

Northwest Power and Conservation Council
Resource Strategies Advisory Committee Meeting
October 29, 2014

Attendees

Terry Morlan	Consultant
Greg Delwiche	Bonneville Power Administration
John Carr	Industrial Customers of NW Utilities
John Prescott	PNGC Power
Dave Hagen	Clearwater Power
John Saven	NW Requirements Utilities
Gregg Carrington	Chelan PUD
Chris Robinson	Tacoma Power
Ann Gravatt	Climate Solutions
Steve Klein	Snohomish PUD
Scott Corwin	Public Power Council
Tom DeBoer	Puget Sound Energy
Mike Jones	Seattle City Light
Jason Eisdorfer	Oregon Public Utility Commission
Stefan Brown	PGE
Nancy Hirsh	NW Energy Coalition
Dick Adams	PNUCC
Stan Price	NEEC
Doug Howell	Sierra Club
Cameron Yourkowski	Renewable Northwest
Mike McClenahan	Grant County PUD
Tom Haymaker	Clark County PUD
Colleen Peterson	Clark County PUD
Scott Kinney	Arista Corp
Ruchi Sadhir	Oregon PUD
Peter Cogswell	BPA
Robert Petty	BPA
Danielle Walker	BPA
Therese Hampton	Public Generating Pool
Tony Usibelli	WA Energy Office
Gillian Charles	Council Staff
John Shurts	General Council
Steven Crow	Council Staff

Attendees via Go-To-Meeting

John Ollis	Council Staff
Roger Gray	EWEB

Ralph Cavanagh	Natural Resources Defense Council
Brian Lipscomb	Energy Keepers Inc
Jess Kincaid	Oregon Dept of Energy
Ed Brost	Franklin PUD
Mark Stokes	Idaho Power
Tom Karier	NW Council
Travis Kavulla	Montana Public Service Commission (Left meeting at 1)
Jessica Shipley	Oregon Dept of Energy
Mark Johnson	Flathead Electric
Brain DeKiep	NW Council
Johanna Bell	Idaho PUC
Dan James	PNGC Power
Bo Downen	Public Power Council
Tomas Morrissey	PNUCC
Ethan Manthey	
Steve Johnson	WA UTC

Henry Lorenzen, NPCC opens RSAC (Resource Strategies Advisory Committee) the meeting at 9:00. He points to three important topics to be covered in the today's meeting: the role of environmental costs and benefits in the Seventh Power Plan, carbon, and the role of the Power Plan.

Tom Eckman makes introductions and reviews the agenda including milestones and schedule. He notes that The Draft Scenarios and Resource Strategies for RPM in April/July are of special concern to the RSAC. Eckman asks how often the RSAC wants to meet and what topics are important aside from the ones he mentioned.

Nancy Hirsh, Northwest Energy Coalition, expresses concern about the modeling being completed on time. Eckman states that it's ahead of schedule. Eckman proposes another three to four meetings over the timeline. Gregg Carrington, Chelan PUD, suggests setting up RSAC meetings after the major milestones to best deliver feedback. Eckman outlines when he thinks meetings will happen but remains open to everyone's schedule. He introduces Terry Morlan, consultant, as the liaison between the RSAC and the Council.

Morlan asks for the best way to reach out to RSAC members and keep them informed. Morlan suggests an automated email list or forum. He states he will make calls occasionally for big issues. Jason Eisdorfer, Oregon Public Utility Commission, asks for balance and suggests reminders when something important is coming up. Eckman notes that there will be a general newsletter for the general population. Mike Jones, Seattle City Light, prefers proactive emails instead of a forum.

Quantification of Environmental Costs and Benefits

Eckman introduces the topic explaining that public comments close in one day but would like a conversation about it. Eckman explains the Power Act's call for a methodology for considering

quantifiable environmental costs and benefits stating that, in the past, the Council has only included the regulatory cost of power system generation devices. He notes that the issue paper proposes alternatives to incorporate things that go beyond what is constrained by regulations. He asks should they go forward with this and how.

Lorenzen asks if the analysis is restricted to new resources needed to meet projected loads or is it broad enough to look at existing generating resources. Eckman says historically it's for new resources. Tom Karier, NWPCC, agrees but adds that in the last plan they assumed a future regulatory cost for carbon that was applied to all resources. Eckman states that it was not a direct, fixed cost but a risk. Morlan adds that regulations that affect existing resources also impact what new resources you might need.

