

Conservation Resources Advisory Council Minutes
March 24, 2015
Northwest Power and Conservation Council

Tom Eckman, NPCC began the meeting at 9:30am. Charlie Grist, NPCC, reviewed the agenda. Introductions were made and minutes were approved.

Six Going on Seven

Data Aggregation and Analysis

Danielle Walker, BPA

Lakin Garth, Cadmus

Danielle Walker and Lakin Garth presented findings from detailed analysis of conservation achievements in 2013.

Don Jones Jr., PacifiCorp, asked if end effects of re-installation was included in the levelized costs [Slide 9]. Lakin Garth, Cadmus, answered that they do not; the levelized costs are based on the measure life

Dick Adams, PNUCC, asked if levelized costs reflect the savings due to transmission and distribution losses. Garth replied yes. Adams then asked if these costs would be comparable to a generating resource. Grist clarified that with respect to the losses yes but not with respect to the cost. He continued saying that the deferred T&D expansion credit also reduces the levelized cost. Adams stated that he was looking for the 7% line losses that were multiplied by a number to make them comparable to a generated kilowatt hour. Garth answered that they requested savings at the site and the bus bar level. If that wasn't provided they used the regional average for the line loss adjustment. Adams asked what the discount rate was. Garth answered 5% real discount rate, the same as the Sixth Power Plan.

Brendan O'Donnell, Seattle City Light asked if administrative costs were \$1 per kWh. Garth stated it ranges between four to 11 cents depending on the sector.

Adams asked if the 1030 average MW are the same as the value presented in the last few months [slide 12.] Garth answered that that number was 1047 noting that the data they've collected is 98% of that number. Danielle Walker, BPA, stated that they're just talking about programmatic savings and don't include codes and standards or momentum savings.

John Morris, CLEAResult, asked if they were still thinking about 35-59% for momentum savings. Walker stated that Carrie Cobb, BPA, could answer that question.

Adams asked if the number presented includes NEEA savings. Garth replied yes.

Morris asked for an example of what would be included in the "other" category [slide 16]. Garth answered: industrial process, custom measures and projects.

Jess Kincaid, OR Dept of Energy, asked if the electronics and plug loads do not include codes and standards but just market effects. Garth answered yes.

Wendy Gerlitz, NW Energy Coalition, stated that it would be good to include momentum savings in this chart to give the full picture. Grist stated that the biggest swath of momentum savings was in commercial lighting and that there is an overlap between what gets reported at the utility and the momentum savings. He noted that the utilities don't always report savings at the same baseline.

Jones asked for a definition of momentum savings. Walker answered that they are the savings that are happening in the region without utility systems providing incentives. Deborah Reynolds, UTC, asked if momentum savings were claimed the same way as non-programmatic savings were. Walker stated that it's just a re-naming. Grist stated that measuring momentum might be an RTF task. Jones asked how this parses apart from current practice baselines. Grist stated that there is a relationship between them that was taken into account by Bonneville's contractor when estimating momentum savings.

Morris stated that he saw a paper on the BPA website that stated a momentum potential forecast of 35-59%. He noted that it seems like a big number. Walker stated that it's growing as we move farther from the Sixth Plan's baseline. Jayaweera noted it probably includes de facto standards. Gerlitz disagreed saying that she thought the standards were treated separately.

O'Donnell noted that he's done similar cost analysis [slide 18] and stated that their numbers look consistent with this report. He noted that as his numbers look high when compared to the rest of the country so he finds value in this work.

Reynolds noted that it is difficult to compare our numbers as the rest of the nation doesn't use "aMW" or "first year." She wondered if it would be helpful to include the metrics found in the ACEEE report card for true apples to apples comparison. The room agreed with her statement.

Grist called attention to the mixed record on [Slide 22]. Jeff Harris, NEEA, explained the difference between the fast moving world of consumer electronics and the slower, less exciting world of ductless heat pumps and heat pump water heaters. He stated that these differences should influence the action plan in the future.

