Northwest Power and Conservation Council
Conservation Resources Advisory Committee
July 20, 2023

Kevin Smit, NWPCC, began the meeting at 9:00 by greeting members. He alerted the room to upcoming CRAC meetings and announced that the NWPCC is looking for a power systems analysist. He urged CRAC members to pass that information on.

Smit then explained how to best interact with the Go-to-Webinar platform, reviewed the agenda, and called for introductions.

Quantifying Resilience Benefits from Energy Efficiency
Jennifer Light, NWPCC

Angus Duncan, NRDC, recalled analysis of the additional capabilities EE would have brought to Texas during their cold snap [Slide 6] and asked if that work was included in any Council work. Jenifer Light, NWPCC, did not think so but agreed they might be informative and offered to look.

Jim Lazar, RAP, wondered what proportion of the outages on [Slide 10] were system outages affecting both overhead and underground lines versus a distribution outage that usually effects overhead lines. He thought this might be an interesting way to judge if undergrounding is an important resiliency tool or if backup power is the only solution. Light did not know as this was not an area of focus.

Lazar noted that 90% of outages are distribution and affect people with overhead service. Light appreciated his point but said the Council focuses on the bulk system. Lazar explained that he envisions a lot of distributed storage in the power system of the future and it's important to know where to put that storage. Light thought this was interesting but reiterated that this is out of the scope of this project.

Lazar stated that the first law of ecology is that everything is connected to everything else. Duncan asked if Apex Analytics looked at battery backup along with a generator. Light answered yes and moved to [Slide 11] to explain.

Ted Light, Lighthouse Energy, recalled discussion around the study saying very few people have a diesel generator and wondered if the rate of ownership played any role in the study. He wondered if there was another way to get at the answers such as comparing what a weatherized home pays for electricity to what an unweatherized home pays during an extreme event. He thought there also might be a way to look at avoided property damage or health impacts.

J. Light said using the property damage approach was discussed as was the health values. She cautioned that the region learned how hard it is to build health impacts into a regional average with their woodsmoke analysis.

Duncan understood that weatherization would extend the benefits of any backup storage, be it a solar plus battery or diesel. Still, he thought analyzing a Ford F150 over a diesel generator made more sense. Duncan questioned the methodology of just looking at incremental costs when there are other kinds of costs and values that should be included.

Duncan then questioned a methodology that looks at average impacts when it's the extreme events and costs that make the most impact, particularly when it comes to human life. J. Light said some of these concerns fall under the delta in usage. She added that other system benefits that come will adding EE will be valued but not in this specific study. J. Light then said different building models, with different length of events, were tested to find the tail end. She thought other analysis methods might add complexity. She moved to [Slide 17] to say these were based on judgment and asked for more insight.

Josh Rushton, RTF CAT, agreed that a diesel generator is an odd choice, but said this kind of quantification would be weird no matter what was chosen. Duncan asked if the diesel gen set was weighed against a comparable amount of battery storage. Rushton answered yes, battery was discussed. J. Light offered that looking at a suite of options could be considered. Smit cautioned that the diesel generator could accommodate outages over six hours. Duncan countered that you could fire two batteries up in sequence. Smit agreed, adding that this is just a method to find the resilience of a weatherized home.

Elena Kazarov, BPA, stated that no one ever likes the first study, but it has to start somewhere, and this is very new work. She then said it is just to find the very important baseline of weatherized versus unweatherized homes. Kazarov concluded by saying adding health benefits becomes very complicated and would potentially diminish this study.

Rich Arneson, Tacoma Power, stated that Tacoma is working with Ben Larson on a similar study that explores weatherization impacts during severe weather. He said it looks at capacity benefits and sizing reduction benefits of heat pumps. He thought the Council could consider this. J. Light mentioned other work that Ben Larson did for the Council around extreme weather files and heat pump performance. She acknowledged that exploring weather extremes was important.