Doug Howell, Sierra Club, states how the Sixth Plan captured costs for existing plants using national requirements and those costs couldn't be parsed out either for existing regulations or proposed regulations. He couldn't find out what costs were imbedded and what risks it creates for existing resources. He states that we can be much clearer about what we are currently managing so we can understand risk. He proposes not using the gross national assumptions but using information from the three existing coal facilities.

Lorenzen states that risk is a defined issue but acknowledges it may mean different things to different people; risk of not having a resource to meet load or risk to health. Howell restates that he is talking about financial risk and uses the fines that coal use could incur as an example of the true cost and risk.

Tom DeBoer, Puget Sound Energy, disagrees with Howell stating that we don't know what the costs are as some are still in litigation so he thinks we should remain cautious. He notes that his IRP is running scenarios that could be looked at but feels that we are not up to "baked in actual costs."

Travis Kavulla, Montana Public Service Commission notes that the paper states that the Sixth Plan assumed carbon prices as a sensitivity applied to economic dispatch. He disagrees with that stating that carbon regulations, along with other environmental regulations, are unlikely to manifest in an economic dispatch realm. Kavulla agrees with Howell stating that the question is can an existing resource afford to embed the compliance cost in a utility's revenue requirement or an ongoing capital expense. He notes that compliance is bigger than the coal plants Howell alluded to, noting 111(d) and gas and efficiency and renewable gains.

Kavulla notes that the EPA has run the Integrated Planning Model ahead of 111(d) and came up with a shadow carbon cost below \$20 per ton. Kavulla thinks this would be a reasonable starting point for a assigning a cost to carbon.

Lorenzen asks if environmental costs include existing resources use from a policy perspective or what existing resources will be available under existing regulatory scheme. He reposes the question should analysis look at existing resources or future resources. He illustrates the problem with carbon.

Scott Corwin Public Power Council, states he would like to stay with the basic approach of the Sixth Power Plan. He notes that the narratives and scenarios are appropriate.

Hirsh argues that it makes sense to apply the methodology to new and existing resources. Eckman counters that they have applied the regulatory costs they know of to existing systems. Hirsh replies that if we expand the conversation to residual environmental impact the Council should look at water, toxic impacts, fracking (as other states regulate it will impact market price) etc.

Hirsh moves to social cost of carbon. She would like to move from treating it as a risk to embedding the social cost of carbon into the baseline as a direct cost.

DeBoer asks if the Plan is aspirational or useful? We think it should be useful and actionable and we have to meet load. He feels it should look at known costs not what we think will be coming in 10 years or the Plan will be marginalized.

Stefan Brown, PGE agrees with DeBoer. He then goes back to Lorenzen's question of what is risk. He states that he must serve load and recover costs through rates. Including social costs would cause a disconnect within their regulatory process. John Prescott PNGC Power, also agrees stating he would like to stay with the Sixth Plan's methodology. He says that he has an IRP for development of new resources and needs a plan that helps him select resources. He states that looking at existing resources or residual effects is not helpful to him. He also wants the Council to look at the regional differences of the all of the IRPs.

Ralph Cavanagh, NRDC, supports Hirsh with two points. He states that for economic efficiency you should not have one set of costs for new resources and another for existing as it will bias choices from new resources. He then states that many are against adding costs that are not directly related to electric rates but the language of the act demands it.

Howell asks the Council to look at Puget Sound for example. Howell explains what was done stating they did a good job looking at all of the risks and a range of costs. Howell suggests doing what's already being done around the region and being clear about the costs. Lorenzen weighs in stating that while he acknowledges people's desires to include existing resources the legislation states that it's for new resources.

John Saven, NW Requirements Utilities, states that his utilities are worried about load growth and expiring resources. He states that the Plan should provide guidance for load growth and guide decisions for new resources.

Eisdorfer states that new and existing resources are married. You don't know what need for new resource is unless you know the impact of old resource saying that his group is doing heavy environmental analysis on existing resources now. He then states that as far as economic risk of future regulation vs. the damage function, State Utility Commissions don't factor in the damage function.

Eckman states that the cost of current regulations are included in both new and existing resources, however, the cost of pending regulation of existing resources which may make their dispatch more problematic has been treated as a risk since the actual cost are unknown.