Dave Hewitt, Consultant, stated that this should also inform where utilities should focus their resource acquisition efforts stating that difficult markets like heat pump water heaters could be moved with a big drive.

Morris asked Harris how his assessment of the current market would drive forecasts moving forward. Harris answered that they assumed product availability in the Sixth Plan that wasn't available. He noted that there is a much more robust market situation for the Seventh Plan with multiple manufacturers offering products that are appropriate for the Northwest. He concluded by saying he believes the market is ready this time but it will still be a hard sell.

Grist moved the conversation to the value proposition of detailed data collection. He suggested that this might be an appropriate task for the Regional Technical Forum. He asked for recommendations to take to the RTF's Policy Advisory Committee.

Reynolds stated that the more regional data the better and supports funding in the future.

Morris stated that this work spurs a different lens to what we are trying to achieve as a region and finds it incredibly valuable. He recommended more funding.

Bud Tracy, unaffiliated, stated he was impressed with the report and thinks that continuing would be good. However, he noted the difference in data that he got from his conservation staff versus his accountants. He stated that conservation people tend to further their own projects. He asked that whoever conducts the research remain cautious about where they get their data from.

Jones asked if the \$40,000 cost for the research goes directly to consulting. Walker answered that it's a rough estimate and that most of the previous costs came from creating the database and are thus a sunk cost.

Craig Smith, Seattle City Light, noted that BPA made a significant investment to get this up and running and the cost to maintain it appears small and worthwhile.

Jessica Mitchell, Snohomish PUD, stated that she appreciates that summary. She stated that she sees value in doing this every Power Plan cycle. She asked what they would do in the off years.

Walker stated that need to be worked out with the RTF but going through the RCP was successful.

Grist noted that there may be value in doing this every year as people change jobs and finding the right person gets harder if you lose touch.

Craig Patterson, Independent, asked how do you separate the load growth of energy use over time from what is used today. He felt the notion of momentum savings is misguided and suggested implementing the ethic of conservation into peoples' lives.

Rich Arneson, Tacoma Power, asked Walker if there were any lessons learned that would help shortcut the next round. Walker answered that the biggest lesson was aligning the taxonomies. Garth agreed that was the biggest lesson. He noted the most difficult part of the project was collecting and aligning the data.

Adams asked to consider including the value of energy as it pertains to the time of day or year. He noted that seasonality might be an easier next step. Grist stated that he's nervous about estimated seasonal and daily shape of savings as they are from different sources – many of them dated. With regard to reported savings, he noted that about half are reporting RTF values but the other isn't. He stated that going forward this will be a challenge as baselines move. He added that 111 b and 111d will add further challenges.

Jones stated that taking funding of the detailed analysis to the RTF PAC is a good thing. He suggested the \$40K cost estimate might be low, and the PAC should consider contingency noting that there might be a need to budget for other things like moving baselines and system maintenance.

Grist concluded that the room agreed to take this to the PAC and will bring it to them in May.

Conservation Resource Supply Curve
Charlie Grist, NPCC

Charlie Grist presented results of the conservation potential assessment for the draft Seventh Power Plan. Jones asked if the graph is with or without non energy benefits [slide 6]. Grist answered that this is with non-energy benefits and O&M. He noted that the Regional Act Credit is not included, but is factored in during analysis in the RPM.

Adams asked if these are 2012 dollars, if the 4% real discount was used and if the numbers reflect distribution and line losses. Grist said yes to all of the questions. Adams then asked about credit for deferring capital in transmission. Grist explained that if a measure saves energy on peak (hour 18 in winter) those savings translate to distribution system expansion deferral. He stated they come to \$26-28 per kW year savings that are netted out of the TRC levelized costs.

Jones asked about wood smoke. Grist stated that it is not in here but if there are O&M costs they get added here.

Adams asked to see a summary of what Grist described. Grist said he would provide it. Adams asked if the T&D deferrals and O&M savings change the numbers dramatically. Grist stated on some measures they do.

