

**Northwest Power & Conservation Council  
CRAC/DRAC Combined Meeting  
February 22, 2023**

Dylan D'Souza, NWPCC, began the meeting at 2:00 by introducing Kevin Smit, NWPCC, Annika Roberts, NWPCC, and Chad Madron, NWPCC. He presented background materials and introduced the day's topic.

Smit called for attendance and then introduced the presenters.

**Accounting for EE/DR Interactivity in Resource Planning  
Scott Reeves, Director & Jess Siegel, Associate, Cadeo Group**

[Slide: Phase 1: Literature Review and Expert Interviews]

Todd Myers, Washington Policy Center, asked how DR impacts hot water heaters and if the curve shifts indicate that people are taking showers later in the day [HPWH EE/DR Load Impact Example]. Reeves answered that the grey line represents a direct load control program applied to a water heater. He said it is not a behavior example but a firm, dispatchable, DLC example.

Myers asked if this program effects how people use their hot water heaters. Reeves answered that in theory no, as the DR shifts when the water heater is consuming energy not shifting utility.

Myers asked if the yellow peak is due to the hot water replenishing. David Hewitt, NBI, explained the issue by saying that he has an oversized HPWH so it can load at any time and hold heat for 24 hours. He said this change is from the utility perspective and the customer is not affected.

Peter Schaffer, PacifiCorp, asked if the delta between the grey and orange lines is uniform through all hours or if there are slight differences depending on the hour. He said this information is important to resource planners. Reeves admitted that it might not be uniform in the HPWH example. He recognized that this example is neither perfect nor completely representative of every type of DR control strategy. Reeves said the point of this example is to show that there can be a negative effect.

**Phase 2: Framework Development**

Angus Duncan, BEF, wrote that the prior figure showed diurnal peak shaving as well as energy conservation outcomes of the measures. He asked if there are plans to address the seasonal (cold snap) peak shaving effects, and how they can be measured and valued. Duncan said these are more important than diurnal effects since seasonal peak shaving saves firm energy and transmission capacity requirements.

Siegel said they looked more broadly at interactive effects in this study, but don't talk about seasonal impacts. Reeves added that this is a more holistic look at the effects but actual allocation will see clear impacts.

Emma Johnson, SCL, asked if the literature review revealed that "resources" were treated similarly, for example at peak load (capacity), or if there were nuances as a distribution system management resource. Johnson clarified the question, asking if they were thinking about committing DR and EE as a resource in terms of displacing fuel load or some other variations in terms of managing local distribution.

Siegel pointed to a link to the resources, saying there are some studies that talk about using EE and DR in tandem in addition to demand side management to integrate more renewables and storage. She said the ways they interact and deploy at the grid level can lead to more opportunities to use renewables when they are most readily available.

Reeves pointed to a programmatic component with DR, adding that how it's used is nuanced depending on utility territory. He said there are also many different use cases that could lead to different impacts.

#### Key Takeaways and Recommendations

Johnson asked if, when combining thermostats, weatherization, and TOU, the order of operations matter for the end effect. Reeves replied that it's effectively the same, but it can matter from an accounting and resource planning perspective.

Melanie Smith, BPA, asked if this can be quantified with actual percentage points. Reeves said they tried to do this where the information was available using the well-documented effect of thermostats deepening TOU savings as example. He said the next step is for the Council and RTF to consider where the greatest magnitude will occur.

Nicholas Garcia, WPUDA, wondered if this work generated suggestions or standards around setting up TOU rates. He added that he thinks summer and winter will require different TOU rates which may create some confusion. Reeves answered that certain elements of DR are utility specific. He agreed that there are some regional commonalities adding that electrification is coming in. Because of this Reeves suggested finding a prototypical TOU rate structure as a starting point. He also stressed that needs would change in the future.

Garcia suggested laying out the energy saving parameters of a TOU program in their report, with an emphasis on what makes a difference and what does not. Reeves countered that TOU rates must be utility specific, but regional-level interactions need a prototypical shape.

John Ollis, NWPCC, followed up, asking if Reeves means that regional planners should take a rule of thumb and design products by utility or BA to show that effect. Reeves said it will be

challenging to do a utility-specific approach because it is so dynamic and will change over time. Reeves thought getting a handle on the magnitude of interactions first would help but wasn't sure how to completely answer the question.