Lazar noted that a Kia Niro has a 64KWh battery that could accommodate a six-hour interruption and the F150 is even larger. He said during an outage people could drive to pick up diesel or drive to charge their car and CA will start requiring EVs come with adaptors to run power back to homes by 2030. Lazar insisted that EVs should be examined both as additions to the load and as very large source of storage and resilience. For reference, he said a Tesla power wall costs $700 per KWh but the F150 Lighting costs $600 per KWh plus you get a free truck.

Light said the six-hour event was the shortest test and they also examined 24- and 48-hour events.

Dan Adams, Avista, asked why diesel was chosen over gasoline. Light said it was an initial proxy. He asked if there was any analysis of proportion of homes that have a diesel generator. Smit answered that the idea was to come up with a proxy value for ride through capability and not a call for people to buy a device. Smit agreed that diesel generator is not a good idea.

Adams said the weatherization is the "Hamburger Helper" for a gas or diesel generator or a battery but the one you pick matters. Light said they were less interested in defending diesel and more interested in finding the right proxy to get through the math.

Nicholas Garcia WPUDA, agreed that the length of the power outage is important, pointing to his propane generator purchased after an eight-day-outage. He then said he has two EVs and worried that he couldn't drive somewhere to get power if needed. Garcia thought this might prompt people to buy generators that have nothing to do with weatherization. He wondered what that would do to the cost effectiveness.

Rushton stated that we're trying to find the value of what it takes to keep you comfortable in a weatherized versus nonweatherized home during an extended outage. He said everyone appears to be on board with the weatherized versus nonweatherized portion of the study and it's the physical asset that is sparking so much discussion.

Duncan asked if [Slide 16] represents days or hours. J. Light said it's a normalization value applied to different event lengths. Duncan then called it more of a shape. J. Light agreed.

Duncan asked if picking Hottest and Extremely Hot from history was the best approach [Slide 17.] J. Light said she will post the RFT's analysis that drove these definitions. She added that the hottest events in the historical record were very hot.

Northwest Perspective on Cost-Effectiveness for Energy Efficiency
Kevin Smit, NWPCC
Smit told the following joke [Slide 10] How does a small kitchen say goodbye? It micro-waves. CRAC members responded with groans, giggles, and a light smattering of applause.

Lazar stated that the 10% credit from the Power Act is still relevant today [Slide 11.] He pointed to a relevant draft of the bill that includes all quantifiable environmental and social costs. Lazar stated that the 10% adder was put there to acknowledged that it was harder to quantify social costs.

Smit thanked him, saying Council staff always have to remind people that the 10% isn't a Non-Energy Benefit, but more of a tie breaker designed to give conservation a boost.

Bonnie Watson, BPA, asked how the Council landed on 10% and for more about the concept of a tie breaker. Light said the 10% comes directly from the Power Act. Duncan recounted the actual conversation between Sen. Hatfield and Sen. McClure where they landed on 10%.

Watson then said conservation, which results in less energy use, is being compared to renewables which are a generating resource. She said this results in patchy cost effectiveness results for EE. Watson stated that conservation resources losing out to building a new resources doesn't make sense to her.

J. Light stated that it comes from all of the very different scenarios run in the Plan analysis. She said cost effectiveness is not just a comparison of costs versus benefits, but also includes a comparison to other resources. J. Light said the 2021 Plan saw that EE has value in deferring load, but renewables help meet goals faster because they can be built faster and once built don't need as much EE.

J. Light noted that the 9th Plan will look for places where EE was possibly undervalued. She said they will explore things like location benefits with more granularity. Watson was relieved to hear that better benefit quantification was on the way.

Harris recalled that the incremental cost associated with EE was not as important in "the old days" when there was more room between the cost of generating and the EE [Slide 17]. He said the new reality of inexpensive renewable builds and the next tranche of more expensive, harder-to-get EE requires new thinking about the actual incremental cost of the EE component of a product or practice.

Harris acknowledged that we are operating in a new environment, but we should train our gaze on getting data for the EE piece. J. Light pointed to ongoing RTF action items and other work around this, cautioning that this meeting is not the place to start work on the 9th Plan.

