near term loads and resources.
Sophie Glass, Triangle Associates	1:39 p.m.	Thanks, Fred
Sashwat Roy, RNW	1:45 p.m.	Ryan, could you talk a bit about the selection of "capacity critical hours" for the program? Especially, if its program wide, does it create a risk that the program might be under or overvaluing resources i.e. QCCs? And is it something that will be updated in the future?
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	1:50 p.m.	Ryan, can you talk a little more about what kind of 'waste plants' you are talking about.
Sophie Glass, Triangle Associates	1:51 p.m.	Hi Philipp - we will get to your question in a bit
Lori Hermanson,	1:52 p.m.	WRAP is for reliability - can you speak to why it was decided to use historic loads as

Name	Time Sent	Comment
Avista		opposed to forecasted loads?
Sophie Glass, Triangle Associates	1:53 p.m.	Hi Lori - we will get to your question in a few slides
James Adcock, Electrical Engineer	1:55 p.m.	Why is the regional contribution analysis split North/South and not East/West -- coastal utilities have lower Summer and Winter load variability extremes compared to inland utilities.
Philipp Schmidt- Pathmann, Institute for Energy & Resource Management	1:56 p.m.	If new capacity like Waste to Energy from advanced Thermal Treatment based on proven technology like mass burn come online will this be considered? PSE joined one of our trips to Europe in 2007 to look at WTE and was very intrested
Philipp Schmidt- Pathmann, Institute for Energy & Resource Management	1:57 p.m.	We actually had a Power Purchase agreement in place.
Philipp Schmidt- Pathmann, Institute for Energy & Resource Management	1:57 p.m.	For new facilities if they come online. Thanks
Fred Heutte, NWEAC	1:59 p.m.	question about hydro QCCs -- presume those are based on "average water" and not high/low water years/seasons
James Adcock, Electrical Engineer	1:59 p.m.	Note: Utilities should be contributing to an "insurance pool" based on their relative risk profiles -- greater load risk utilities should correspond to a greater contribution, lower load risk utilities should be making a smaller contribution.
Sophie Glass, Triangle Associates	2:00 p.m.	Thank you Fred for your question.
Sophie Glass, Triangle Associates	2:00 p.m.	Thank you Jim for your comment.
Fred Heutte, NWEAC	2:07 p.m.	The point about "storage hydro" is that the availability of the key flexibility resource in the NW supporting capacity/RA is not fully profiled in this initial stage of WRAP -- a criticism I have most of all former BPA administrator Randy Hardy have raised for over two years.
Jennifer Coulson, PSE	2:07 p.m.	Following up on Phillip's Question: For resource specific questions please direct your questions to the resource acquisitions team they look at specific resource options AllSourceRFPmailbox@pse.com.
Philipp Schmidt- Pathmann, Institute for Energy & Resource Management	2:13 p.m.	What are 'other' emitting and non emitting
Philipp Schmidt- Pathmann, Institute for Energy & Resource Management	2:15 p.m.	The world is experiencing more and more draught situations... that could significantly reduce reliability on hydro!
Ryan Roy,	2:15 p.m.	Fred, thank you for your comment on the accreditation of storage hydro. Both your

Name	Time Sent	Comment
Western Power Pool		and Randy's concern is noted. We appreciate the feedback.
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	2:17 p.m.	Why so little solar/wind as Germany just added nearly 3 GW of solar and some wind in the first 6 months of 2022 similar latitude.
Sophie Glass, Triangle Associates	2:17 p.m.	Thanks, Phillip. Aliza is almost done with her presentation and we will do q&a at the end
Aaron Tam, WA PCU	2:20 p.m.	I see that you only consider utility-owned resources. Do you see this underestimating the resources available from 3rd party PPAs or non-utility-owned DERs?
Sophie Glass, Triangle Associates	2:21 p.m.	Thanks Aaron - we will get to this question in a moment
Phillip Popoff, PSE	2:21 p.m.	I will address that in my presentation a bit later on
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	2:25 p.m.	yes on replacing gas from Russia but their plan to get to zero CO2 is taking shape now over 50% renewable!
Ryan Roy, Western Power Pool	2:27 p.m.	Philipp, in regards to your question of whether under the WRAP WTE could and would receive a capacity accreditation the answer is absolutely yes. We would work within the participant/stakeholder process to determine the appropriate accreditation methodology and with the resource owner/operator or LSE that has it under contract to ensure that accreditation is appropriately applied to the LSE's Forward Showing requirement. We are very much technology neutral and agnostic. The determination of resource mix is wholly at the discretion of the LSE, its commission if one exists and its stakeholders.
James Adcock, Electrical Engineer	2:37 p.m.	Slide 45 -- does "energy storage" include modeling of how much water is being stored and when behind hydro dams, and how that "water energy storage" increases when increasing Wind or Solar resources temporarily displace hydro generation ?
Sophie Glass, Triangle Associates	2:37 p.m.	Thanks, Jim. We will get to this question.
Sashwat Roy, RNW	2:43 p.m.	Arne, generally speaking, is the 5% LOLP the most appropriate standard to use currently? The Power Council is moving towards a multi-metric RA modeling framework for this cycle. Doesn't evaluating EUE and LOL events make more sense with different resources meeting different needs across the year?
Sophie Glass, Triangle Associates	2:43 p.m.	Thanks Sashwat - I'll interject before the next slide
Fred Heutte, NVEC	2:47 p.m.	There is a lot of ambiguity around the term "PRM" and I have a quick comment.
James Adcock, Electrical Engineer	2: 48 p.m.	Slide 50 -- How did E3 decide how much of PSE's load carrying capacity can be met from "Market Imports" ?
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	2:51 p.m.	Due to climate change we are looking at the potential for substantial/significant changes that can seriously impede the forecasting models build on ' the past'. Most recent data are critical including prognoses trends.