Chris Robinson, Tacoma Power, asks is there precedence in the Plan to forecast resource needs based on potential future retirement of existing generation. Eckman answers that it's been done as a sensitivity test. Robinson states that it might best be tested as sensitivity.

Steve Klein, Snohomish PUD, notes that his utility is 100% renewable but asks where you stop with existing resources, stating that there is carbon in everything when you look high up enough. He suggests because of this to not look at existing resources to keep the Plan useful.

Jones states that the all resources should be evaluated on a level playing field. He states that potential future regulations are just that and should be handled in scenario analysis so the plan can adjust if need be.

Kavulla favors an integrated approach that treats new and existing resources as an integrated portfolio. He notes that pending carbon dioxide regulations do not set up an even playing field for new and existing resources that emit carbon dioxide. He notes that the cost of carbon for a new gas plant will not be the same as an existing gas plant. He then states that the social cost of carbon misses two points: the cost of mitigating the carbon and regulatory or financial vehicles to bring that cost to bear on the industry and consumers. He concludes noting the biggest point is the financial cost to the consumer.

Ann Gravatt, Climate Solutions, weighs in on a useful plan vs. aspirational plan stating that the only way it's useful is if it takes into account the pending regulations on existing resources. She asks how can you plan for new without knowing how the existing will be affected? She states that we should treat carbon as an objective function like meeting load and not sensitivity analysis anymore. She points to an EPA document on the social cost of carbon that put it at \$36 a ton. She's fine using that number.

Greg Delwiche, Bonneville Power Administration, states that he doesn't think Bonneville's customers should have to shoulder the shutdown costs of Boardman and Centralia by requiring them to meet higher energy efficiency targets since those customers don't have load served by those generating plants. He thinks that the Council should continue using the Sixth Plan methodology for environmental costs. He continues stating that useful plans assess the implications of what we don't know and changes that could happen i.e. 111(d) which require scenario analysis.

Karier states that the Federal Government's social cost of carbon is a requirement so what's Bonneville's level of obligation. Delwiche says that they have different economic strategies for different loads but ultimately it's up to the customers.

Stan Price, NEEC, voices concern about two tiers of interest: the top for the utilities that will use the Plan and then the rest of us. He states that the Plan is for all of us including ratepayers and my group in particular whose business it is to supply energy efficiently.

Roger Grey, EWEB states that they have used scenario analysis in their IRP and think it's the best approach since it can encompass many different ranges of possible legislation. He points out that in a scenario analysis; the 111(d) effect on dispatch looks very different than an imposed carbon price on production. He also thinks that a high carbon cost scenario analysis could capture the estimated social cost.

Corwin thinks the plan could be used for relevance but it's not meant as an IRP. He likes the line Klein drew on resources and moves to draw a line on cost. He notes that the Act says the methodology applies to direct cost for the resource or costs directly attributable to the resource. Eckman asks how Corwin defines the difference between direct and directly attributable. Corwin states this reminds him of the environmental impact of the Snake. He notes at that time they found out what was quantifiable and what was not.

Tony Usibelli, WA Energy Office, takes Prices' point strongly. He states that Washington looks to the analytical capabilities of the Council to inform us but also to understand the regional implication of environmental decisions being made and impacts on the power system. We are looking to consider the social cost of carbon and think it's vital that the Council include it.

Eckman asks if it should be handled as a sensitivity or scenario study. Usibelli answers that would be a minimum. Hirsh states that the Council has been on the leading edge of analysis that the rest of the US looks to it for methodological guidance. She says we should look to the next level of analysis of resource planning and for regional, direct utility planning. She says the Council should lead in analysis methods not just do things as in past plans.

Hirsh also stresses that carbon should not be a proxy for all environmental costs. She also points to the benefits of environmental actions.

Kavulla asks why using the social cost of carbon as a planning metric would be more desirable than using the cost of the proposed regulation of carbon dioxide. Howell answers that the uncertainty of 111 (d) will play out long past the finalization date of the plan and this would give some certainty and a price point as the Feds use it and require it for Bonneville. Kavulla reframes the question asking if the social cost of carbon is a proxy for the potential cost of 111(d). Howell answers that it may or may not because we're not sure how it will play out. Kavulla states that if the plan ascertains that the regulatory cost is the same as the social cost then okay, but it's not economic to select the social cost as the cost of carbon in a utility plan. He notes that the EPA has some costs of carbon modeling which would be a more realistic place to start.