T. Light stated that the slide [Cost-Effectiveness: Valuing Energy and Capacity] shows that the 10% is only applied to energy and capacity benefits but thought that it applies to all benefits including NEIs and more. J. Light admitted it might be a typo. Smit confirmed.

Duncan recalled that it was a sweeping statement along the lines of, "if it can apply it should apply." He then asked what social cost of carbon numbers were used in the Plan. J. Light said $51, which was locked in at the time of the Plan. Smit said the 9th Plan will use whatever number is locked in at that time.

Duncan suggested that the Council use judgement as Federal numbers tend to bounce up and down. J. Light said they are also trying to be consistent with CETA in WA, adding that all these policies end up in the numbers.

Duncan asked the incremental value between the two red bands on [Slide Hours of Highest Value] was calculated. Smit answered that that is where the deferred resource is applied.

Peter Kernan, Oregon PUC, said that the forward price is very important for EE and the overlap between load shape and capacity is also key for measures that use a lot of energy during peak times [Slide: Council Cost Framework]. He then said that IRPs are showing large, long-road,

avoided costs that have to be valued in as they are not showing up in the avoided costs. Kernan said that models are choosing a lot of EE when utilities do their capacity expansion modeling. Smit said this is on staff's mind.

Garcia asked if there will be any thought given to differentiating analysis by geographic location [Slide 38.] Smit said staff is thinking about more localized analysis for the next Plan, adding that past work had to peanut butter everything including T&D.

Lazar summarized that the presentation was about creating a new category of conservation benefit that values resiliency with a dollar per kWh cost of avoided back-up generator costs. Smit agreed.

BREAK

Decarbonization of the Role of Energy Efficiency
Kevin Smit, NWPCC

Lazare asked if oil, propane, and wood are counted on the turnover to electric [Slide 10.] Smit answered that it is any fossil fuels.

Duncan inquired about high-heat industrial boilers that could start with a heat pump and then top off with natural gas [Slide 20.] Smit said they could be part of the solution, adding that this is happening in Europe but not yet in the U.S.

Kazarov asked if the first conversion is to the most readily available [Slide 24.] Smit answered that it's the market average. Kazarov then asked if the second conversion would take a very long time. J. Light said the Current Practice baseline represents what's in the loads while going to the efficient is captured in the supply curve. Smit added that no ramp rates were applied to the turnover of units.

Duncan asked about the social cost of carbon in 2041 [Slide 27.] Smit said it is already embedded. Lazar asked for more clarity. Smit answered that the social cost of carbon was embedded in the price forecast at the start of the Plan. Lazar confirmed that it was the Obama era number. Smit agreed.

Lazar asked if the Council is bound to move when a new social cost of carbon is approved. J. Light answered no but said Plan planning will look to update that number but not now as they are trying to do a cost effectiveness comparison to another resource.

Rushton said the real issue with these resource builds is subject matter experts say there is no way to double or triple the capacity of the electrical grid. J. Light explained that this work, grounded in Plan analysis put out significantly more renewables, EE, and DR, while also building battery storage, enhanced geothermal, and battery plus solar. She said the issue is not "the sky's

the limit" but to frame the adder for the cost-effective methodology to see what is cost effective.

Duncan thought the cost avoidance factor would be the amount of additional transmission capacity avoided because of these investments. Smit said some of that is embedded in our base case. Duncan asked if it was in the 7200.

J. Light cautioned against overanalyzing this analysis. She noted that the 2021 Plan bakes in what adding new generating resources would do to transmission and put limitations on the builds. J. Light said this is meant to be directionally useful, but the 9th Plan may have more thought about this.

David Moody, BPA, related that BPA customers are asking for carbon-free products to meet their state and/or individual carbon goals so it is on BPA's mind. He then addressed cost effectiveness, saying BPA has shifted to a higher-level, portfolio-based approach since 2021. Moody said this approach helps both their small/rural customers and other customers with aggressive carbon goals.