Reynolds asked Grist to talk more about wood smoke. Grist stated that the Council decided not to include explicit values for health benefits of wood smoke reduction in its methodology for determining quantifiable costs and benefits in the Seventh Plan. He stated the real issue is how far you take the analysis because there are many environmental benefits that extend through many measures. Jayaweera stated that it does include the RTF-quantified cost of reduced wood usage but it doesn't include environmental or health benefits. Arneson asked if ductless heat pumps will include the value of the reduction of wood use. Jayaweera said yes those are treated the same way the RTF does. Grist stated that a lot of these workbooks link back to the RTF workbooks.

Jones asked what the "big rocks" are in the \$40-80 bin [slide 8]. Grist stated that will come later. Jones noted that he has struggled with cost bin granularity with

his CPAs and IRPs. Grist showed [slide 10] that illustrates the bins the RPM can choose from.

Adams asked about the bin that is <0 . Grist stated TRC levelized costs can go negative when costs are low and the value of transmission and distribution deferral or reduced operations and maintenance costs are netted out.

Adams asked if [slide 9] gives a preview of the five-year range of the conservation regional target of about 800 to 1200 MW. Grist said, as a preview - yes, and noted it doesn't look very different than the Sixth Plan. But we will have to wait and see what the RPM produces for conservation strategies.

Tracy asked for a deeper explanation of <0 bin [slide 10]. Grist and Reynolds explain. Tracy stated he understands and is concerned. He stated he supports conservation but wonders what the true costs is. Grist stated we have to understand the difference between revenue requirement and the TRC levelized cost per kWh.

Stan Price, NEEC, noted the difference in potential from this slide [slide 12] and what was just shown in the Six going on Seven presentation and wondered why we are looking for potential in places where we didn't have it before. Jayaweera stated these are 20-year numbers with different expectations.

Grist stated we may be underestimating commercial in this plan. Jones pointed out that there is more in there and there are EPACT Standards too. Grist noted that many of the high cost measures are in the residential sector.

Adams asked to see the five-year break out of [slide 12]. Smith agreed. Grist says he can provide that.

Jones stated that ramp rates control lost opportunity and you should not look for precision by year but instead look for aggregate results.

Lauren Gage, BPA, asked why distributed photo voltaic solar was not a significant new measure [slide 13]. Grist pointed to solar thermal water heater in a high-cost residential bin. But solar photovoltaic (PV) potential is not in the efficiency supply curves. For distributed solar PV, there are two items: 200 aMW coming in the 20-year period in the load forecast and additional contribution from distributed solar potential that will be treated as a Generation resource alternative input for the RPM. He stated that the total available potential is over 3000 aMW of energy over a 20-year period.

Morris stated that last year saw a record amount of residential solar installed and called a “business-as-usual approach” conservative. Grist called the curve “swoopy” and pegged to 2012/13 data. He noted that there is some exponential growth included as it goes from 10 aMW to 250-280. He stated that there have been comments that it is too low and too high.

Gage asked if the Generation Advisory Committee is looking at it too. Grist said yes, both the generation and demand forecasting advisory committees are reviewing solar estimates. There are two bundles of utility-scale solar depending on whether or not transmission is needed. He stated the cost bins don’t overlap. Arneson asked if these were being modeled on the Generation side. Grist said yes, but the Council is still asking for CRAC input. Kevin Smit, NPCC, indicated that the distributed solar measure will have a workbook similar to the conservation measures.

Jones asked if the RPM could pick fractional shares of a bundle. Grist stated that for conservation the RPM searches for adequacy and economic optimum. He stated that there is a minimum shaft size for the generation side. Grist said he doesn’t know about the fractional share for PV, but there are unit sizes and maximum units per year specified as inputs to the RPM for all resources.

Adams asked if BPA or other utilities saw similar numbers for peak to energy ratios [slide 14]. Arneson stated that he’s seen similar numbers. Arneson noted that industrial is flat while residential is highly variable.