Name	Time Sent	Comment
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	2:52 p.m.	most recent and current trends
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	2:53 p.m.	and what we will likely facing with potential big changes on the way.
Bradley Cebulko, Strategen	2:58 p.m.	Arne's audio is coming in and out and this is an important issue.
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	2:58 p.m.	your audio is very sporadic and thus difficult to follow
Bradley Cebulko, Strategen	2:59 p.m.	Thanks!
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	2:59 p.m.	Thanks. seems much better.
Don Marsh, Sierra Club	2:59 p.m.	I love the diversity point. More resource diversity across the board would benefit PSE customers, not just solar + storage.
Brian Grunkemeyer, FlexCharging	3:02 p.m.	How do we deal with a West-wide extreme weather event? If California is short by 4 GW and Pacific Northwest is short by 4 GW at the same time, and if the inter-mountain west is experiencing the same event, then how do we achieve resource adequacy?
Court Olson, Consultant to Building Owners	3:03 p.m.	Since E 3 is located in California, I wonder if they have adjusted their modeling to reflect that in three months of the year here in our more northern in latitudes we have very little solar generating capability?
Philipp Schmidt-Pathmann	3:03 p.m.	Will you show more of the three models?
Sophie Glass, Triangle Associates	3:04 p.m.	Thanks, all. We will break for questions after slide 56
James Adcock, Electrical Engineer	3:05 p.m.	Slide 54 -- since my comments at a previous IRP meeting, has anyone been able to track down the apparent "downscaling problems" in the three climate models which are leading to the implausible temperature distributions?
Sophie Glass, Triangle Associates	3:06 p.m.	Noted - the question stack is Brian, Court, Philipp, and Jim (+previous Philipp and Jim questions)
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	3:06 p.m.	Wouldn't part of planning for climate change include moving power lines underground?
Sergio Dueñas, Western Energy	3:07 p.m.	Are forced outages assessed for all dispatchable resources?

Name	Time Sent	Comment
Storage Taskforce		
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	3:07 p.m.	As well as making solar more accessible and user friendly maybe shareable for homeowners?
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	3:08 p.m.	For example in immediate local environments.
Joe Hooker, E3	3:09 p.m.	@Sergio - Yes, we modeled forced outages for thermal generators and battery storage. They are also considered for Mid-C hydro
Sergio Dueñas, Western Energy Storage Taskforce	3:11 p.m.	Thanks Joe, would be good to know the methodology and results of that assessment. Do you know the percentage of the top of your head? I don't think that us un the materials
Sergio Dueñas, Western Energy Storage Taskforce	3:11 p.m.	is in*
Don Marsh, Sierra Club	3:13 p.m.	What happened when there was a loss of load on PSE's system? How many people were impacted, and were they surprised? Or were outages pre-arranged with commercial or industrial customers?
Joe Hooker, E3	3:13 p.m.	@Court - All renewable profiles were provided by DNV to PSE. These renewable profiles cover 8760 hours of the year and 250 simulation years. Each profile corresponds to a specific location in the Pacific Northwest, so they capture the availability patterns for specific locations. We will show the ELCC results for each solar location
Sophie Glass, Triangle Associates	3:13 p.m.	Don - your question is noted
Joe Hooker, E3	3:14 p.m.	@Sergio - I don't have the forced outage percentages on the top of my head. They differ by thermal generator and storage technology. I'll flag to Sophie as a follow-up
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	3:18 p.m.	Considering the impacts of fossil fuels including gas (still a significant share) to climate change, why so little solar and wind? Countries like Germany is showing that renewables play a much more significant role.
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	3:19 p.m.	Why isn't that part of the planning process?
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	3:19 p.m.	Storage included.
James Adcock,	3:19 p.m.	Raise Hand Slide 56