Dave Hagen, states his members want certainty so he supports Saven's and Prescott's comments to determine the best resource for load growth. He has no problem looking at scenarios and sensitivities but the plan should stick to the statute.

Eisdorfer states that 111(d) is out there as the closest we've seen to a National approach to regulating carbon and it may be implemented along with other things that may overlay on top of it. He's not sure that the social cost of carbon is the right approach but modeling the cost of 111(d) plus other overlays need to be tested.

Gregg Carrington notes that there are direct costs, indirect costs and speculative costs. He notes that there are going to be sensitivity tests for indirect/residual costs and wonders how far apart the room actually is to what the council will be doing. Eckman answers that we will find out. The boundary/goalpost issues are later in the day.

Eckman brings up a few questions for after the break: Benefits like the reduction of wood smoke in the RTF. He illustrates the issue with the ductless heat pump which causes re-electrification because the heat pump is easier than chopping wood. In this case, emissions are reduced, so should we monetize that benefit even though energy use is up?

Klein asks about fuel switching saying it's against the law in WA. Eckman states that the statute was originally about avoiding switching from gas to electricity but wood is another fuel, but it's renewable so does it count toward RPS.

Jones asks how to account for carbon reductions benefits that might produce load growth caused by electrification particularly in transportation. He notes it becomes broader than social benefits. Eckman answers that in the near term we are focused on adding a benefit into the cost effectiveness analysis of that particular efficiency measure. Eckman states that sometimes it's a cost and gives the example of reduced heating from incandescent lights as a debit. He asks how do we account for this; where do we draw the line? Eckman also stresses that this is not just about generating resources.

Tony Usibelli brings the conversation back to wood smoke saying it's a major culprit in lack of attainment for air quality regulations. He hopes the Council will help us quantify and help them understand the implications. He brings up economic consequences of non-attainment, noting that it might not be appropriate for the council to address.

Lorenzen asks how the Council accounts for switching from wood to electricity saying do you look at BTUs in wood vs. BTUs in electricity. Eckman answers that the RTF estimated how many fewer BTUs of wood would have had to have been burned to reduce electricity savings by reviewing customers' bills before and after the installation of the conservation measure. Lorenzen asks if this is a conservation measure. Eckman answers that the installation of ductless heat pumps still save kilowatt hours, although not as many as would have been saved had consumers continued to burn as much wood as they did before installation of the ductless heat pump. Lorenzen restates the question: if you switch from wood

to a heat pump do you use less kilowatt hours. Eckman answers if a consumer switches entirely from wood heat to heat pump, and then there are no savings.

Chris Robinson notes that in the ductless heat pump case, we're justifying a conservation measure not on its energy savings benefits but on its public health benefits. This is a paradigm shift and we need to have our eyes open because in the end we're using more electricity. Eckman states that the health benefits are higher by a factor of five than the energy benefits so it's not insignificant.

Hirsh encourages the Council to use the "ground-breaking" wood smoke analysis that they've done and notes that there are a lot of studies on non-energy benefits and how to incorporate them into utility planning. She notes that she does not recommend that the utility should pay for the full benefit or cost related to these measures but it should go into the total resource cost evaluation that the Council does.

Mike Jones expands on Hirsh's comments saying it brings up a utility's fundamental challenges. Utilities are restricted to investing ratepayer dollars in things that have a value for the electricity system and are not allowed to invest ratepayer dollars in something that only has a social value.

Lorenzen brings the conversation to weatherization saying it creates a health detriment and how that is counted. Eckman brings up past studies that tackled the question. The cost of mitigating indoor air quality issues that might occur as a result of weatherization was included in determining whether those measures were cost-effective. Cavanagh says that mitigating actions taken by BPA and utilities eventually lead to better indoor air quality. Eckman agrees but states that this was done by increasing the cost of the measures.

Carbon Regulation/Risk in the 7th Plan

Tom Eckman introduces the question of 111(d) and (b) and other coming legislation. Eckman wants the RSAC's input on how to deal with it in the analytics. He notes that in the 6th plan they ran multiple sensitivity studies with differing constraints on a range of variables that were aimed at reducing carbon dioxide emissions risk. Eckman asks what scenarios should be tested in the 7th plan and also asks what the Council can do analytically to help the group's response to the 111(d) proposal.