Moody stated that BPA values their partnership with the Council especially when it comes to finding the value of carbon and other attributes of efficiency as the region moves towards this brave new world.

Harris said the flexibility of loads will become more important as the region moves forward. He thought there could be good impacts on grid because of this. Smit thanked him, saying the RTF is trying to quantify flexibility, adding that it is proving challenging.

T. Light noted that in his conversations with Washington public utilities he was surprised that there were no conversations around fuel switching. He said this analysis assumes that there is some switching is happening. T. Light thought there would be additional benefits to looking at the problem through a combined gas/electric lens, particularly in WA where a gas utility may avoid buying emission allowances.

J. Light went back to the Power Act's definition of conservation which does not include switching. She said that doesn't preclude putting values and dollars into encouraging that switch, but the Council does not want efficiency dollars put to that use.

Duncan agreed that the Council doesn't have to get into the fuel switching argument but said there are many other drivers that push that discussion. He noted the OR gas utilities are in a state of what they would call hopefulness, but he calls denial. Duncan said he is not seeing interest in fuel choice, adding that the Council doesn't have to take a position, but should know that it is coming.

Smit said the mid-term will look at new policies and how it would impact the baseline.

T. Light mentioned the friction around WA's Climate Commitment Act and the fact that the Mid-C is in Washington. Duncan mentioned that PGE had power coming in from mid-C that resulted in a lively conversation about needing a carbon reduction obligation because a chunk of that power was coming from Colestrip. He believed it was resolved without an embedded carbon price travelling to Oregon.

LUNCH

How Savings are Tracked in the Regional Conservation Progress Survey
Jennifer Light, NWPCC

Duncan asked if staff monitoring legislative actions in WA and OR noting the large building savings and resilience packages that passed in OR in the last year [Slide 5.] J. Light said the bulk of codes and standards savings come from NEEA work and expects them to incorporate this in their work. Harris explained that NEEA does codes and standards work that is tagged separately.

Moody asked how Council staff will track and separate measures into two buckets: 750-1000 of cost-effective EE and non-cost-effective EE that will not count towards the Council target. J. Light admitted that this is an issue that will require professional judgement. She noted that the 7th Plan has been tracking the measure, or tap, level that will get us in the ballpark.

J. Light said they are trying to paint a picture of what has been done and supply curve build up work has revealed what is cost effective. She offered to talk more offline.

Duncan asked if the numbers on [Slide 12] are net average MW savings, saying some measures have a lifetime and savings fall off or disappear. J. Light said they assume savings are sticky over time. She noted that this approach has been questioned and pointed to work from Massoud Jourabchi, NWPCC, that shows it is on the right track. Smit said this is true for equipment measures but not necessarily with behavior measures.

Duncan asked if the savings would transfer when loads switch from gas to electric. J. Light explained that there is no way to track something like weatherization benefits after switching from gas to a heat pump, and they are trying to capture trends with market research, but more work is needed.

Duncan predicted an acceleration of fuel switching and thought this should be the responsibility of the state's Dept of Energy and not the Council's. J. Light said this is a retrospective and that work will happen with the load forecast and conservation potential work. She stressed that the baseline potential always starts afresh.

Garcia stated that there are great differences across the region which would lead to different levels of cost effectiveness. He asked that these different levels of cost effectiveness be considered when coming up with a Regional targets.

Garcia then noted hearing in the 2021 Plan that the Region could achieve the 750-1000MW and still be inefficient. He was curious about that and asked where in the Plan he can find the true targets.

J. Light thanked him for his earlier comment about regional differences. She then directed him to chapter five in the Plan to see these points, explaining the thinking around weatherization and the need to keep EE programs running.

Moody addressed the diversity of cost effectiveness. He said the Council's target is built on achieving a reliable, economical power system and the Council noted that these other elements are important too. Moody said achieving these other goals also provides EE resources even though they are outside the target range. Moody thought excluding these elements cuts both ways.