O'Donnell asked if they have a sense of how uncertain this is as Seattle City Light uses hour 9 in the winter. Grist stated that hour 18 is about the same as hour 9 but it will shift over the years. Grist stated that the bigger uncertainty is that we don't have solid data on when savings occur. He notes that some of the data comes from ELCAP and is 30-years old and some comes from recent California modeling work. However, the regional data show that hour 18 is the big hour. Jones said this is a regional model and peak does vary by utility. O'Donnell stated that if we're going to look at demand savings we have to look at the uncertainty.

Adams asked if this estimate assumes a normal winter peak event when concerning weather. Grist stated that it is average weather.

Adams asked how deep in the weeds the staff got in estimating the 4500 MW. Grist stated that we did it measure by measure. Grist explained the process.

Tracy asked how the staff differentiated mountain and pacific hour 18. Grist explained that the RPM has two nodes and east and west.

Jones asked if you bucketed all of behavior savings under water heating [slide 19]. Jayaweera said yes because the water heater thermostat turndown is the largest component of the savings.

Gage wanted to put a red flag on advanced power strips as they are not available now so the five-year ramp is too big. Jayaweera stated that the five year numbers were just shifted down as per recent data.

Gage then red flagged multifamily window replacements calling attention to the technical barrier to installing them. She said the numbers looked big and should be a high-priority cross check.

Jones asked about lighting PPA. Jayaweera stated that they are modeling it as short term resource as savings don't persist past EISA 2020.

Morris asked about whole building metering level and wondered if there would be a corollary for commercial EV supply. Jayaweera stated that for residential, these are expensive and assuming tier two across the measure. Grist stated that they are not in commercial and there are other measures not in these supply curves and a list will be provided.

Morris asked if there is precedence in the Sixth Plan for measures that didn't make the cut and then get folded in later. Grist said no but the RTF takes up new measures. He said we could do a mid-term plan review.

Gage wanted to flag data centers [slide 20]. Grist agreed it's a big number and a challenging market. He explained the potential and said it deserves attention. Adams asked if staff reached out to data center people. Grist answered that data center people helped put it together along with NEEA and many utilities. He called attention to Green Grid.

Adams stated that early anecdotal evidence stated that the data center managers were more interested in total capacity. He stated that there might be a disconnect in that any power saved through efficiency may be used up and more data will be stored. Grist responded that the load forecast is based on the forecast of the number of computations required and noted that is growing fast. He said this number is for embedded data not big data centers.

Gage noted that some of the custom projects aren't on here and she would like them on the list of things not included. She also noted that the grocery caught their eye as it's getting more expensive and less available. Smit stated that they are adding DHP in commercial buildings. He asked for more data on custom projects. Grist said that some are included in Commercial Energy Management measure.

Morris asked if line voltage optimization is included [slide 23]. Grist answered that it is mostly conservation voltage regulation.

Jones noted that the fun happens during the comment period.

Draft 7th Plan Development Schedule and Scenarios Proposed for Testing **Tom Eckman, NPCC**

Tomas Morrissey, PNUCC, asked if the Wholesale Electricity Market Price Forecast Range [slide 5] is before the jump logic is put in. Eckman answered yes this is the outer bounds of the forecast.

Hewitt asked what's happening on low carbon front as it pertains to winter peak loads [slide 8]. Eckman answered that there is some underlying conversions in the graph but it is not enormous.

Morrissey asked why staff did not include a frame unit gas plant [slide 23]. Eckman answered that a recip is a place holder for peaking resources. Morrissey asked if it was netted out. Eckman stated no it is straight over costs. Morrissey asked if that would be incorporated into the RPM. Eckman answered no, the RPM looks quarterly not hourly.

Morrissey stated that looking at a frame unit would change the chart quite a lot. Eckman said perhaps, but this is cheaper as you get a transmission credit. Morrissey asked if the gap between the second and third green dot represents the \$50 trench. Eckman said it was the difference between the third green and blue are almost competitive depending on natural gas prices.