Name	Time Sent	Comment
Electrical Engineer		
Don Marsh, Sierra Club	3:20 p.m.	@Phillip: PSE is just thinking about Resource Adequacy in this presentation. There doesn't seem to be a lot of consideration for CETA. Of course, this whole approach puts the cart before the horse, for customers and the state legislature.
Sophie Glass, Triangle Associates	3:21 p.m.	Jim - noted for your question on slide 56
Patrick Leslie, Monolith Energy	3:26 p.m.	Slide 56: If PSE is not able to procure such a large amount of perfect capacity, and if PSE is seeking to substantially reduce market reliance, is PSE still at risk of a multi-day outage situation during a cold snap? Thank you.
James Adcock, Electrical Engineer	3:34 p.m.	Note: I don't know that we know Diablo is retiring.
Fred Heutte, NWECC	3:38 p.m.	I agree and somewhat disagree with Randy -- the question is really how much solar CA will have by 2030, and my assumption based on a limited look at the new CPUC and CEC analysis is that there will still be significant CA solar surplus especially in the winter and spring. That is entirely compatible with hydro and future off-river storage in the NW even with very expensive transmission charges.
Fred Heutte, NWECC	3:38 p.m.	Randy is completely right that even with the recent adoption of the 2021 NW Power Plan we urgently need an update to look at the changing situation in both the NW and CA.
Phillip Popoff, PSE	3:39 p.m.	Thank you for that feedback, Randy. When we get through my presentation at the end, let's revisit your concerns.
Fred Heutte, NWECC	3:39 p.m.	WRAP really can't do that for us since it doesn't include California directly.
Bill Will, WA Solar Energy Industries Association	3:42 p.m.	Slide 58: Why isn't demand response included in the "all other resource" bar?
Sophie Glass, Triangle Associates	3:42 p.m.	Thanks Bill. We will pause in a bit for questions.
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	3:48 p.m.	Couldn't added solar and wind make up for the loss of load in summer and winter?
James Adcock, Electrical Engineer	3:48 p.m.	Slide 59 -- Thermal Derating vs. calculated availability question.
Virginia Lohr, WA Clean Energy Coalition	3:49 p.m.	Doesn't this show that PSE should have been building out solar for summer capacity to meet the new summer load that was coming and that PSE stakeholders have been requesting for years?
Sophie Glass, Triangle Associates	3:51 p.m.	Thanks Virginia - we've noted your question
Virginia Lohr, WA Clean Energy Coalition	3:56 p.m.	My question is also about Slide 59
Virginia Lohr, WA Clean Energy Coalition	3:58 p.m.	So we finally see that considering climate change should have been considered before, as we have asked.
James Adcock, Electrical	4:00 p.m.	Note: Just reading in "Nature Climate Change" that global climate models are moving to 1 km resolution, which hopefully means that PSE won't need to use

Name	Time Sent	Comment
Engineer		"downsampled" climate modeling data in the future.
Don Marsh, Sierra Club	4:00 p.m.	Right on, Virginia! We asked and asked PSE to improve climate change modeling. The company didn't listen. This is a great example of how stakeholder input should be considered very seriously. PSE went off on a questionable direction for years.
Philipp Schmidt-Pathmann - Institute for Energy & Resource Management	4:00 p.m.	Virginia - Bingo!
Amy Wheelless, NW Energy	4:02 p.m.	hello, I'm switching devices - could you let me in from the waiting room? thanks!
Sophie Glass, Triangle Associates	4:02 p.m.	Done, Amy :)
Don Marsh, Sierra Club	4:02 p.m.	And just to bring the point home, by refusing to model climate change, PSE undertook projects that were misdirected. Now the company wants ratepayers to pick up the tab. That is not okay.
Fred Heutte, NWECC	4:03 p.m.	Could E3 address why it did not model solar/battery and wind/battery hybrids.
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	4:04 p.m.	As we are running out of time fast to counter the worst effects of climate change are we moving in the right direction here?
Fred Heutte, NWECC	4:05 p.m.	DR is not a monolithic thing. Residential/commercial DR by and large won't have seasonal call limits. HVAC, water heating and lighting can be "called" for DR daily.
Arne Olson, E3	4:06 p.m.	@Fred, modeling VERs and batteries separately represents a "best case" scenario for capturing diversity benefits across the system. A hybrid resource ELCC would be lower than separate ELCCs if the resources were both constrained by a common inverter or interconnection limit. If they can both dispatch up to the max, they would have the values we see here.
Bradley Cebulko, Strategen	4:06 p.m.	Joe, I have a question about the saturation effect slides
James Adcock, Electrical Engineer	4:07 p.m.	Slide 61 Thermal Question.
Fred Heutte, NWECC	4:07 p.m.	Given that there are over 1500 MW of renewable/battery resources and over 3000 MW of standalone storage in the PSE interconnection queue, it seems important to assess their potential contribution.
Fred Heutte, NWECC	4:09 p.m.	Thanks for the response on hybrid modeling, but Sep 13 is also after "the end of this month" in terms of locking down the RA analysis.
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	4:12 p.m.	James - Solar is working well in Europe! not sure why you are stating it isn't working
Mark Boissevain, Ease Engineers	4:13 p.m.	Oregon East Solar? Similar to Id or Wy?
Virginia Lohr, WA Clean Energy Coalition	4:13 p.m.	We have had shortages from pipe breaks.
James Adcock, Electrical	4:14 p.m.	I stated that Solar doesn't run when there is no sun -- which I think is a fair statement?