J. Light clarified that they are not excluding these other elements but are trying to make sure all cost-effective EE is done. She said they plan to clearly report these other efforts out.

Utility Share Out on EE Programs for 2023
Smit asked attendees to share their concerns around 2023 EE Programs

Avista
Dan Adams
Adams spoke about supply chain kinks and workforce shortages. He said Avista will decrease their target EE goals for the biennium explaining that there was a dramatic increase last time that they are not on target to meet but did close the gap.

Adams said they are pushing the accelerator on programs and pilots. He stated that they are starting a pilot for dual fuel heat pumps, cold-weather heat pumps along with a secondary pilot.

Smit asked for more detail about supply chain concerns. Adams recalled that heat pumps were an issue but could not speak to specifics. He noted that capital for smaller commercial industrial projects is not flowing.

Rushton asked about Avista's decarb plans. Adams did not know about specifics but said they are looking at electrification impacts for low to moderate income houses. Duncan asked if things like dual fuel heat pumps are affected by state policy. Adams answered that Avista thinks that using gas as a backup fuel is a good option for their customers pointing to the price differential between a cold weather heat pump and a dual fuel option.

Northwestern Energy
Danie Williams
Williams stated that supply chain kinks have smoothed out some while EE targets and goals remain the same. She said Northwestern is performing an end use and load profile study along with an updated electric potential and DR potential assessment, thinking that they will reveal

updated targets. Williams reported that there is no electrification or decarbonization work but they are researching emerging tech for cold-climate ductless heat pumps, cold-climate heat pump water heaters, and networked lighting controls.

Clark PUD
Debbie DePetris
DePetris said she is still hearing about some supply chain delays for residential, commercial, and industrial equipment. She stated that Clark met last year's target and expect to slightly exceed this year's goal. DePetris pointed to a slowing of programs, an upgrade to their accounting system, and a backlog of projects in May through July.

DePetris stated there are no electrification or decarbonization plans yet as they are waiting on customer demands or legislation. She said Clark does no research or work on emerging EE.

Snohomish PUD
Michael Coe
Coe reported that supply chain issues have narrowed but residential windows still present an issue, noting that two local manufactures have a six to eight-month wait. He added that large commercial lighting projects are also a problem as fixtures are hard to source. Coe said that T. Light works on their targets and the draft update is seeing a 36% increase with the same 30-40% expected for each biennium.

Coe said his manager is tasked with defining Snohomish's stance on electrification pointing to incentives for EV charging. He stated that the market looks to be moving forward so Snohomish is saving their incentive dollars for other work. Coe noted that the City of Everett is electrifying their bus system, pointing to a government grant to explore in-place charging for the fleet. He added that they are working with larger customers on their decarbonization plans.

Coe spoke about an 18-month-old, commercial, new construction program for emerging EE, adding that BPA will like the savings numbers. He said there are 10 million kWh in projects, including an all-electric distribution warehouse and a new, multi-family, low-income project that uses a central heat pump hot water system, and more.

Duncan asked if Snohomish's residential new construction includes EV charging stations, or at least the wiring and conduits for stations. Coe said they are exploring options, explaining that they had two large builders approach them to talk about installing 700 level 2 EV chargers in their projects. Coe said this would require a new substation, they are installing the wiring for the chargers for now, adding that his son is a new electrician and all he does is install wiring for level 2 EV chargers.

Idaho Power
Quentin Nesbitt

Due to technical issues, Nesbitt could not speak during the meeting. He wrote: Supply chain and labor have impacted our customers' speed of getting projects done. Our potential study shows less savings going forward so our targets are lower.

Benton PUD
Chris Johnson
Johnson said supply chain was an issue adding that when a unit goes down on the commercial side, local HVAC companies don't have higher efficiency product available. He reported that their current, lower biennial targets have been met and they are working to define the next target. Johnson explained that there has not been a lot of uptake on their EV incentives, but are focusing on low-income activities. He admitted that these projects are much more expensive and yield fewer savings.