Harris asked how the dispatchable capacity resources interact with non dispatchable capacity increase of 3000 MW of energy efficiency [slide 24]. Eckman answered that the pre-conservation deficits would be impacted. Harris stated this is just the supply curve before. Eckman said yes.

Harris then asked if any of the energy efficiency resources fall on the supply curve simply by virtue of their cost of kW reduced. Eckman answered that they did not but the RPM will get a sense of it. He stated that this is not an integrated look.

Patterson asked how one deals with perverse incentives (i.e. biomass) that are dirtier than coal because of the low embodied energy. Eckman stated that we will look at their carbon footprint.

Phillip Kelsven, BPA, asked how gas prices are treated in [slide 35]. Eckman stated they are treated as a variable in every future, stochastic.

Testing the Impact of Pace

Charlie Grist

Gerlitz asked why the three curves don't end up in the same place [slide 7]. Jayaweera stated that it's because of the turnover rates associated with lost opportunity measures.

Jones asked if it costs the same to speed up a ramp rate. Grist answered yes, in this analysis. Jones noted that he didn't arrive at the same conclusion in his analysis and called it an idealistic assumption.

Arneson noted he did a similar assessment program by program and found a point where the measure fell out of cost effectiveness because of a need for more staff. Grist asked for a look at Jones' work.

Gage asked for clarity for of the native ramp rate. Grist stated it is base max not fast max. Grist clarified that last time (Sixth Plan) they found that slowing it cost more but speeding it up didn't reduce costs as much so they are asymmetrical. Jones noted that the next big resource build also influences it.

Harris asked if the cost of the ramp rates include the incremental costs to society. Grist answered no. Harris offered data that could inform that. He also noted that the Council has other unpopular tools that could lower program costs, i.e. codes and standards, surcharges etc.

Jones noted that when they model these the incentive doesn't make a difference. But from a TRC perspective they looked at administrative costs and found less impact but there are more contractors and scarcity factors you have to pay for. We looked at acceleratable measures and found that they were not as expensive as we thought.

Adams asked what the takeaway will be from running these studies. Grist stated that last time there was 10-15% increased costs and about the same in risks associated with slowing down. Grist said they look at the NPV of costs and risks and revenue impact. He noted that with the closing of two coal plants analysis might show something different.

Adams asked if it showed significant savings by speeding up would it loop back to see what it would take to speed up the baseline. Grist said probably but it is the Council that establishes the plan and sets the targets along with a regional conversation and other variables.

Harris stated that it is reasonable to look back at the last 5-10 years of acquisition data to see how fast or slow things could ramp from the total regional perspective. Jones suggested tempering that information with TVs, CFLs and energy codes. Arneson added that looking at the last 2 years gives him pause when assuming that accelerating significantly more as we are almost at our target already.

Harris stated that the rate of change from one year to the next defines the upper bounds. He noted there was a big challenge in going from the 5th Plan to the 6th as we were already ramped up. He stated it was worth looking at how much resource potential there is in large single measures regardless of the expense.

Smith stated that the mix of measures makes a huge difference (Teslas vs Smart Cars.)

Grist confirmed that one of the biggest wedges of potential comes from solid state lighting. He also noted that there is still a lot of potential in residential weatherization.

Arneson stated that since they've de-rated T12 for commercial lighting they've noticed savings to BPA is half of what it would have been the previous year. So looking to the past is not a great way to predict future accomplishment.

Mitchell stated that we should be thoughtful about what it costs us to accelerate the conservation. She referenced Slide 12 saying it might not be a good value to accelerate that and the model should be informed.

Jones summarized that there is interest in acceleration but to consider the costs.

Price stated that it is reasonable to think about measure component but pointed out it's not everything. He noted the infrastructure of the people, programs and knowledge that could help us accelerate. He concluded by saying there's no reason to think that there wouldn't be early robust targets.

Gerlitz stated that this is a planning exercise and the results show a planning tool: the relative value of acceleration. She states that it is the right planning approach and the right tool to give the Council however she notes that it should be clear that there increased costs are not represented in that tool.

