

**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

**Attendees via Go-To-Meeting**

Erik Boyer	BPA
Brendan O'Donnell	Seattle City Light
Brian DeKiep	NWPCC, Montana Office
Chuck Murray	Washington Dept of Commerce
Craig Smith	Seattle City Light
Danielle Walker	BPA
Dave Hewitt	Consultant
Elaine Prause	Energy Trust
Eli Morris	PacifiCorp
Eugene Rosolie	NEEA
Fred Gordon	Energy Trust
Nicolas Garcia	Tacoma Power
Summer Goodwin	BPA
Jeff Harris	NEEA
Jessica Mitchell	Snohomish PUD
John Morris	ClearResult Consulting
Lauren Gage	BPA
Lauren Shapton	PGE
Linda Esparza	Franklin PUD
Ethan Norman Manthey	BPA
Margaret Ryan	PNGC Power
Sarah Moore	BPA
Patrick Keegan	Collaborative Efficiency
Paul Sklar	Energy Trust
Ralph Cavanagh	NRDC
Deborah Reynolds	UTC Washington
Roger Kainu	Oregon Department of Energy
Gurvinder Singh	Puget Sound Energy
Stan Price	NEEC
Wendy Gerlitz	NW Energy Coalition
Wendy Koelfgen	Clean Energy Works

Charlie Grist, NWPC, started the meeting. CRAC members introduced themselves over the phone. Grist brought the groups attention to work the Council is posting on the web. He asked for comments to be posted by February 20<sup>th</sup>.

### **Commercial Building Energy Management**

Kevin Smit, NWPC, presented. Stan Price, NEEC, asked if the category is limited to HVAC or will it include other operations like lighting as well. Smit answered that the focus of this presentation is HVAC. Grist stated that lighting was pulled out to avoid overlap. Grist noted that the Council looks at things from a technical point of view and it does not describe how to get at issues programmatically.

Fred Gordon, Energy Trust, mentioned that his group recently published Building Performance Tuning and Tracking to get savings from smaller buildings without built-up systems. He noted that savings were small and getting participants was difficult. Smit asked to see the data.

Erik Boyer, BPA, asked where the savings from new construction data came from. Smit stated that it came from modeling work for new buildings. Boyer wondered why commissioning wasn't done as a best-practice requirement. Grist answered that there have been attempts to get it into building code. Grist asked if it should not go into the plan because it's supposed to happen or are we double counting because it is happening. Boyer answered that for brand new buildings it shouldn't be included. He then wondered about that same building a year later. Grist stated that even the most efficient new buildings need work to keep those savings going. Boyer asked for an apples-to-apples comparison between code-efficient equipment.

Gordon suggested that once the design team leaves a new building you could consider it an existing building with a new occupant. Smit suggested having new construction square footage roll over into the retrofit pool fairly soon.

### **Residential Lighting & New Construction**

Tina Jayaweera presented the data.

Eli Morris, PacifiCorp, asked if she is thinking of updating the RBSA saturation with the sales data from BPA/NEEA. Jayaweera answered that she is proposing using the RBSA data as the baseline and then taking the LED saturation off of the top. She stated that the RTF is the right entity to make the full adjustment to the baseline. She concluded that there will not be time to do a more robust analysis.

Morris asked if current saturation means what percentage of sockets currently have CFLs or LEDs. Jayaweera said yes. She explained that if 10% of bulbs are LEDs then the remaining 90% have the same distribution as the RBSA data.

Gordon wondered if the Council should assume that future Federal standards are certain. He also stated that is not sure the Council needs the "step" as he sold many specialty CFLs over the years. Jayaweera stated that lighting standards is on the Federal docket and there will be more information at the next CRAC meeting. She acknowledged that there is a legislative quagmire at this time but still believes it will

get done. Grist asked Gordon what he would do if it didn't happen. Gordon said he would stick to the existing baseline.

Lauren Gage, BPA, agreed with Gordon and stated that removing CFLs does not make a lot of sense.

Sarah Moore, BPA, also agreed with Gordon that there is a lot of residential lighting potential out there and wonders why the Council would exclude CFLs as a measure for specialty lighting. She stated that there is a lot of halogen in this area and CFLs would be better for consumer's pocketbooks at least until LED pricing comes down.