Chelan PUD
Josh Mitchell
Mitchell said Chelan's supply chain issues have eased because their manufacturers transitioned to suppliers who can reliably deliver product. Like Snohomish, T. Light is working on their CPA, so Mitchell is not sure what the new target will look like. He said they have noted a decrease in energy usage over the last 20 years but there now appears to be an increase. Mitchell theorized that remote work, which allows people to live in their vacation home year-round, may be the cause or just general electrification.

Mitchell reported a disturbing trend unearthed in their heat pump research where customers continue to use auxiliary heat as their main source. He said they have to come up with a plan to attack the issue, adding that their rates are so low that people don't have to care about heat pump usage. He asked for feedback on marketing to help solve this. Mitchell said they are logging lower savings in the winter but surprisingly higher summer savings.

Mitchell concluded by saying, like Clark County PUD, they are not working on emerging EE technology but would love to get involved in BPA's cold-climate heat pump study. He said his biggest concern is that no matter how much they incent heat pumps customers still use auxiliary heat.

Rushton said the RTF shares that concern. He said they want to understand the regional plan. Smit added that the last RTF meeting stressed that a regional strategy is needed, and NEEA is starting work on that.

Duncan asked if the problem is customers plugging electric heaters into the baseboards or if the issue is embedded in heat pump. Smit said it's the latter, theorizing that the settings are not right, or customers want more heat faster, so they adjust it themselves. Duncan asked if this could be remedied with better, set-and-forget controls or more training. Smit did not know.

NEEA

Jeff Harris

Harris stated that NEEA is working on market transformation initiative to address the issue of heat pump controls. He said it will encompass installation practices and equipment that cause a heat pump to act like an electric furnace most of the time. Harris asked Rushton for help finding a definitive data set.

Rushton said the end-use load data is clearly showing plenty of electric resistance heat. Adams asked if the cause was customer behavior or demands put on the system. Rushton said he did not explore this in depth but found a mix of things including defrost malfunctions and morning warmups with large spikes even on mild days.

Mitchell said they have monthly data showing devices switch to electric resistance on days above 0°F. He said this is not just customers' behavior, but contractor installation plays a role. Mitchell offered to share his data with NEEA. Harris added that this has been a problem in the heat pump market since the 1980s and it's time to figure out the problem.

OPEN DISCUSSION

T. Light said he's heard that supply chain issues abated but persistent snags remain. He's noticed a fall-off in weatherization work and wondered if trouble sourcing contractors is still an issue. T. Light added that plumbers still have some hesitancy around heat pump water heaters.

T. Light addressed targets saying higher market prices are leading to better cost effectiveness potential. He said programs are showing signs of coming out of the COVID slump. He added that some measure in the Plan may not have a program so there are no activities to record yet.

T. Light said the CETA legislation requires more intentionality when it comes to low-income projects. He said utilities are diving deeper into Demand Response adding that Snohomish is piloting programs and moving into actual implementation. He also sees an emerging programming approach where the utility works with the distributor to drop ship directly to the customer. T. Light said this makes it mostly free to customers and distributors are marketing this to other utilities.

Annika Roberts, NWPCC, agreed saying she heard about this approach as well from distributors at Efficiency Exchange.

Harris discussed the emerging EE measure topic, again pointing to the effort to reduce electric resistance heat use in heat pumps. He admitted that this is not emerging but represents a large opportunity, particularly in light of Inflation Reduction Act (IRA) rebates.

He then highlighted work with partners on central heat pump hot water systems, saying there is interesting potential there both for efficiency and creating a large, flexible load. Harris said NEEA

is looking at flexible load resources as a specialty funded opportunity to accelerate the adoption of grid-connected electric water heating.

Harris spoke about consumer appliances, noting that NEEA has been working with manufacturers on heat pump dryers which will be useful now that the IRA is giving the technology an $800 rebate. Harris said there is also work on refrigerators and advanced variable speed compressors.

