Demand Response Advisory Committee
Northwest Power and Conservation Council
October 1, 2019

Tina Jayaweera, NWPCC, began the webinar at 10:00 with introductions.

Electric Vehicle Charging Spreadsheet
Jayaweera proposed a $280 equipment cost. Suzanne Frew, Snohomish PUD, said that number came from Siemens and she didn't dive into other popular home charger manufacturers. Jayaweera said she liked that they were identical products except for the connectivity, adding that this is a Draft Final and there is time before pencils down to revisit if need be.

David Nightingale asked for a definition of attrition. Jayaweera likened it to having 100 participants in year one and only 95 of those participate stick around for year two so you have to pay all of the costs and only get one year of service. Nightingale said the 5% feels high but admitted that he has no data to support that.

Quentin Nesbitt, Idaho Power, pointed to peak load impact, saying he didn't understand why it was only 10% of the total draw. Jayaweera answered that it has to do with the diversity of draw profiles between the vehicles.

Water Heating
Tom Eckhart, UCONS, said the usage characteristics between SF and MF create the biggest differences. He added control technology has changed quite a lot and his data is customer related. Eckhart then asked if ground water temperature should play a role. Jayaweera asked him to email her any information.

Nightingale noted that the standard RTF workbook upgraded groundwater temperature data.

Fred Heutte, NW Energy Coalition, said he asked that staff reexamine the BPA DR pilot, calling the results solid. He called the numbers on the table close, but relatively low for HPs and asked if there would be an opportunity for improvement. Jayaweera said she has the note about mixing valves which may be appropriate for the narrative. She asked Heutte if he was comfortable with the presented numbers. Heutte said yes, but hoped that this wouldn't be a ceiling on expectations as water heaters could be an important to the future of DR.

Eckhart asked about assumptions on replacement rates on retrofits. Jayaweera said adding switches to an electric resistance unit is a retrofit and will be driven by a 5% to 25% ramp rate. Eckhart said retrofits required a specific assumption that controls on DR will be directly linked to normal replacement rate of the water heater and wondered what the assumption is in this case. Jayaweera said it's around 12 years, the same assumption used by the RTF on the EE side.

Frank Brown, BPA, clarified that BPA's numbers of .55 and .75 include a mix of areas east and west of the Cascades and mix of MF, SF and MH. Jayaweera said as this is a fast-changing market, she proposes using one number for housing types. Heutte said he was not completely unhappy with that.

Jayaweera asked Brown for his thoughts about using the $20 per season. Brown thought it was a little high but was glad for clarity around per year versus per season. He added that the survey asked for per year data which shows a range between $8 and $24, saying that incentives drive cost more than anything else so it's important to get the number right.

Jayaweera asked Frew where the $8 came from. Frew wasn't sure.

Nesbitt said this is a seasonal program and wanted confirmation that the rate is for a yearly program. Jayaweera said the numbers came from reports and potential studies so it might not have been obvious. She offered to leave the $20 for now while she digs in deeper.

Heutte said it's important to get it right as the money adds up. He asked if there's a difference in incentive rates between a simple switch versus all that could be accomplished with CTA 2045 including higher heating. Nesbitt said he would personally have more issues with a utility being able to turn up a water heater and might need a bigger incentive.

Nicholas Garcia, WPUDA, said this is an opportunity to create confusion and needs a careful rollout.

Jayaweera changed the switch to $15 and the grid-ready to $20. Brown called that an appropriate per-season value. Nesbitt said that value will also drive the percent of customers but was okay with the change.

Heutte called these changes fine but cautioned against significantly underestimating the value of the resource.

Space Heating

Nesbitt referenced Idaho Power's heavily marketed, $15 a year incentive for their AC Cycling program that didn't ever get to 10% penetration. Brown countered with short-term BPA pilots that got between 30-50% participation in DLC space heating. Brown thought 20% is low.

Jayaweera said 20% sounds like a happy medium.

Brown called it a long way from 50% in one year adding that they would at least get 30%. He admitted that a short-term experiment may get different uptake than a long-term program but still felt it was low.

Brown said his experience shows that cooling is harder than heating. Jayaweera said that PGE had more customer dissatisfaction with their winter smart thermostat programs than summer.

Frew said DR's relative newness in the region makes it hard for them to make the prospect attractive to their customers. She was looking forward to building up the use cases so customers would hang in during a bad winter. Heutte agreed but said the regional capacity gap could change the economics for some utilities. Jayaweera said these are planning assumptions and the need will come from scenario analysis.

Brown said it's not worth a big fight but he would put in 25%. John Ollis said Seventh Plan assumptions were conservative but thought this wouldn't make a huge difference in the overall scheme of things. Ollis thought going to 25% would be okay. Nesbitt was fine with using 25%.

Ollis added that the Space Cooling page reflects the difficulty in reaching customers. Nesbitt agreed that it might be easier to get heating participants than cooling.

Jayaweera moved to Peak Load Impact. Nesbitt said the presented data shows numbers between 1 and 2 and suggested just picking one in between. Jayaweera wasn't sure how much of the data is from programs versus studies.