Eisdorfer states that the EPA gave states several ways to comply and lists them. He notes that the Northeast was pushing the multi-state option but in the West that's not how we're thinking about it. He thinks that each state's primary goal should be how that state is going to meet a compliance goal. He says that there should be discussion down the road regarding the costs and benefits of a multi-state solution and thinks the Council's analysis would be a great asset there. Eckman asks if this analysis should be done during the plan development process or as follow-on as the States develop their own plans. Eisdorfer says both.

Usibelli voices support for Eisdorfer's recommendation noting they (Washington State Department of Commerce) are focused on what it means for Washington. He thinks the Council should help once the comments are in on EPA's draft regulations to help us think through the different versions of regional collaboration that would make the most sense; including analytics, the role of energy efficiency and renewables and finally implementation mechanisms among the states. He suggests waiting to do this work after June 1, 2015 when the final rule is due to be issued.

Prescott voices concern over the time frame for the 7th plan and the scenario analysis that is required. Eckman notes that the Council recently compared the carbon emissions rates for several of the scenarios that were analyzed during the development of the 6th plan with the proposed 111(d) regulations. This comparison gave us some insights on the potential compliance implications at the Regional level. Eckman described some of the findings from that work. He noted that it was clear that without significant energy efficiency and attainment of the existing state renewable portfolio standards, achieving compliance with 111(d) was unlikely.

Tom DeBoer agrees with Prescott's comments stating that we still don't know enough to address 111(d) now noting that it is a State obligation not a utility obligation.

Robinson notes that utilities provide reliability and wonders can we do what the EPA assumes and if we did what would be the impact on grid reliability. Robinson wonders if the plan is the place for that question. Eckman answers that an acceptable plan has to meet reliability standards so we test for adequacy and we are going to include capacity and flexibility. Robinson thinks that would be a good thing to focus on.

Usibelli restates that he agrees with the utilities that the Council will not be able to provide the definitive answer but could bring granularity to the analysis. However, having the Council's analytical capacity available to us over the course of putting our plan together would be helpful. That analysis might not make it into the 7th plan but would be a good resource for the States as they develop their compliance plans. He continues stating that the energy offices in the western US received a grant from the Dept of Energy and will be working on reliability and intermittency with a focus on 111(d). He offers that work to the other states and the Council if they need it.

Cavanagh states that we should not wait but should lead on Regional Approaches.

Carr goes back to reliability and what would happen if coal was removed. He wonders when the Council got the sophisticated power pool modeling capability to look at reliability impact and wonders if it's WECC. Eckman answers that none of the Council's models are transmission power flow models. We can test of energy and capacity reliability, but must rely on the transmission planning organizations, like Columbia Grid and NTTG to test for system reliability.

Hirsh encourages the Council to work with other entities in parallel with running some of the scenarios we want to include like Gov. Inslee's proposal. She reiterates her desire to include a baseline carbon

price similar to the social cost of carbon as a proxy. She also asks the Council to continue their work on energy efficiency as it is critical to complying with 111(d).

Eisdorfer pushes back stating that there will be lawsuits and there is no way to say when 111(d) will be implemented but we know what it looks like. It's a mistake to take our time and do qualitative assessments. We should dig in and get our fingers dirty with quantitative assessments.

Kavulla agrees that we should price carbon in some respect and it's most likely through 111(d). He agrees with coming up with a best guess number of what compliance looks like. He admits that it's fuzzy but a starting point would be taking the EPA data from their technical appendices and taking the energy efficiency, renewable and gas dispatch numbers and use them as a starting point. He also suggests reaching out to individual states energy offices or departments of environmental quality and looking for other ways to comply noting that Montana has developed several options.

Johnson states that reliability is a real issue and notes that the Council doesn't have the transmission flow models to do that work. He states that those that do have to decide what resources will and won't be available and what loads will be and they need information on what the effects of 111(d) will be. So it would be a good idea for the Council to do a "first best shot" at what 111(d) would look like with scenarios. He admits that it's early but if someone doesn't do it you can't do reliability. He acknowledges that if you do it first you will probably be "very wrong" but that shouldn't stop the Council. Eckman states that scenarios will be tested quarter one and quarter two of 2015 so they will be done in advance of when the final 111(d) regulation is scheduled to be finalized.