Will Mulhern, OR Dept of Energy, discussed starting work on the State Energy Strategy, saying they will look to WA as an example. He said there is a goal to install 500,000 heat pumps in the state by 2030 that will generate many tracking reports. Mulhern said a building performance standard is also part of that bill which was expected to be signed by the Governor.

Mulhern said they are tracking Federal funding and awaiting guidance around IRA rebates.

Smit asked if the building performance standards will look like the WA's. Mulhern said WA is advising the state as it staffs up for the work adding that OR will have a higher threshold of 35,000 square feet. Smit was excited to hear more in a future meeting.

Duncan said he works on energy and climate issues for NRDC and the biggest issues are decarbonizing the electric energy system, transportation, and HVAC. He said this drives focus to transmission planning and Council slides show that the region will need more than business as usual.

Duncan said the environmental and tribal communities will talk about transmission but first need to be persuaded that the demand side is doing all the EE, DR, and DG it can. He said once that is underway and documented it will be easier to get support for needed transmission planning. Duncan said the amount needed will be an order of magnitude or larger than the $2 billion recently proposed by BPA. He also pointed to potential supply chain and labor issues as the rest of the country realizes they too need more transmission. Duncan said this tension will impact cost effectiveness.

Duncan introduced a twist, saying this kind of market pull tends to drive technology innovation, meaning there might be an advantage to moving slower to take advantage of new advances. He said even if the region moves faster, they should build in ways to incorporate these new technologies. Smit agreed that transmission is a big issue and transmission is related to the demand side.

Peter Kernan, Oregon PUC, said that investor-owned utility IRPs are showing a high level of EE targets and corresponding avoided costs. He said some of this is tied to OR's decarbonization pathway, adding that what PGE is calling the cost of clean energy means they can't buy a dirty MWh in the future. Kernan said this puts more value on clean resources and EE. He added that EnergyTrust has been active on research and a dual fuel heat pump pilot.

Smit thanked him, saying he will follow up on the cost of clean energy concept.

Coe added that Snohomish has already incented 200 heat pump dryers and are also trying to figure out the savings on a couple dozen, single-unit, clothes washer/heat pump dryers. Smit suggested submitting a new measure proposal to the RTF.

Williams agreed with earlier comments about workforce challenges around weatherization. She said numbers are starting to creep up after a small drop in applications, but Montana does not have a large market of heat pump/heat pump water heater installers who have bought into the technology.

Smit thanked the room for their input. He adjourned the meeting at 2:30.

Attendees In-Person and via Go-to-Webinar

Kevin Smit	NWPCC	Peter Kernan	Oregon PUC
Jennifer Light	NWPCC	Jim Lazar	RAP
Dylan D'Souza	NWPCC	Ben Mabee	BPA
Annika Roberts	NWPCC	Josh Mitchell	Chelan PUD
Chad Madron	NWPCC	Spencer Moersfelder	EnergyTrust
Angus Duncan	NRDC	David Moody	BPA
Dan Adams	Avista	Will Mulhern	OR Dept of Energy
Ted Light	Lighthouse Energy	Quentin Nesbitt	Idaho Power
Josh Rushton	RTF CAT	Craig Patterson	independent
Elena Kazarov	BPA	Liz Reichart	WA Dept of Commerce
Rich Arneson	Tacoma Power	Diego Rivas	NW Energy Coalition
Leanne Bleakney	NWPCC	Kristopher Scudder	SnoPUD
David Baylon	independent	Leticia Seloske	US Senate
Juan Carlos Blacker	BPA	Joan Wang	BPA
Frank Brown	BPA	Bonnie Watson	BPA
Michael Coe	SnoPUD	Danie Williams	Northwestern
Debbie DePetris	Clark PUD	Dan Catchpole	Newsdata
Brian Dekeip	NWPCC	Melia Donovan	PNGC
Nicolas Garcia	WPUDA	Ed Schriever	NWPCC
Jeff Harris	NEEA	David Siddiqui	Oracle
Tina Jayaweera	NWPCC	Landon Snyder	SnoPUD
Chris Johnson	Benton PUD	Aquila Velonis	Cadmus