Name	Time Sent	Comment
Engineer		
Philipp Schmidt-Pathmann, Institute for Energy & Resource Management	4:16 p.m.	Depending on the thickness of the cloud cover and how much solar is available. In addition during times of direct sun and less usage you can produce storable hydrogen to compensate when less solar is available. Add wind to the picture and the numbers are starting to add up.
Don Marsh, Sierra Club	4:16 p.m.	Yes, Jim Adcock should be listened to! Thanks for acknowledging that.
James Adcock, Electrical Engineer	4:17 p.m.	How soon can PSE get out of the PGE "Seasonal Swap" contract?
Don Marsh, Sierra Club	4:17 p.m.	Referring to Phillip's acknowledgement, in case that wasn't clear.
Don Marsh, Sierra Club	4:20 p.m.	++ for listening to Court!
James Adcock, Electrical Engineer	4:22 p.m.	Note: Historically what has been actually happening in our winter is the exact opposite of what Mr. Popoff said. There is some argument about what will be happening in the future: 1 of PSE's three climate models agrees with Mr. Popoff, the other two disagree with him.
Don Marsh, Sierra Club	4:24 p.m.	Yes, I don't think PSE has solved climate change effects yet, but it's a relief that the company is finally thinking about it. It's a step in the right direction, at least.
Fred Heutte, NWECC	4:27 p.m.	The key thing in the WECC assessment is it does not include "likely to build" resources.
Elizabeth Hossner, PSE	4:28 p.m.	Sergio, to follow up on your question regarding battery energy storage. We had the initial meeting on generic resource on March 22 of this year. The presentation and recording are included here: https://www.pse.com/IRP/Get-involved . For the 2023 Progress Report, we moved to using the 2022 NREL ATB cost estimates that only include Lithium-Ion Battery estimates at different storage durations. The September 13 meeting will cover updates to assumptions and costs that were presented at the March 22 webinar following suggestions from the feedback received.
Fred Heutte, NWECC	4:28 p.m.	I like the WECC Western Assessment of Resource Adequacy a lot but that is the next step it should take.
Sashwat Roy, RNW	4:28 p.m.	Agree with Fred. Regional reports should be considered but with a pinch of salt since it is not granular enough in terms of RFP resources which will come online in the next 2-5 years.
Sashwat Roy, RNW	4:30 p.m.	@Elizabeth - I hope PSE will include the stipulations in the IRA re: tax credits to develop the new capital cost assumptions for solar, wind, storage and hybrid resources. Thanks!
Don Marsh, Sierra Club	4:34 p.m.	When it's time for questions, I want to comment on this whole presentation with respect to CETA and customer expectations.
Sophie Glass, Triangle Associates	4:34 p.m.	@Don - we are at the end of the meeting - can you put your comments in the chat?
Don Marsh, Sierra Club	4:35 p.m.	My comments are fairly extensive. I don't want to fill up the chat with the comment.
James Adcock, Electrical Engineer	4:36 p.m.	Raise Hand
Claire Wendle, Triangle Associates	4:47 p.m.	Feedback form: https://www.pse.com/IRP/Get-involved/Give-feedback
Claire Wendle, Triangle Associates	4:48 p.m.	IRP website: https://www.pse.com/IRP/Get-involved
Claire Wendle,	4:48 p.m.	Register for Electric Progress Report here:

