Conservation Resources Advisory Council Minutes
December 17, 2014
Northwest Power and Conservation Council

Attendees on site

Tom Eckman	Northwest Power and Conservation Council
Charlie Grist	NWPCC
Tina Jayaweera	NWPCC
Kevin Smit	NWPCC
Stan Price	NEEC
Jess Kincaid	OR Dept of Energy
Lauren Gage	BPA
Dick Adams	PNUCC
Fred Gordon	Energy Trust
Hossein Haeri	Cadmus Group
Wendy Gerlitz	NW Energy Coalition
John Morris	CleaResult Consulting
Roger Spring	Evergreen Consulting Group
Eugene Rosolie	NEEA
Eli Morris	PacifiCorp
George Pohndorf	Snohomish PUD
Jessica Mitchel	Snohomish PUD
Jeff Harris	NEEA
Dave Hewitt	Consultant
Bob Gunn	Seinergy
Brad Cebulko	Washington Utilities & Transportation Commission
Danielle Walker	BPA
Jennifer Anziano	NWPCC
Graham Parker	Pacific Northwest National Lab
Scott Davison	Clean Energy Works
Ryan Firestone	Regional Technical Forum CAT
Christian Douglass	Regional Technical Forum CAT
Mohit Singh-Chhabra	Regional technical Forum CAT

Attendees via Go-To-Meeting

Chuck Murray	Washington Dept of Commerce
Craig Smith	Seattle City Lights
Ralph Cavanagh	NRDC
Linda Esparza	Franklin PUD
Margaret Ryan	PNGC Power
Brian DeKiep	NWPCC Montana Office
Garrett Harris	PGE

Keith Knitter	Grant County PUD
Dave Warren	Washington PUD
Richard Sargent	Franklin PUD
Jeremy Stewart	Tacoma Power
Gurvinder Singh	Puget Sound Energy
Phillip Kelsven	BPA Contract Employee
Michael Li	Department of Energy
Warren Cook	Oregon Dept of Energy
Richard Cole	Grant County PUD
Ashish Agarwal	
Josh Rushton	Regional Technical Forum CAT

Charlie Grist and Tom Eckman greeted the group and introductions were made. Minutes from the past CRAC meeting were certified and adopted. Grist recapped the last CRAC meeting and noted that rooftop photovoltaics will be a large resource. Grist noted that a paper on the effect of shading on rooftops would not be included in the analysis.

Grist noted that data centers are being relooked at. He stated that the total load of embedded data centers dropped. Fred Gordon, Energy Trust, stated that he had one experience where they helped a large data center save megawatts of energy and is not sure if that is a one-off experience or a common one.

Tom Eckman asks Gurvinder Singh, Puget Sound Energy, about his PSE's data center work. Singh stated that these programs are for mid-sized corporate data centers and will provide PSE's findings. Singh further noted that big data centers are not as open but use their own internal teams to examine efficiency.

Gordon stated that big data centers are "meteors out of the sky" with big loads making it difficult to forecast. Singh further noted that factors other than conservation often drive the load, for example virtualization was space constraint –driven. He stated that some aspects could benefit from a utility push while others are process or tech specific and would happen on their own. Grist asked for recommendations. Singh stated that he would contact his programs for findings.

Danielle Walker, BPA updated the CRAC on Six going on Seven

Walker presented the information. She noted that they are working on a tool that elegantly presents the measures. She also noted that they are summarizing but not providing opinions.

Lauren Gage, BPA, asked if the DR supply curve is coming to the CRAC. Eckman explained that parts of it are. He said that vetting work is being done now and a meeting is planned in February/March 2015 for comments. He further stated that the Generating side is looking at pieces as well. Eckman stated that he would like to connect with Bonneville and other utility teams for DR support. He summed up that the plan is to have a DR supply curve in the RPM as well as in Genesys.

Jessica Mitchel, Snohomish PUD offered internal work done by her team to the Council. Jeff Harris, NEEA, asked how the Council will represent demand impact of "Permanent Demand Response." Grist explained they will pass the kW impact of the energy-efficiency measures that are coincident with the regional peak to the RPM. Harris asked if the efficiency would go in first. Eckman stated that the efficiency would be selected based on both its energy and the capacity value of its kW contribution. Mitchell approved of this approach.

Grist noted the "fuzziness" of when these savings occur and mentioned that ProCost was altered to complete a capacity calculation as fine as one hour. Gordon asked if the high-use hour bin will have less value. Eckman answered that there is a high-load- hour energy component and a peak-hour component within the high-load hour period. Both Gordon and Eckman agreed that it is not being counted twice. Grist explained the method.

Eugene Rosolie, NEEA, voiced concern over how often certain resources are available and counted in terms of DR. Eckman answered that it's part of the supply curve vetting. Grist added that the Council is looking into DR more carefully this time but it's still formative. Eckman stated that Genesys will be used to determine why and how we are missing the 5% LOLP. Rosalie asked if the "market" will be part of the discussion. Eckman stated yes.

Hossein Haeri, Cadmus Group, asked about the double counting potential of energy efficiency and conservation related to a utility's DLC programs. Eckman answered that the Genesys model stacks them as contingency reserves with a fraction available under certain conditions.

Grist called on Harris to present data from NEEA on ramp rates or adoption curves on new technologies entering the market. He stated that they will be presented in full at the January CRAC meeting. Gordon expressed excitement on seeing real data. John Morris, CleaResult Consulting, asked about the tiers of efficiency. Harris explains the trajectory of the tiers. Grist called it an important input parameter.

RPM Approach to Conservation in the Seventh Power Plan

Grist explained the rebuilt RPM and stressed that conservation measures would be combined into cost tiers. Dick Adams, PNUCC, asked if the costs were only energy costs. Eckman explained that they are normalized based on levelized cost of energy. Adams then asked how it will treat the capacity or peak load reduction value. Eckman answered that the kW impact will be valued at the avoided capacity value and this is the cost side of the equation.

Addams clarified that the Council will not input the cost of conservation peak savings independent of its cost for energy. Eckman further answered that the Council is not putting in energy resources in the forms of efficiency and separately putting in capacity resources that are demand side except for demand response.

Addams expressed concern about the RPM looking at a future capacity need and not picking a conservation measure based on cost. Eckman stated yes it would miss it but when it looks over 750 futures the RPM would find the value. Addams stated that it sounded like the RPM would not be able to pick conservation programs that contribute more to capacity needs because they will be bundled in with energy. Eckman stated that there would be a slight bias to pick those but it will not be a driver.

Wendy Gerlitz, NW Energy Coalition, shared Addams' concern that the bundling process disadvantages the capacity values to their full extent. She wonders how the capacity value could be highlighted or explained to utilities.

Eckman noted that the output of the RPM has both the cost inputs and the value proposition that they create. Gordon stated that the real selection of resources is based not on one scenario but on the 750 cases and what is stable and cheap and looking at those bundles. Eckman explained that the bundle is created by looking across the 750 futures and the model will test 10,000s plans to determine the lowest cost for the risk like buying a deductible in an insurance policy.

Grist explained that the value is found in pushing capacity builds off the 20-year-cliff.

Gage stated that if the model only chooses cheap cost bins then it will be difficult to run programs. Grist agreed and stated that they are looking for more feedback.

Grist moved to conservation availability over time fully explaining the "total not to exceed over 20-year-period" and it's advantage from the Sixth Plan. He also explained how this RPM will sample differently in proportion to the bins.

Mitchell asked how the Council thinks this will impact the region. Grist answered that it will depend on the shape of the curve and how much is in the low bin versus the high bin. Eckman stated that one of the virtues of the new model is they can put in proxies to see what curves might look like. Mitchell says this might be more representative than before. She then asked about the moving baseline where time goes on and a utility cannot buy a particular measure anymore. Eckman answered that they are using a frozen efficiency baseline which prevents double counting in the load forecast and supply curve.

