

**Northwest Power and Conservation Council
Generating Resources Advisory Committee
September 1, 2015**

Attendees on Site

Steven Simmons	NPCC
Gillian Charles	NPCC
Jason Busch	OWET
Ken Dragoon	Flink Energy
Mike Hoffman	PNNL
Rebecca O'Neil	PNNL
Nate Sandvig	MWH Global

Attendees via Go-To-Meeting

Bear Prairie	IF Power
Bryan Neff	CA Energy Commission
Dave Vidaver	CA Energy Commission
Elizabeth Osborne	NPCC
James Gall	Avista
Greg Nothstein	WA Dept of Commerce
Jan Lee	NW Hydro
Tom Kaiserski	Montana Dept of Commerce
Keith Knitter	Grant County PUD
Ken Nichols	EQL Energy
Kevin O'Meara	PCC
Kurt Conger	Northern Wasco Co PUD
Lisa Larson	HDR, Inc.
Leann Bleakney	NPCC
Jason Modrell	
David Nightingale	WA UTC
Phil Carver	OR Dept of Energy
Will Price	EWEB
Rick Sterling	Idaho PUD
Robert Brown	PGN
Russ Schneider	Flathead Coop
Saul Villarreal	
Steve Muchlinski	Muchlinski Consulting
Tim Culbertson	CB Hydropower
Tom Haymaker	Clark County PUD
Tomas Morrissey	PNUCC
Brenda White	

Steven Simmons, NPCC, opened the meeting at 3:00. Introductions were made.

Generation Resources--Draft Action Plan Items

Steven Simmons and Gillian Charles presented

GEN-1 Redevelop the revenue requirements financial model-MicroFin

Mike Hoffman, PNNL, approved of the redevelopment and idea of linking MicroFin to Analytica and the RPM. Simmons noted that they will be looking for volunteers to join the user group at a later date. Gillian Charles, NPCC, stated that the redevelopment will be beneficial to multiple entities, not just the Council.

GEN-2 Update generating resource datasets and models

Hoffman approved of this item. He noted that there are other data gathering efforts that he personally thinks should be included in the data base. He also noted that anything added should be easily extracted through Analytica.

Lastly, Hoffman suggested making the datasets available to GRAC members first so they can push or add data for specific technologies. He stated that after GRAC and/or Council review, the data could be pushed out to the public. Charles stated that making the data public and collaborative was the original goal.

Hoffman then suggested including regional EE costs, amounts and locations as the information would be helpful to those who deal with transmission issues. He stated that it would allow better planning for utilities and NGOs.

Russ Schneider, Flathead Coop, asked how GEN-1 and GEN-2 interplay with and affect each other. Simmons answered that MicroFin is separate, as you feed in estimated resource costs and operational attributes of potential future resources, while the data bases deal with existing resource costs.

GEN-3 Monitor and track progress on the emerging technologies that hold potential in the future Pacific Northwest power system

Nate Sandvig, MWH Global, clarified that pumped storage with variable speed technology is cutting edge and emerging. Charles agreed and noted the clarification.

Hoffman noted that all of these technologies have impacts on the system and the ancillary services potential. He asked what role these play, both in and out of the region, in the energy imbalance markets. He also asked where these cross-cutting issues fit in the Draft Action Items. Simmons called this a good point and noted that EIM information is captured somewhere else, possibly in the system flexibility section.

Tim Culbertson, CB Hydropower, asked if the point of integration was a transmission potential benefit issue or just the cost of integration. Simmons answered both and noted that staff will follow up on action items around EIM and integration with other groups at the Council.

David Nightingale, WA UTC, brought up energy storage versus battery storage (last bullet), asking if other forms of energy storage were omitted because they are not emerging technologies. Simmons agreed with Nightingale and suggested changing it to general storage. Nightingale suggested changing the word "battery" to "energy."

Nightingale then suggested adding the words, "or before" to the last sentence of GEN-3, as viability may occur before the Eighth Plan. Simmons thanked him for the suggestion.

GEN-4 Scope and identify ocean energy technologies and potential in the region, determine cost-effectiveness, and develop a road map with specific actionable items the region could collaborate on should development be pursued.

Jason Busch, OWET, noted a paper on ocean technology work done by Flink Energy. He stated that the paper found that technology companies are doing this alone and noted that some utilities thought it would be better to approach this as a region.

Ken Dragoon, Flink Energy, said that the Northwest is a hotbed of research activity in ocean energy. He noted utility interest in the research and one utility's call for collaboration. Dragoon spoke about the gulf between the utility's and developer's perspectives. He concluded with the idea of utilities working together with developers and other stakeholders like USDOE and environmental groups to come up with regional objectives and perhaps pursue those objectives as a group.

Dragoon suggested changing some of the wording in this action item; particularly part C which discusses funding. Charles noted that she already made that change to the master version. She also stated that she has Busch and Dragoon's other suggested changes and they are taking them under consideration.

Nightingale stated that ocean energy includes other technologies like tidal, near-shore estuary and offshore wind. He wondered if they are in another place or excluded. Charles answered that offshore wind is included in GEN-3 and tidal is included in GEN-4. Nightingale wondered if there was enough momentum on offshore wind that it didn't need to be pulled out. Charles stated that she didn't know if there was regional interest in offshore wind, but if there is the technology could be pulled out and put into GEN-4 or that action item could be re-written.

Busch stated that offshore wind dovetails nicely with GEN-4 and pointed to a municipal power project off of Coos Bay, OR. He then asked Rebecca O'Neil, PNNL, to discuss the process set in place when she was at OR DOE.