### Roadmap

Smit stated that the RTF plans to look at specific measures like weatherization and apply this framework. He said staff is also looking at developing or enhancing portfolio assessment tools to better evaluate flexibility.

Ted Light, Lighthouse Energy, gently pushed back against the characterization that current resource planning is siloed and lacks integration. He said there is some value in this approach as traditional demand side planners avoided bundling measures so one measure doesn't carry another. He thought this same value can be applied here while avoiding a "chicken/egg" situation.

Reeves agreed, saying some utilities are not looking at DR at all. Then he said he sees value in tighter accounting for the interactions where there is a disconnect. He used the example of low saturation of participation for a smart thermostat on the DR side, but the device is a high saver in the EE portfolio.

Ollis thought Light brought up a good point, saying this might matter for the Council or other organizations. Ollis said they are always looking for the best overall solution and this may be okay. For example, he used batteries, saying they were not useful in the past but may now allow the addition of more renewables to meet policy. Still, Ollis agreed that Light's point is valid, but said the power system modeling side is looking for the most efficient way to provide a low cost, adequate system and this may mean some surprising combinations of resources.

Smit encouraged the group to attend the upcoming CRAC meeting as there will be presentations on other important topics.

Ryan Fulleman, Tacoma Power, asked if there are going to be steps related to evaluating or incorporating evaluated savings of weather or time sensitive load shapes of EE and DR, as opposed to using predetermined weather normalized RTF shapes. Smit said for general modeling staff uses normalized load shapes. He added that the RTF did recent work on extreme weather shapes which will be used for some specific modeling. Fulleman said this could add a whole other level of complexity which would be valuable.

Smit ended the meeting at 3:30.

## Attendees via Go-to-Webinar

Kevin Smit	NWPCC	Dylan D'Souza	NWPCC
Anika Roberts	NWPCC	Chad Madron	NWPCC
Dan Adams	Avista Corp	Malcolm Ainspan	NRG
Rich Arneson	Tacoma Power	Leann Bleakney	NWPCC
Juan Carlos Blacker	BPA	Frank Brown	BPA
Michael Coe	Snohomish PUD	Andy Cameron	ODOE
Wade Carey	Central Coast	James Clark	Energy Hub
Rachel Clark	Tacoma Power	John Crider	EWEB
Debbie DePetrus	Clark PUD	Rob Del Mar	ODOE
Angus Duncan	BEF	Jennifer Finnigan	SCL
Ryan Fulleman	Tacoma Power	Misty Gao	PGN
Nicholas Garcia	WPUDA	Pia Goodell	Boise State
Andrew Grant	Cadmus Group	Leona Haley	Avista Corp
Lee Hall	independent	Jeff Harris	NEEA
Fred Heutte	NW Energy Coalition	David Hewitt	NBI
Chad Ihrig	Google Nest	Christy Intihar	BC Hydro
Mark Jerome	CLEAResult	Emma Johnson	SCL
Elena Kazarov	BPA	Josh Keeling	Generac
Peter Kernan	ORPUC	Anna Kim	OR PUC
Hanna Lee	BPA	Ted Light	Lighthouse Energy
Tim M Nies	Energy NW	Ben Mabee	BPA
Kyla Maki	Montana	Robin Maslowski	Guidehouse
Lauren McCloy	NW Energy	Kerry Meade	NEEC
Kari Montrichard	BC Hydro	Todd Myers	Washington Policy
Brandy Neff	PNGC Power	Quentin Nesbitt	Idaho Power
Paul Nissley	SCL	Kala O'Riordan	BC Hydro
John Ollis	NWPCC	Elizabeth Osborne	NWPCC
Alex Osteen	PacifiCorp	Liz Reichart	WA Dept of Com
Nick Sayen	OR PUC	Peter Schaffer	PacifiCorp
Tom Smith	PSE	Melanie Smith	BPA
Jennifer Snyder	WA UTC	Taylor Thomas	Idaho PUC
Zeecha Van Hoose	Clark PUD	Aquila Velonis	Cadmus Group
Bonnie Watson	BPA	Joan Wang	BPA
Kitty Wang	Energy Solution	Brian Dekiep	NWPCC
Ann E Gravatt	NWPCC	Josh Mitchell	Chelan PUD
Will Mulhem	ODOE	Heather Nicholson	independent
Lori Sanders	Benton PUD	Blake Scherer	Benton PUD
Danielle Walker	DOE	Craig Patterson	independent