Gage asked how the Council is thinking about the definition of measure within the cost bins asking if it's at the granular level, the technology level or somewhere in between. Grist answered that there is analyst discretion with respect to bundling. He then stated that they could pay more attention to programmatic deployment bundles.

Gordon reminded the group that the RPM is a model. Grist agreed and stated that the measures are not a prescription for how to set incentive levels. Eckman called for input on year to year acceleration and the program year ramp slopes.

Commercial Building Stock Assessment

Charlie Grist presented. Harris noted Christopher Frye at NEEA will have data available in the first quarter of 2015. Stan Price, NEEC, asked if the data are normalized for vacancies. Harris answered that he is not sure, noting that the EUI data is a weighted, weather-normalized snapshot of actual bills. He said he will check on vacancies. Kevin Smit, NWPCC, noted a field in the data base for vacant area percent. Grist called for NEEA to provide a place for people to post their findings so others could pivot off of that information. Harris suggested creating a Conduit group of interested parties that could post findings and analysis. Grist noted that a user group would prevent accidental misuse of the data. Harris agreed.

Commercial Lighting

Grist presented data noting that the outdoor lighting is just what is attached to the building façade and parking lots and does not include street lighting.

Grist noted that the CBSA Lighting Hours are 20% lower than the National Lighting Inventory. He gave possible reasons for the discrepancy and asked the CRAC for input. Harris asked if compared these numbers to what's currently in the calculator. Grist said he had not. Harris stated that it might be useful. Grist stated that he and Smit looked at the small, medium and large office space numbers and found significant differences.

Gordon asked for a timeframe for feedback. Grist answered that the worksheets can be updated until February. Harris approved of taking these numbers to the model but cross checking with the current lighting calculations.

Commercial Lighting Savings Potential

Grist presented three classes of possible measures and asked for input. Gordon asked if the CBSA surveys give better data on how often the remodel cycle impacts the lighting fixtures as they are now relying on an "ancient BPA study." Grist answered that the renovation data has good data. Gordon stated he is interested in that.

Grist brought the discussion back to the three tiers of lighting measures. Dave Hewitt, Consultant brought up his work on the Office of the Future and the importance of controls which change the numbers. Grist asked for some weighted estimates of the costs, noting that cost data is hard to come by.

Gage stated that her team is trying to line up the classes with different variables and asked how to fit these categories into that work. Grist stated it is found on the baseline and explained further. Gage reiterated that there is a current practice baseline and sales data not saturation data. She asked if it is measured in LPD or wattage. Grist stated that last time he created effective deltas between fixtures and noted that the linear florescent is the big part and could be measured in lumens per square foot. Gage stated that it's pretty much current market practice across the board and the Council is still working on whether it's watts or lumens per square foot. Grist stated that it will probably be watts per square foot delta and find a way to normalize for fixture performance.

Haeri asked how these correspond with cost bundles in the RPM. Grist stated that they will probably be in classes together with a few blips.

Mitchell asked about delamping. Grist stated he didn't think about it and stated there are too many permutations to model them all.

Grist presented the approach to estimating savings in Class 1 and asked for input. Gordon stated that the costs might be conservatively high but is cheap enough that it doesn't matter. Grist agreed. Gage stated that if it's approached as a retrofit then she is not sure that the baseline is current market practice. Grist stated that they figured out a way to analyze the early retirement value and it could be deployed but is not sure it's worth it. Grist suggested parking that for further discussion.

Grist asked the people from Evergreen to help with the "fungible pricing" and coming up with a real incremental cost. Roger Spring, Evergreen Consulting Group, said he will work on it.

Eli Morris, PacifiCorp, asked about ramp rate and tying it to a direct delivery system especially NEEA's five year business plan. Grist said it would be a good question for NEEA but imagines that it would be fast. Gordon stated that it is big enough for NEEA and Energy Trust to go after.

Rosolie stated that he is reluctant to tie anything to a specific program. He agrees with Gordon that there are lots of mechanisms out there but says that Morris brings up a good point that there is already a five-year-plan in place and it's hard to change.