Howell asks if the Council's analysis on efficiency for the fourth building block of 111(d) can inform the states on the value of the efficiency. He states that what you are displacing is mostly natural gas, but if you look at a longer time frame you may get a different answer. So what's the difference of these scenarios, what's the role of Council in parsing out those differences and how can that help the states understand the value of Building Block 4. Eckman points to past analysis stating that Aurora and RPM looks at what's dispatching and its mostly natural gas at the margin 95% of the time. That would swing depending on variations in fuel price and carbon price. So a high carbon cost makes gas less expensive than coal. We will continue to test that in over 750 different futures about fuel prices and carbon costs.

Eckman continues stating that if they do as Snohomish and only build conservation and renewables and have the Duck problem like California, we might curtail solar PV out of California. There are scenarios where we're curtailing wind and solar because we need the carbon-based resources running to ramp up when the sun goes down.

Howell follows up stating that efficiency is undervalued if it's only seen in the context of an economic dispatch model. He points to Puget's IRP stating that there were big differences in the 20 year plan and an accelerated ramp rate of 10-year plan. He notes that it there was significant impact on the value of keeping Colstrip. Eckman notes that the Council's analysis looks at benefits over a 20-year period and

any point along that. He notes they test acceleration and deceleration in Plans and will continue to do so independent of 111(d).

Hirsh follows up asking if the state and the EPA determine that energy efficiency has to be tied to emission reductions in an existing unit then a state like Washington may have a lower energy efficiency value than other states. She asks if the Council uses the regional analysis instead of the Washington State analysis you would give more value to carbon reduction. Hirsh notes that this may get to the multi-state issue. What could the Council do in modeling energy efficiency that would help the States figure out the size of the Building Block for regional compliance?

Eckman answers that the RPM & Aurora keep track of carbon emissions so the Council can play out lots of scenarios that constrain or limit carbon emissions. He gives examples and states that they have to satisfy least risk least cost solution. He notes that reliability and practical responses have to be looked at in the details. So we need to know what the system has to do and is it a realistic scenario not just for generation but for reliability.

Steve Johnson adds that when an IRP gives new resources and loads to a group doing transmission reliability analysis, changes to the costs of the grid can occur. He gives capacitor banks as an example and notes that these costs are often not captured in the plan because there is not enough detail resulting in a feedback loop. Johnson wants that feedback loop started to find added costs from additions to the transmission system to maintain reliability.

Brown brings up the power flows noting that when the aluminum plant in Washington shut down it greatly impacted power flows. He suggests that WECC and others need to look at power flow models if we are going to shut down coal plants. Eckman agrees stating that the Council looks at reliability on the generation side but not on the transmission side. He notes that Council staff is talking to the Columbia Grid and NTTG about making that connection so they can test whether particular resource strategies maintain system reliability.

Johnson states that he feels the reliability issue will be overcome but asks where do you want to be on the nomogram. He restates the need for a feedback loop to find the consequences and costs.

Hirsh asks if the Council will partner with NTTG or Columbia Grid to do a transmission component to the Seventh Power Plan saying it would solve many questions and concerns. Eckman agrees it is a significant issue but out of the study's scope noting that there is work being done by others. Hirsh points out that it is probably similar for demand response. Eckman agrees as we are not just building for load growth but also to fill holes.

Carr thinks there may be a simpler approach using WECC because once you add locations to the equation the difficulties jump a quantum level. To do this perfectly you would run scenarios and look at feedback and run more scenarios, but there may be a baby step you could take in this round to look at

closing coal plants. But that's a material breach in the stability of the high-voltage system. Carr says factoring that in it would be difficult. Eckman agrees saying the Council is not organized to do that.

Carr comments that this issue must have been faced before on the Fish side noting that you've taken out lots of megawatts from the hydro system and had to replace it with something else which probably had lots of carbon in it. Eckman says yes we've substitute incremental resource additions to replace those and other retirements. Carr asked if you factored in the potential cost of carbon in those instances. Eckman states only as a risk not as a direct cost.

Kavulla circles back to planned reliability. He states WECC is in Phase 2 of its 111(d) planning and would like data about resources to feed into its reliability model. He notes that NTTG is already studying retiring Colstrip 1 and 2 and the reliability impacts with preliminary results available in the first quarter of 2015.