Patterson commented that some assumptions about what we're saving i.e. duct savings, are not always born out over time.

Grist concluded by saying the proposed shift is one to two years.

Reynolds stated that the variation year over year make people wonder how much change is within our control. She states it might be more than we realize and we can't get it all without a "baseline army" to deliver it. She concluded by saying if we are not doing all cost-effective we shouldn't be backing off.

Grist presented the chart that Harris referenced. Harris noted that the graph looks like stream flow and perhaps this graph could be pulled as well. Grist called it the "random water year conservation accelerator" scenario.

Emerging Technology Conservation for Low Carbon Futures

Charlie Grist, NPCC

Kevin Smit, NPCC

Tina Jayaweera, NPCC

Gerlitz clarified that Scenario 3B to test the planning assumptions but found some areas were not ready. She asked if Staff was prepping energy efficiency emerging technology and asked if that information was available. Eckman stated that they will have to make a judgment call as they dig into the data on both the generation and efficiency side to see if numbers are available to model.

Gerlitz then asked if the door was still open for information to model. Eckman said yes and that they are specifically looking at storage.

Gerlitz said that this looks like a good complement to accelerated curves. She asked if there was a way to run what you know is coming in combination with the accelerated analysis. Eckman stated that it's possible but it depends on our confidence in what we unearth. Grist stated that we don't want the speculative to displace the solidly known.

Arneson asked what the PV cost per nameplate kw is [slide 6]. Grist said the costs come from Energy Trust of Oregon and comes to \$4 per DC watt. He stated the costs included inverter replacement, plus labor, the BPA integration cost and O&M cleaning.

Hewitt stated that this feels conservative and some like ultra-low energy buildings already exist. He noted that the solar costs are coming down especially when done on the community scale and notes that many companies are exploring this (mid-size community scale solar gardens).

Hewitt noted that solid state lighting could displace tube lighting a few years. He stated that it's not technology but the pace. He said that this goes back to the conservation supply curve where things get thin at around \$80/MWh and lighting and solar could fill that.

Hewitt stated that California's numbers are looking to quintuple and will meet it in a code cycle (source: E3). Grist expressed interest in seeing it.

Grist asked if there are associated integration costs with solar PV. He acknowledged that ultra-low energy buildings are not emerging but couldn't find data so that's why they are here.

Harris stated that there is a 40-60% savings opportunity in existing commercial building renewal.

Gage stated that she is having a hard time understanding the approach. Eckman explained what a narrative might look like.

Hewitt stated that if we're dealing with legislative action you could be more aggressive as you will have to "de-carbonize" other parts of the economy i.e. electric vehicles or CHP. He wondered how these things will balance out if we are told legislatively to move more quickly.

Eckman said we've been asked to flesh out the carbon trade off curve.

Grist explained "broad brush" approach with a lighting example.

Gage stated that a bundled approach doesn't work here because you need the characteristics of the resources.

Demand Response Characteristics Assumptions for use in the RPM

John Ollis, NPCC

Gage asked for the timeline for integrating comments on this. Ollis stated March 27 is pencils down time. Gage asked who is looking at this data in detail. Ollis answered the CRAC, GRAC and SAAC as well as the people at PNDRP.

Frank Brown, BPA, asked about the negative costs on [slide 7]. Ollis answered that it comes from a deferral credit for not building transmission. Brown asked for documentation for where that credit comes from. Eckman said it's part of the development of the EE supply curves and Grist will send it out.

Brown asked if energy efficiency gets both the transmission and distribution credit and DR only gets the transmission credit. Eckman said yes, the credits are different dollar amounts.

Brown asked what the measure life is. Ollis said he incorporated comments and took the bottom of the range: five years. Brown said we said contracts are five years at a time. Ollis said he didn't know how to apply that across the board and asked for more information. Brown asked for a summary spreadsheet. Ollis said it's online.