Grist moved to T8 LED replacement and asked for input. Gordon noted in his research he finds that when it comes to connecting a bulb to line voltage ever utility engineers hate them but utilities are doing them in programs. He feels that modeling fixture inserts will get you to the same point as these as the inserts will come down in cost. He noted that it's a short term plan that would happen with or without utilities. He further notes that they are not a great product but will give a short term savings blip. Grist agreed. Spring agreed as well but noted that the market is responding.

Grist asked about Conservation Potential Assessments. Haeri said he will find out details. Morris noted that his consultant used projections from DOE that showed a large change in efficacy and cost for LEDs. He further noted that it is not all available up front but a large opportunity over a 20 year life span.

Grist moved to Class 2: One for One Fixture Replacement calling it a high-turnover, high-volume opportunity. Gordon noted that this is not that much faster than the old Bonneville study that they were using before. He also noted that much of the change outs are due to new technology and distinguishing retrofit from replacement is tough for one to one fixture replacement therefore the code may not be that important.

Grist agreed. Gordon stated that the LED replacement kits get interesting as they may extend the life of fixtures by refurbishing them at less of the cost of replacing them. Spring added that they are never retrofitted one at a time. Grist gave his reasoning for treating them one-by-one but stated the real question is do you keep the lumen output the same. Harris asked if that was the third block. Grist answered yes and noted that there is not a clear line between them.

Gordon said to build a model you need two extremes. Grist agreed and said using the one-to-one was his way of getting the cost delta per power change. He then said you could hold the lumens constant or move them around.

Spring stated that there are seismic requirements now when you move fixtures around that change cost significantly. Gordon noted that everyone has been working hard to get the redesign going but admits it's a slow boat. He says the fixture retrofits and inserts will be fast mover because it's dumb, cheap and fast.

Harris stated that he still feels there will be an opportunity for LED tube for tube replacement as they get better, likening it to a race with multiple horses galloping down a track. Spring stated that the tubes are getting brighter and the price is getting better but there are not too many people excited about that yet. Spring then asked how we can influence the market to get the right option. Harris stated that it is not a one solution market.

Grist proposed looking at higher cost and lower savings and peg the savings potential in the supply curves at the better of the two in terms of cost and size for liner florescent, high bay and recessed cans.

Graham Parker, Pacific Northwest National Lab, informed the CRAC about LED can lighting called a Helen Lamp that offers 900 lumens at 13 Watts. Gordon called a small increment of savings over CFLs at a large increment of cost but is probably more viable long term. Grist said it sounded like a 50% jump. Gordon stated that he hears differently.

Grist asked for feedback on how many flips can we get for the ramp rate.

Grist moved to Class 3: Lighting Remodel and Design and proposed that the LPD could get to the top end of the lower quartile, around .7 watts per square foot. Harris asked if this is technical, achievable or practical limit and then asked what it means to set a target. Grist stated that he is going to measure the delta in savings between code compliance (.91) and where we could get to. Harris replied that that seems incredibly conservative saying that we already know how to get to .5 watt a square foot in offices. Spring agreed.

Morris asked how this relates to Class One and Two. Grist answered that there is no driver in Class One and could back calculate for Class Two. Morris asked that if we assume lamp for lamp replacements the LPD would be driven down. Grist stated that he proposed the code as the baseline for redesign. Morris worried that this might be double counting the savings. Harris stated that the remaining floor space

should not be covered by the other two blocks. Harris said the code is conservative and the applicable floor space shifts over time. Grist agreed.

Grist moved to Setting Target LPDs for New and Remodeled Lighting and asks for feedback. Hewitt stated that warehouses don't need dimming but could benefit from occupancy controls. Hewitt then said he wonders about assembly and schools. Spring noted that code is never the driver in these cases but it's the right amount of light with the lowest possible wattage and LEDs are driving that down.