Eugene Rosolie, NEEA, stated that the issue is if CFLs are left out then people are afraid that they can't be run as a program. Jayaweera stated that they are talking about measures that go into the plan. She stated that if the RTF continues to have a UES for CFLs that could be a means for programs to acquire potential. Gordon stated a compromise could be a category of Residential Specialty Lighting that is either CFL or LED. Jayaweera stated that from a total potential perspective they should all go to LEDs. Grist noted that there are many choices and the Council is trying to identify the maximum potential.

Moore brought up ramp rates and stated that may not be realistic to hit targets with LEDs alone in five years. Jayaweera agreed.

Ralph Cavanagh, NRDC, stated that the 45 lumen per watt is hugely in question and the only way to get to it is to have utilities drive residential lighting efficiency and that depends on programs. Jayaweera answered that the idea is to keep the program doors active over the next four years. She continued, stating that protocol dictates that the Council assumes that the standard will come into play in 2020.

Cavanagh suggested emphasizing the fact that the prospects for maintaining the standard will depend, in part, on the success of the programs that are launched in the initial phases of the plan and the assumptions of savings in the plan are premised on the assumption that the standard will go into effect. Jayaweera noted the activity in the world of standards and it probably came from programs pushing the envelope with manufacturers. She noted that they are probably going to put in the action plan that programs are intrinsic to standards taking place. Grist agreed that there should be a piece that explains where baselines come from.

Cavanagh stated that the 45 lumen per watt is the default if the DOE can't set an alternative and the question is will the DOE set an alternative and what will that be. Jayaweera agreed and stated that there may be more insight at the next CRAC meeting.

### **Single Family New Construction**

Jayaweera presents data.

Morris asked how the plan looks at the differences in codes by state. Jayaweera answered that the differences are primarily around the shell and the Plan is not looking at the shell. She noted that they

looked at the delta from the least rigorous code. She stated that on the equipment side you could look at a performance path instead of a prescriptive path but ultimately the Council is not looking at the differences from the different states.

Morris noted that lighting varies by state. Jayaweera agreed and said she planned to weight the information depending on growth.

Gordon asked for clarification on Heat Recovery Ventilation. Jayaweera stated that the current codes are tight and at a level where HRV is recommended but not often enforced. Gordon stated that is not sure if it's a huge measure but there is something to it in Oregon. He offered to send data.

Jeff Harris, NEEA, offered data from his new construction team. He then asked about a program that bundles the heating system and the envelop measure together calling it effective and affordable and wonders if the Council would look at envelope measures that way. Jayaweera stated that a bundled approach is one option but the Council prefers to look at issues more granularly. Harris countered that by improving the shell you could reduce the equipment load which makes bundling a better idea. He stated he would provide data to support a bundled measure.

Gage asked about how the Council thinks about code enforcement. Jayaweera answered that from a planning perspective the code is the code and will be met. She acknowledged that it is not always the case. Harris stated that compliance rates of residential codes in the four states are quite good and offered to provide data. Price noted that a lot of work from utilities goes into meeting the high compliance rates.

Cavanagh stated that utilities don't have to enforce codes but they make contributions to supporting the implementation process. Grist noted that there has been an ebb and flow to compliance and part of our work is finding the gaps.

Moore thanked Harris for providing data and feels blind about what's happening in Idaho and Montana.

Cavanagh asked if we are identifying code support as a resource or not. Moore said not necessarily but it would be good to have data about code compliance. Cavanagh suggested identifying code support measures as a cost effective resource for utility investment. Grist stated that we do that when there is evidence that buildings are not being built to code.

Chuck Murray, Washington Dept of Commerce, commented that code compliance studies showed good residential code compliance throughout the region. He stated that that came from heavy funding. He called for a sustained, ongoing program but acknowledged that it will require funding that will probably not come from the federal or state government. He concluded that this is more important on the commercial side where compliance is not as robust.

Harris commented that NEEA has a continuation of funding for residential code support for the next five years. He stated that NEEA is trying to do something similar for commercial code compliance. He agrees that commercial has less compliance than residential and will provide data as he gets it.