Eckman asks for feedback on where the Council may head for scenario development. He notes that Gov Inslee wants to look at a zero carbon footprint. Eckman states that the Council could also look at other steps along the way for instance 111(d) or gradations more and less stringent than that. He further notes that some scenarios include emerging technologies and some would not. Eckman then asks if that would be useful to the Committee members.

Dick Adams, PNUCC states he is concerned about appearing to know where 111(d) will come out. He thinks there are many scenarios around what 111(d) might look like; i.e. mass-based or emissions-based. He notes the EPA is still asking questions that will not be answered during the Seventh Plan's timeline and thinks the Council should address four or five major uncertainties of 111(d) and how the Northwest could handle that instead of a string of scenarios that assume we know what 111(d) looks like. Adams summarizes staying we don't know what a compliance plan looks like because we don't know what the plan looks like.

Eckman answers that people have asked the Council what a regional compliance plan would look like. Adams says the Council might look at different scenarios of what 111(d) would look like and Adams gives examples of what that might be suggesting emission rate as compliance as opposed to mass. Adams further notes the utilities have been looking at this for a while and still don't know what it means. He suggests the Council put that uncertainty into the Seventh Plan.

Saven states that he wants the Council to stay on schedule, using existing resources to produce a plan that's useful to him and his constituents. Eckman agrees stating that is why the Committee is here.

Dave Hagen, Clearwater Power, echoes Saven's statements. He feels there might be 1600 111(d) scenarios to run so the Council should address it briefly but right now it's not ready for prime time. He continues by asking what happens if one of the Northwest states decides they don't want to take part. Cavanagh interjects that knowing the benefits might help the states make that decision. Eckman reiterates that RPM and Aurora are Regional models and can't look at individual states.

How to make the Regional Plan useful to State/BPA/Utilities

Eckman introduces the topic. Jones states that the single thing the Council could do to make the Plan most beneficial is to be exceedingly transparent in how costs are calculated and what they mean. Eckman asks for an example. Jones says the Risk Adder on conservation.

Brown states that he would find a methodology for a capacity contribution for intermittent resources helpful. He notes that we've come past using 5% and need an appropriate methodology. Eckman states that this will be part of the discussion of capacity and flexibility in an analytical approach. Eckman further notes no models work sub-hourly which is part of the problem.

Grey speaks to the difficulty of translating the regional average perspective to the unique problems of individual utilities. He also wants conditional-based outcomes to be more responsive to real life.

Usibelli notes that Washington State looks to the Council for deep technical analysis that they can't do and would like guidance on how to scale that work to the state level. He notes it's done anyway and is looking for more guidance with that.

Eckman states that the Council is looking to draw more generalized decision rules from the Portfolio Analysis. He notes this would be in the writing as opposed to the analysis and would provide guidance for management strategies. The RSAC agrees that this would be useful. Eckman also envisions bringing the analysis back to the Committee to compare findings to be more responsive to changing conditions.

Cavanagh notes that the Council recognizes the increasing importance of capacity and flexibility. He predicts that the capacity markets will fold into flexibility markets. Cavanagh suggests that this issue will be a major theme of the Seventh Plan and he wants to help talk about it.

DeBoer hopes the Plan will be front and center in resource adequacy/reliability especially as we shut down coal.

Saven is interested in the usefulness of the plan as a trade representative of 54 load following Bonneville customers. He notes that they are small but represent 28% of Bonneville's sales. He would like a chapter on the issues faced by smaller utilities and suggests topics: conservation opportunities, distributed generation and how they affect them financially. He knows they are small in comparison but it would be helpful to engage.

Eckman restates that Committee members would like the Council to identify problems but not find a solution as those are best found locally. Saven states that an outcome could be creation of a forum to talk; he notes that he doesn't want a Council mandate.

Hirsh states that a useful plan would analyze edge pieces like storage, demand response, capacity benefits, flexibility, grid enhancements and how it fits into a bigger picture than generating resources and energy efficiency. She continues stating that she doesn't want a base case/business as usual case that prices carbon at \$0. Hirsh continues stating that the plan would be useful if it includes non-energy benefits for energy efficiency and explores quantification of those benefits.