Gordon stated the big risk is in five years we double the lumens per watt and the plan is obsolete. Gordon described the upside risk of how the Council deals with emerging tech in the plan as huge. Grist noted that the Council is taking up some scenario work to get to low or no carbon future that Gov. Inslee has asked for. Gordon then stated that lighting loads have already been greatly reduced twice so you are taking percentages out of an ever smaller number. Harris agreed but still feels you could drop it 50% lower, "the question is how fast it shows up." Harris stated that the technology goes beyond LED to sophisticated, granular controls and conventional fixtures.

Grist summarized that the way to set target LPDs is to get a cost bead on the controls component in office, warehouse, assembly and other. Spring notes that he doesn't agree with Harris but wonders how many projects will adopt at this level. Harris noted that the supply curve is about potential. Spring agreed and noted that lots of LEDs now come with controls as part of the package. Gordon cautioned about overlaying a multiplier on as not everybody will adopt it.

Grist summarized, noting that care must be taken not to double count. He quickly discussed street lighting noting that he wants to be aggressive but the question is pace. The Committee agreed with head nods.

Advanced Rooftop Controller
Kevin Smit presented.

Gage offered to share BPA intermittent fan speed data as her group found a smaller number than the 60% of controls being intermittent that Smit presented. Smit welcomed the data and called for more as he was surprised by the number. Grist suggested that the CBSA people clarify how they got their numbers. Harris said he wasn't sure of the field protocol. Gordon offered a draft study of 30-40 buildings as well.

Smit presented RTU Systems by Size. Gordon noted that the data is much different than anything he's seen and is surprised by the number of units bigger than 15 tons. Grist stated that someone else should look at the CBSA numbers but the data are there.

Harris asked what the regional hours mean. Grist answered its HVAC hours. Smit stated it would be helpful for others to look at the data as he had to backfill a bit.

Smit presented ARC-Applicable Units and asked for feedback. Gordon stated he's never seen data that showed as many heat pumps as rooftop units and wonders how it compares to the last CBSA. Harris agreed it seems high. Smit agreed to double check the numbers. Harris noted that the field data is much more robust here. Gordon restated that he is intuitively struggling as many of these locations have a high instance of gas and it is unusual to find gas and heat pumps together. Harris agreed but stated that it might have happened since the last study. Grist noted that there is a higher fraction of electric space heat in offices. Gordon stated that if you have high rise offices you get more electric heat. Harris stated it could be real. Smit suggested digging deeper into the data and showing different building types.

Smit presented ARC Measure Savings based on a study by PNNL. Harris clarified that its kilowatt hours for the whole unit not per ton. Gordon clarified that the baseline is units with a constant fan speed. Smit noted that most intermittent fan systems are below code so he is ignoring it. Harris stated that this is an interesting environmental impact that they have struggled with. Gordon agreed and stated that the program is probably not saving what the study says it does.

Harris stated that it's worth thinking about another measure for the intermittent systems that have a smaller savings but bigger non-energy benefit. Grist expressed doubts about savings for intermittent systems. Harris suggested limiting it to the large systems. Gordon stated that intermittent versus constant pie above 10 tons would be an interesting graph. Gage and Harris agree.

Smit presented the Initial, High Level Technical Potential Estimate. Harris brought up the replacement market noting that the smaller tier manufacturers are thinking about embedding the control and wonders if there is a measure for that. Smit said it's just retrofit but there are code requirements in WA and OR. Harris said he would look at that. Gordon noted that there is a long history of codes being irrelevant.

Gordon voiced disappointment that the PNNL study didn't consider cost over repair or possible savings to make the equipment suitable. He stated that this assumes you have a functional unit and wants to get together with Bonneville and possibly Snohomish to find the experience and costs. Grist stated that this might be for the next CBSA study.

Harris asked about the PNNL test sites and wondered if the numbers are the way they are because they are larger systems. Harris then asked if these would be represented in three measures or one measure at $39. Grist asked what the room wants. Harris stated one measure. Gordon agreed. Smit proposed a measure for 10 tons and up and something 10 and lower to accommodate "ARC Lite". Harris agreed that that makes sense. Gordon said that to make it relevant ARC Lite has to include feedback loops to make sure things work. He further noted that it's hard to get good information from people on the roof.