Grist and Jayaweera stated that this is good action plan material.

### **Residential Behavior**

Jayaweera presents the data.

Jessica Mitchell, Snohomish PUD, asked if Jayaweera considered the parasitic effect on the cost effectiveness of the parent technology. Jayaweera responded that her order of operation looked at the issue the opposite way. Mitchell asked if the savings are overstated this way. Harris answered no and explained that the interactive effects are accounted for in the Home Energy Report.

Rosolie asked the same question for the water heater and how that interacts with savings from the heat pump water heater. Jayaweera answered that the savings from the heat pump water heater from the electric resistance water heater assumes 128 degrees.

Dave Hewitt, Consultant, didn't like the name Control Optimization and suggested renaming it to reflect behavioral changes. Gordon suggested calling it Controls and Behavior as a way to reflect the physical analog.

Craig Smith, Seattle City Lights, agreed with the hybrid approach and noted that they are seeing 3% savings noting that these impacts matter. Brendan O'Donnell, Seattle City Light, echoed previous comments noting that it is hard to quantify but there are significant savings. He mentioned struggling with how to put it into the CPA.

Rosolie asked if the 127 kWh/yr per customer is across all electrical users. Jayaweera answered yes and stated that gas customers would have less savings while all-electric customers would have more. Rosolie asked if the Council abandoned the idea of only doing this for larger utilities. Jayaweera stated that the HER program is the proxy for the cost and measure life.

Deborah Reynolds, UTC Washington, stated that when thinking about the name the CRAC should think about how this will evolve and become more automated in 10-20 years.

Grist stated that you need a big control group to demonstrate savings so the question is what the total potential of savings is; half the region or more? Jayaweera answered that that will evolve over the 20 year horizon. She stated that in the beginning it is constrained by the common delivery approach but if controls do become the means of savings then you aren't constrained which means it's more about the ramp rate.

Rosolie stated that we assume that controls save energy but in the past we didn't do programmable thermostats because they didn't save energy. He stated that some proposed assumptions are opposite of our normal assumptions today and that is uncomfortable.

Reynolds acknowledged Rosolie's point and asked if anyone can show if controls have the opposite effect. Rosolie stated that we are making the assumption based on behavior programs and we should be clear that that is the basis for the assumptions. Grist asked Hewitt if this is what he meant by the name causing complications. Hewitt answered that behavior is related to controls but we should think about it differently and you are going to want them separate so you can figure out interactions.

Hewitt then spoke about net zero houses saying that what goes into the house determines energy use.

Morris asked about the degradation of savings and what savings you are buying each year. Jayaweera answered that this assumes a five year measure life and takes people moving into account. She states that she isn't sure if they should degrade the 127 kWh/yr because the water heater, which is the biggest source of savings, will probably not be turned back up. She asked for input.

Morris stated that he should treat it like a HER and if you don't keep sending the report the savings will not persist. Jayaweera stated that the 1.5% is close to the average which is why 127 kWh/yr accounts for some variability.

Gordon stated that the alternative is coming up to a proxy that relates to something physical, doesn't double count and is some representation of things we've been doing for years.

Morris agrees but asks how do we cost it and how do we get it to persist for 20 years. Jayaweera stated that the HER is the proxy for the cost and the measure life. She noted that costs were reduced because of data from OPower.

Gage agreed that this is a great improvement but the five-year cycle makes her nervous. Mitchell agreed with Gage's comments on the cycle time. Jayaweera stated that another way to think of it is that it has a five-year measure life and costs \$33 a customer.

Morris asked what if we were to assume \$55 a customer if we need to pay for it every year and the controls might be more expensive than the HER model.

Moore wondered how the behavior changes would cost less than controls as you have to pay for them every year to keep them from degrading. Morris stated that sensors on lighting might be more expensive than sending reports. Jayaweera stated that LEDs might have sensors by default in the future.

Grist said we are looking for a reasonable proxy for how big, fast and expensive. Rosolie stated that he agrees with Hewitt. He noted that he is not a big fan but wants to keep it simple and be upfront about

what we are doing. Wendy Gerlitz, NW Energy Coalition, agreed that it is a good compromise that built on the last CRAC conversation and supports it.

Grist closed the meeting.