Brown asked where you could site a peaker plant west of the Cascades where you wouldn't have to build transmission. Ollis said there are reciprocating engines by Beaver that used the current transmission system. Brown said that could be an exception. Grist asked for data that showed it's an exception.

Adams asked what the characteristics of these cost bins are. Ollis answered on [slide 8]. Adams asked if there are limits on peak hours. Ollis stated that one of the ways he tried to calculate associated energy was limiting it to 50 top hours.

Adams asked for a deeper explanation. Adams confirmed that the supply curves included transmission when necessary and asked if the model needs to build capacity will it choose the -\$5 bin. Eckman said that's the choice in the first bin. Ollis said the first bin is negative but for the other bins, the model will not choose DR if energy is needed.

Adams asked how you treat lost revenues. Eckman said they don't. Jones said it's a take and return so it's a shift.

Morrissey said he was looking at RAAC data and they use 200 MW of DR for winter step down and 1600 MW seems like a sizable jump. Ollis noted improvements on the estimate for refrigerated warehouses will decrease the number in the first bin. He notes the price signal is not as apparent in the Northwest and curtailable/interruptible tariffs look like one-off contracts.

Ollis says it takes a while to ramp up to the full number, about 6 to 10 years.

Gage said the ramp rates look ambitious. Eckman explained they are 85% of 25% of the total. Gage understood but still thinks the ramps are very fast. Eckman brought up PJM.

Jones said it comes on faster because you can do it with an aggregator. Adams asked Jones if their DR was larger industrial contracts. Jones answered a few large and 180 MW of irrigation pumps and 100 MW of residential AC. Adams asked about how long the AC took. Jones said they are 12 years into it.

Ollis stated he has heard comments that the ramps are too fast and too slow and called for more information.

Reynolds stated that this is not the meal you must order but is a guide. Eckman said that there are many models and human interaction that goes into the portfolio.

Grist discussed topics for future CRAC meetings. Adams and Jones stated they both have IRPs coming out. Arneson and Mitchell will be close. Grist said it might be time for a comparison.

Model conservation standards will be discussed as they need to be updated.

Grist said the group should consider action plan items. He adjourned the meeting at 4:30.

Attendees On Site

Tom Eckman	NPCC
Charlie Grist	NPCC
Kevin Smit	NPCC
Tina Jayaweera	NPCC
Craig Smith	Seattle City Light
Brian O'Donnell	Seattle City Light
Stan Price	NEEC
George Pohndorf	Snohomish PUD
John Morris	CLEAResult
Dick Adams	PNUCC
Wendy Gerlitz	NW Energy Coalition
Don Jones Jr.	PacifiCorp
Bud Tracy	Unaffiliated
Lauren Gage	BPA
Rich Arneson	Tacoma Power
Lauren Shapton	PGE
Dan Johnson	Avista
Deborah Reynolds	WA UTC
Jessica Mitchell	Snohomish PUD
Josh Warner	BPA
Phillip Kelsven	BPA
Nicole Delsasso	Navigant

Niko Drake-McLaughlin	Cadmus
Dave Moody	BPA
Lakin Garth	Cadmus
Shani Laha	UCONS
Jess Kincaid	OR Dept of Energy
Jeff Harris	NEEA
Dave Hewitt	Consultant
Danielle Walker	BPA
Adam Shake	Energy Trust of Oregon
Tomas Morrissey	PNUCC
Attendees via Go-To-Meeting	
Allie Mace	BPA
Brian DeKiep	NPCC
Brian Fawcett	Clatskanie PUD
Chelsea Wright	EES Consulting
Chuck Murray	WA Dept of Commerce
Tyler Dillavou	BPA
Jeff Harris	NEEA
John Graham	UCON
Kathy Moore	Umatilla Electric
Larry Blaufus	Clark Public Utilities
Melinda Eden	NEEA
Eli Morris	PacifiCorp
Poppy Storm	Ecotope
Shirley Lindstrom	NPCC
Van Ashton	Idaho Falls Power
Craig Patterson	Independent