Gordon asked what the Council used for the life of a rooftop unit. Smit answered 18 years. Grist noted that the CBSA puts the average age for an existing rooftop unit is 12. Gordon asked if anyone has done actuarial modeling from the CBSA from the typical life. Grist said no. Gordon said it would be hard but worth it. Grist said it would be a good project for an intern.

Gage said she will get data to Smit re: 91% savings from fans. She said they found lower numbers. Smit welcomed it as well as run hours. Harris suggested that the absolute numbers would be larger.

Residential Behavior

Tina Jayaweera presented and introduced M. Sami Khawaja and Jim Stewart from Cadmus. The discussion focused on savings from programs using Home Energy Reports (HER).

Jayaweera defined Conservation as having a persistence of savings. Rosolie asked about the definition of persistence. Grist stated that if we put it in the RPM it has to be a dependable resource for 20 years.

Jim Stewart from Cadmus narrated a graph of potential savings and pointed to a savings decay rate of 20% per year. Gordon asked if they looked at the sensitivity of urban/rural and commented on an ETO study that found lower savings from high usage customers. Stewart answered that high use households generally save more and is surprised by Gordon's data. He also hasn't seen any data that breaks out urban and rural.

Morris asked if you extend the data out 20 years do the 1st year report savings get to zero or do some savings persist. Khawaja said if you run the program for just one year and stop by the sixth year the savings are gone. Harris asked if you run a program for one year does the 20% decay rate hold. Khawaja answered that the gut feeling is if you run it longer it persists longer. We can say if you run it a short period it decays faster. He pointed to a six-month study where the savings stopped almost immediately. Khawaja finished by saying that these data are based on three to four years of reports. Harris summed up by saying if this becomes a measure the characteristics are really important.

Gage asked how this study looks at the interaction between capital vs behavior. Stewart answered that there is capital savings in HER but most of the research suggest that the savings are behavioral. Stewart suggested looking at the share of HER savings from participation in utility rebate programs to find savings are 5% or less. He then pointed to research that looked at how energy use responds on a short term basis to energy reports that found savings increase/energy use go down and as time passes it reverses until the next report comes out. This is called action—backsliding which means the behavior has to be reinforced.

Gordon brought up his data that shows it mostly behavior but the hardware element increases over time. Eckman stated that they couldn't account for upstream programs. Gordon said the 20% decay rate seems "kind" and alluded to data that showed 20-70% after 12 months for three clients. Khawaja noted that they did exclude one case with 80% decay. Gordon acknowledged that Cadmus probably worked with a broader sample. Stewart said he looked a report that looked at decay over two years that showed between 12-30% so they went to the middle.

Singh asked if Cadmus looked at any correlation between decay and household income noting that dollar savings were probably not the main motivation. Stewart stated that he is not aware of any data

on that but other researchers have not found any correlation. Singh then asked what is motiving people. Stewart said that is an unanswered question. Gordon stated that if you're going to build a resource you need to build in a .5 to 1% attrition rate per year. He also suggests building in a lag to the ramp rates as they take time to get going. Khawaja stated that they suggest a higher attrition rate.

Jayaweera discussed overlaps with widgets and acknowledged the risk of double counting some portion of savings. Gage asked how the Council thinks about this in the momentum savings. Jayaweera pointed to the potential study which assumes that 85% of widgets get adopted so momentum versus program savings is part of the larger picture.

Rosolie stated that more and more consumer products other than lighting are being done upstream. Eckman stated that residential lighting is an upstream play and commercial lighting is more and more upstream so this might be a duplicate without knowing it. Jayaweera pointed back to Stewart's findings that showed most of the movement is behavioral. Stewart stated that it is not impossible to get a handle on the upstream savings using large surveys. Gordon noted that part of the dilemma is that this is expensive and want to look at all the factors.

Rosolie said having run a behavior program and its real value was as a customer service education tool.

Morris stated that the overlap may be more complicated as customers may be installing hardware measures that are not in the programs but are in the supply curves. The CRAC agreed. Eckman agreed that the studies are limited in finding out what behavior changed or measures installed.