Carrington asks to what extent the Council will look at the proposed Security Constrained Economic Dispatch (SCED) design and Energy Imbalance Market (EIM) and the ability to combine resources. Eckman says it's not on the program and asks if it should be. Carrington answers that a SCED Design will result in less reserve required on the whole and it might affect capacity or flexible capacity. Eckman states internal discussion reflects that. Carrington states that it is not an "if" issue but a "when" issue. Eckman counters that it would be useful to the Council to know that it's a "when" during development of this Plan.

Therese Hampton, Public Generating Pool, clarifies Carrington's earlier statement stating that no one in the Northwest Power Pool has made a decision on this yet.

Eisdorfer states that this is something the RSAC should talk about because if we are going to lose significant base load resources in the next 10 years, and additional variable resources are coming on, then the concept of integration and flexibility is the issue. Eckman states that the issue was discussed in the Sixth Plan noting that market improvements ease problems.

Tom Haymaker, Clark County PUD, asks about Columbia River Treaty as it's a tremendous capacity resource for flexibility resource. Council member Karier says it's at least 10 years out.

Price brings up conservation potential as built on a measure-up basis. He suggests thinking more like the customer particularly industrial and commercial customers as they tend to be centric to what they do as a business. He states that they don't think about potential on a measure basis. He feels that the RSAC should be coming up with new ways to think about providing these services and the action plan is the place to discuss it.

Eckman brings up the action plan. He points to action items in the Sixth Plan and asks for suggestions for the Seventh (e.g., a forum for smaller utilities). He asks what would be other follow-on work. He states it's useful once the Plan is implemented and wants the RSAC involved in it.

Lorenzen asks who the target audience for the Seventh Plan is. He then asks what the impact of the Sixth Plan was, who changed because of it and use that information as a guide to the Seventh.

Brown states that they didn't change their IRP but it generated many questions. He brings up the conservation of the region with the Council's instructions not to assume individual utility conservation potential based on individual load share, but that's what we all did anyway. He also states that the

Executive Summary needs to include caveats because that's what everyone reads. He asks the Council to consider the messaging.

Hirsh states that the Sixth Plan had the highest energy efficiency targets to date and a marketplace that was skeptical met it anyway. She feels this is one of the most important roles of the Council.

Future Meeting Agenda Requests and Discussion Topics

Eckman brings up other important issues to discuss and wants Committee input. He notes that capacity and flexibility will be discussed further in the first quarter of 2015. He also notes interest in generating and energy efficiency assessments suspecting there's more interest in the energy efficiency side and proposes a meeting in February or early March.

Eckman says an adequacy assessment and scenarios will be in March but perhaps later. Carrington asks when a list of scenarios will be available. Eckman says a proposed list will be at the next meeting and then have a meeting dedicated to that in April/May. He further notes that carbon will be a scenario as will magnitude of variable energy resources and external market conditions (California Duck).

Cavanagh states, in relation to The Duck, the bigger the region the easier the solutions are. Eckman agrees and states the Council is looking at how their market affects our market. He says another issue to consider is the external supply noting that the adequacy study limits it to 2500 megawatts while the RPM uses 6000 megawatts. Cavanagh asks what's the cost difference between adding or constraining, stating that it's rhetorical. The committee agrees.

Eckman brings up issues that Morlan uncovered including levels of load growth, distributed generation and what that means for revenue collection. Hagen would like help identifying these issues because the utilities will have a huge shift on how they collect revenue. Hagen points to distributed generation, demand side management, prepaid metering as issues. Again he thinks though Council could point these out but allow us to find local solutions.

Eckman says these issues are analytically driven but asks what other issues the Council could take up or ignore. Morlan says one popular issue is the effect of a more diffuse and diverse electricity system and the growing demand side participation in providing capacity and flexibility what investments need to be made in monitoring or transmission. Morlan notes that some feel this is pie in the sky but he feels we also need to think of the longer-term future.

Lorenzen states that he is interested in transactional barriers to implementing demand response. He states that you see it in Bonneville's methods of billing their customers and how that financial incentive could flow through to a utility customer. He wonders if this creates opportunities or barriers. He then asks to what extent a Power Plan should delve into this.

DeBoer thinks it's a huge issue but doesn't know what to say about it. He's interested in ideas. Eckman says it may be more appropriate for action items. He notes other things like the Smart Grid and Big Data. Lorenzen brings up the oversupply issue.

Lorenzen thanks the room for their participation.

Eckman discusses the dates for future meetings.