O'Neil stated that the ODOE funded regional conversations about wind and ODOE is hosting the offshore wind component. She said ODOE noted that there was a lot of regional interest in this conversation. She said those conversations were about sharing credible information and creating a baseline while Busch is proposing a strategic conversation with a goal towards moving the needle towards development.

O'Neil admitted that she can't speak for ODOE anymore but noted that there is only so much that grants can do. She called his proposition a novel engagement for the Council and would be a strong, positive compliment to efforts going on at the Labs and the ODOE.

Tom Haymaker, Clark County PUD, stated that the language presupposes that there will be regional utilities that would participate. He noted that Clark already has too much energy and their RPS requirements are met in a way that will not require additional renewable energy. He called GEN-4 a laudable effort but stated that he would not have the resources to pursue it. He wondered if there was similar feedback from other utilities.

Charles agreed that if there was no interest from utilities it would send a strong signal, however the Plan looks out to the future. She asked Haymaker if he would be interested in seeing the outcome of the meetings even if he wouldn't participate. Haymaker said it would be nice to see some results but it wouldn't sway Clark's acquisition strategy.

Dragoon restated that there are utilities that have been involved or expressed interest in the technology. Haymaker agreed with that point. Dragoon stated that he didn't expect the majority of utilities to participate but thought that some major players could. He noted that it would not be a huge investment in time but said it was vital to progress of the industry.

Charles noted that the Council does not have a large staff devoted to generating resources but thought it was worth pursuing to gauge interest. Nightingale suggested adding offshore wind to this action item to generate more interest. Simmons agreed.

GEN-5 Research and develop a white paper on the value of storage to the future power system, particularly around pump storage and battery storage.

Kurt Conger, Northern Wasco Co PUD, asked if the white paper would include an assessment of existing conventional technologies and their ability to provide the same value-added services. Charles answered that it could. Conger stated that it would be good to evaluate the market for frequency regulation and balancing reserves so we could identify a shortage that warrants a multi-billion dollar investment.

Jeremy Twitchell, WA UTC, stated that he supported the idea, noting that the WA commission recently opened an investigation on storage. He noted that organized markets around the country have a thriving storage industry and wondered how we could get there without the market. He stated that they are going to do a better job of modeling the benefits of energy storage as IRPs do not look subhourly. He looked forward to collaborating with the Council during this process. He suggested the Council start with a broad approach so utilities can choose appropriate solutions. Simmons stated that they are thinking in general terms and called out pumped and battery storage as examples.

Hoffman said he's advocated storage for a long time and believes there is value in pumped storage at the transmission level. He then said, in that context, the region has cheap public power because infrastructure was built for the long run. He suggested looking at pump storage in the context of the next 100 years like the dams have been for the past 100 years.

Hoffman then said that batteries and compressed air have benefits at the distribution level and it's important to sort those out as there are benefits to both. Hoffman then stated that he appreciated Twitchell's comment about exploring the value relative to IRPs.

Hoffman stated that, personally, he felt that there is one single funder, the Federal government, which built the dams and put the transmission in place. He stated that when looking at the long run pump storage is inexpensive because of the levelized costs.

Haymaker pointed out that the first hydro project on the Columbia River was done by an investor-owned utility. Hoffman pointed to the transmission system. Haymaker stated that Hoffman was painting with a broad brush and suggested looking forward when considering these projects. Hoffman agreed.

Culbertson agreed with Haymaker and stated that we need to look at the value of the hydro system going. Simmons stated that good points, like stress on the transmission system, were brought up and would be covered in the paper.

Sandvig said he is encouraged by the action items. He suggested looking at the full value of items, including the societal benefits of the Clean Power Plan, what that means for renewables and the best placement for batteries. He stated this would be a great forum for utilities to use in their IRP process.

Sandvig then asked the Council to consider how this discreet white paper informs the Eighth Power Plan. He asked what regulatory framework they would recommend. Sandvig then said that utilities only look at their own system so the Council offers great value by providing a regional framework. He noted the Washington Commission workshop where Elliot Mainzer stated that the hydro system is at the edge of its capabilities for flexibility which made him wonder what the grid will look like in the future. Sandvig concluded by saying the NW Hydropower Association has formed a pumped storage committee, headed by Lisa Larson. He suggested himself, Jan Lee or Lisa as a resource.

Simmons stated that they will rely on the GRAC subgroup of experts to provide information.

Dragoon encouraged the Council to consider storage in the broadest possible terms. He said along with pump storage and batteries there is the demand side as well, pointing to BPA's wood pulping storage opportunity, thermal energy storage in buildings and combustion turbines and maybe primary storage of fuels. He called them potentially more cost effective. Charles noted that she and Simmons will broaden the language.

GEN-9 Monitor current and proposed federal and state regulations regarding the impacts of generating resources on the environment in the Pacific Northwest and subsequent impacts in the regional power system.

O'Neil asked about the scope of Jeff King's paper. Charles explained that best known costs were included and stated that the paper is available for review. Charles noted that the paper would not go directly into the Plan but would be used as a resource to draft an appendix. She called the paper extensive and re-stated that it's available on the Council's website.

Simmons noted that feedback and comments on the action item would be needed quickly. He welcomed more points based on the day's discussion calling them helpful. Charles pointed to the comment period as a place to further voice opinion.

Dragoon asked for the date of the next Council meeting. Chad Madron, NPCC, stated Sept 14 and 15.

Simmons asked for items by Wednesday, but noted that comments would still be addressed if they come later.

Simmons closed the meeting at 4:30