Josh Rushton, RTF Contract Analyst, asked if anyone knows the shape of the savings as he imagines customers don't even open the envelope with the report. Eckman pointed to work at Puget where groups were divided into quartiles of savings.

Jayaweera moved to Small Utilities and concluded that to succeed there would probably have to be regional coordination. Gage asked for Rosolie's perspective as it's hard to get all of the utilities to connect together. Rosolie answered that there would be a technical barrier with billing systems and the need to move that data into one system.

George Pohndorf, Snohomish PUD, added that individual utilities would be interested in the customer service piece and would want to own it. Eckman noted that each utility might have different offerings. Pohndorf mentioned a program Opower is doing with small commercial program with Puget and we are all interested in segmentation. But even getting two utilities to work together is a challenge.

Gordon brought up higher cost/higher engagement programs that give higher savings and wonders if that is more viable for smaller utilities. Jayaweera said that worries her more about double counting.

Khawaja stated that the cost effectiveness of this approach is a function of it being a large program.

Jayaweera moved to the proposed approach and applicability. Gordon brought up the three year on, two year off approach and suggested that two years on one year off would be a tighter approach. He also suggested scaling the participants to the size of the utility. Gage asked Gordon his opinion of the on/off approach. Gordon replied that here are momentum effects that create a glide path. He says the highest cost is contracting with the provider. Eckman likened it to ag where you rotate fields. Gordon stated the two lines of thinking: you get better at it and it's a resource or people build up calluses. Rosolie stated that he thinks we are on thin ice.

Walker moved the discussion back to the averaging vs incremental savings report stating that at the end of the plan the average doesn't reflect what the resource was at the end of the 20 years. Eckman stated that each year isn't cumulative. Jayaweera stated that it's five cycles of reinvestment not cumulative savings. Grist explained further.

Morris asked how this goes into the RPM in terms of annual potential. Jayaweera pointed to other measures with a short life. Morris asked once it picks it the RPM keeps it for 20 years. Jayaweera replied yes. Morris asks if the RPM picks it all in the first three years would the targets be all zeros after that. Eckman answered that the levelized purchasing cost would reflect a 20-year amortization. Morris asked about the annual targets that come out of the RPM. Khawaja answered the annual incremental savings beyond the first year would be zero.

Morris wondered what happens to the RPM target and if the region can't coordinate. Rosolie called this putting a square peg in a round hole. He guessed that 99% of savings from a behavioral program come from the widgets. Stewart disagreed stating that the body of evidence suggests otherwise. Rosolie reiterated his concern.

Eckman defended the ability to tweak lifestyles. Singh stated that it seems like there is not enough data yet and feels that this is not the Plan for the measure.

Gerlitz respectfully disagreed with Rosolie and Singh stating that there is not a lack of data and considers this a conservative proposal. She pointed to utilities across the country who realize actual savings and to ignore that is irresponsible. She suggested looking closely at the need for a control group. Pohndorf stated that he would not assume regional coordination of the smaller utilities.

Singh added that this would be challenging to count on this as a long-term resource and would like to take a wait-and-see attitude.

Walker agreed that there are savings there but it doesn't pass the laugh test for her as its being treated in the model. She explored treating it like a lighting test. Eckman stated that it would be treated as a contract that we wouldn't need so it has to be available.

Gordon suggested putting it in as a long term resource with the premise that we will refresh the approach.

Singh reiterated his hope in smart thermostats like the Nest. Eckman agreed that controls are “the next plastics.” Singh questioned if he would be motivated by saving $1.50 a month with his behavior changes. Rosolie stated that it makes you think about what you’re buying and you might choose ENERGY STAR. Eckman stated that all programs are behavior based programs.

Mitchell echoed concern over the 20 year outlook calling it premature. She felt that this might be an Eighth Plan issue especially considering the difficulty of regional coordination. Gordon countered that the majority of the population is in five utilities. Gordon concedes that there will be some overlap with thermostats and we will discover something in five years.

Grist asked for more feedback offline and noted that another meeting will happen in early January for topics missed.