Brown said his numbers come from six programs and are average values. Jayaweera asked if all of the programs were switch. Brown said yes and there's an assumption that a thermostat program would produce the same results. Jayaweera was not completely comfortable with treating switch and thermostat equally. Brown was okay with using different thermostat numbers.

Jayaweera offered to use BPA numbers for switches and will follow up with PacifiCorp and PGE for thermostats.

Space Cooling
Nesbit thought that 10% was appropriate for program participation. Heutte offered to send numbers from PacifiCorp Utah. Jayaweera colored the cell yellow to indicate they are waiting for better data.

Nesbitt thought the 95% for event participation was a good number.

Brown was okay with a 35% transfer.

Jayaweera asked Brown to talk about peak load impact. Brown admitted that cooling data came from a mix of a few pilots and benchmarking other utilities. He said the thermostat version was entirely benchmarked but the East number has been evaluated and measured.

Nesbitt recalled that Idaho Power got 1.4 with losses when the AC was cycling 65% and the temperature was above 105F adding that they normally cycle at 55% and get 1KW when it's 98+F.

Brown added that BPA numbers include 9% line losses. [Jayaweera checked this with Cadmus after the call and the per unit impacts numbers presented are at meter]. He said space heating and cooling use a 50% cycling strategy. Jayaweera said these numbers were meant to be at the meter so there will be adjustments. She said she will recheck with PGE and PacifiCorp about losses.

Nesbitt reported that marketing was $182,000 per year for 30,000 participants. He added that they stopped marketing in 2012 resulting in steep degradation, 5%, over time. Jayaweera asked how many they got. Nesbitt said it grew from 0 to 37,000 customers in eight years.

O&M and Setup
Nesbitt pointed to fixed yearly costs of running a program that wouldn't fall under set up and variable costs that associated with the number of participants and asked for an O&M that has both a yearly fixed and participant-based variable costs. Jayaweera said she can't do that, illustrating the point with the supply curve slide. Brown understood and suggested using a per participant approach. Jayaweera agreed and said that will be included in the narrative.

Jayaweera changed it to per participant and then asked what to assume.

Water Heating DLC
Brown said the $26 is for winter and summer so it would be less than $13. Jayaweera changed it to per year and shaded it yellow to indicate that it garnered a lot of discussion. Brown didn't remember where the $26 came from but guessed it came from Cadmus benchmarking.

Space heating DLC
Nesbit called the numbers old, recalling the thermostat program required a lot of return trips. He admitted that they were older, 2003-2004 thermostats.

Brown couldn't identify why BPA's numbers were so different. Jayaweera put in yellow placeholder numbers.

Space Cooling DLC
Nesbitt shared that his number is $18+ per participant per year without any original fixed costs. Jayaweera asked if he was okay with $20. Nesbitt was okay with it. Brown didn't recall why BPA has $32, calling it high. Jayaweera went with $20 in a yellow box to indicate uncertainty.

Jayaweera addressed set up costs asking if $150,000 is sufficient to cover a staff person and software costs. Nesbitt said Idaho Power piggybacks on their AMI system so they don't have any communication costs but they did have to pay an internal programmer to develop ways to link in.

Zeecha Van Hoose, Clark PUD, said this will vary hugely based on base technologies. She said she doesn't have AMI so they will have very different costs. Jayaweera agreed that this is a problem with representing a region.

Brown said BPA's $150,000 came from Cadmus work and spoke about early, set up costs. He admitted that because BPA uses a 20-year, levelized cost basis the first year is just a finger to the wind.

Jayaweera said this might be something for the narrative and the $150,000 seems reasonable. Brown said BPA's own studies ignore it. Nesbitt urged to not just look at it as employee time but generic set up. Jayaweera added that a thermostat will probably be used for heating and cooling so costs could be spread over multiple products.

Nightingale stated that, as a region, heating is a necessity while cooling is a nice add on. He said this suggests lower set up costs for cooling. Jayaweera said the cooling number is a little lower, agreeing that we are currently a winter peaking region. She asked if $100,000 is enough to explain the incrementalism. Nightingale wasn't sure about the precision but said even in Idaho you have to have heat while cooling remains a luxury.

Nesbitt said these comments don't apply to the switch.

Nightingale said any program will apply to heating first because that's the biggest load so set up should be on the heating while cooling would have minimal costs.

Next Steps
Jayaweera will:

- Follow up with PGE and PacifiCorp about thermostats and update the DRAC
- Reminded the room that this is a Draft Final, meaning final data and changes must come to her before March
- The Oct 30 meeting will cover non-residential products.

She closed the meeting at 12:00.

Attendees via Webinar

Tina Jayaweera	NWPCC
John Ollis	NWPCC
Chad Madron	NWPCC
Angela Long	PacifiCorp
Blake Scherer	Benton PUD
David Lowery	CLEAResult
David Nightingale	WA UTC
Eric Shierman	Oregon Dept of Energy
Frank Brown	BPA
Fred Heutte	NW Energy Coalition
Malcolm Ainspan	NRG
Quentin Nesbitt	Idaho Power
Nick Sayen	Oregon PUC

Nicholas Garcia	WPUDA
Suzanne Frew	Snohomish PUD
Tom Eckhart	UCONS
Zeecha Van Hoose	Clark PUD
Brian Dekiep	NWPCC