

**Meeting Summary**  
**NorthWestern Energy Electric Technical Advisory Committee**  
**Helena, Montana**  
**February 28, 2018**

**Attendance:**

Those participating in or attending the Electric Technical Advisory Committee (ETAC) meeting in person or via the web and by teleconference included:

<b><u>ETAC Member Organization</u></b>	<b><u>Attendees</u></b>
Consumer at Large	Chris Pope
District XI Human Resource Council	Tom Power
Montana Consumer Counsel	Jamie Stamatson
Montana Department of Environmental Quality	Laura Andersen, Jeff Blend
Montana Environmental Information Center	Brian Fadie
Montana Public Service Commission	Will Rosquist, Mike Dalton
Natural Resources Defense Council	Chuck Magraw
Northwest Power and Conservation Council	Brian Dekiep,
NW Energy Coalition	Diego Rivas
University of Montana, Energy Technology	Bradley Layton

<b><u>Organization</u></b>	<b><u>Attendees</u></b>
ETAC Facilitator	Beki Brandborg
Navigant Consulting - Carbon Pricing	Magie Shober
NorthWestern Energy	Frank Bennett John Bushnell Mike Babineaux Jonathan Pytko Danie Williams Todd Guldseth Todd Johnson

## **Agenda:**

1. CO2 Pricing Analysis (NEM Study) – Maggie Shober, Navigant
2. Load Forecasts – Todd Guldseth
3. Price Forecast Methodology – Mike Babineaux
  - a. Natural Gas
  - b. Electricity
4. Planning Process and Timeline – John Bushnell
  - a. Strawman
  - b. Timeline
5. Future Meeting Dates
  - a. March 22, 2018 – Location to be determined
  - b. April 18, 2018

## **Carbon Price Forecast**

Navigant and NorthWestern's Manager of Energy Efficiency/DSM Services presented an overview of the Carbon price forecast that was prepared under a requirement of the net metering cost benefit analysis.

It was noted that a copy of this report had been sent to each ETAC member by email on February 9, 2018.

NorthWestern discussed the earlier request for ETAC members to submit any questions about the report and noted that no questions had been submitted. Navigant and NorthWestern staff who worked on the report made themselves available for discussion.

Following an overview, some questions and answers were discussed:

Question – Did the study assume a cap and trade for all of WECC even though Oregon and Washington already have implemented some form?

Answer – Yes, the study included all of WECC except CA because of their more stringent policy.

Question – How would MPSC be involved, or what is the relationship?

Answer - This is just a modeling scenario of future policy inputs. It represents a carbon price that feeds into other data that NorthWestern is required to analyze.

Question – The report shows the carbon price starts in 2028. Is Colstrip shown as retired or is there coal? What assumptions were used?

Answer - Not all coal is retired. All cases were the same as the base case, just Colstrip 1 and 2 are retired.

Comment – We suggest revising Figure 2 of the report for clarity. It is not easily read or understood.

Question – Why does the carbon price not begin until 2028?

Answer – Significant time and effort will be needed to develop the rules and structure of a WECC-wide carbon policy, so Navigant assumed that 2028 would be an appropriate year for the WECC carbon price to start.

Question - Why does the study use all of WECC?

Answer - For a small load state such as Montana, it would be very unlikely the state would implement an individual, state-wide carbon policy. One of the major factors limiting a Montana carbon price is the effect of carbon leakage. With a state-only carbon price, higher cost Montana fossil fuel generation would not be replaced with renewables, as intended; demand would instead be met via interstate purchases (imports) from lower cost fossil fuel plants from neighboring areas/states. This could result in minimal to no reduction in state CO<sub>2</sub> emissions; otherwise known as carbon leakage. If a carbon price was applicable to all of WECC (excluding California), generation would shift from fossil fuels to renewables, as all fossil fuel generation would be equally expensive, reducing state CO<sub>2</sub> emissions.

Question – Can you talk about this as an apples-to-apples comparison, what about our own analysis?

Answer - If Navigant were to model the effect of the carbon price on Montana alone, the results would be quite similar as we would still need to account for regional imports. That is, if Montana was modeled stand-alone, in-state generators would not be competitive with the market on a pure economic basis.

Question – What about individual state policy?

Answer - It takes a while to ramp up these policies. Navigant does not include individual state policies until they are implemented, but adds sensitivity to proposals.

Question – Did Navigant review carbon avoidance adders from NorthWestern’s QF Dockets?

Answer – No. They are not a part of the Navigant study. Carbon avoidance adders are a societal cost approach. Navigant generated a price to reduce emissions.

Question – The study shows \$4.50/ton in 2028, but in the rate base, what does it mean to ratepayers?

Answer - It is not an easy calculation to convert from ton wholesale to MWh retail. This study did not do the calculation.

Question – The conversation had a back and forth over values and price generally, how does this study line up for MT?

Answer – Navigant feels that the price is complicated and not readily labeled. It depends on the market and how aggressively other market costs and market prices are incorporated.

Comment – The study needs to show the retail cost of this price, otherwise it does not mean anything to most people.

Question – In light of the MPSC decisions, why is carbon in the Plan?

Answer – Carbon will be included in the Plan as a scenario.

Comment - I believe we should include carbon, but it is hard to reconcile between the MPSC orders, plan rules, and QF-1 avoided cost.

Comment – I suggest a robust discussion of carbon pricing, leakage, and WECC so citizens can understand the complexity addressed on a bigger level.

Comment - Advice to ETAC is to study carbon pricing with their subject matter experts and advise as to what to model in the Plan.

ETAC suggests: Just use Navigant study.

Comment – NorthWestern needs to explain why there is no carbon price for first 10 years so the public will understand.

### **Load Forecast**

A lengthy load forecast presentation was provided to ETAC using the Power Point slides provided to ETAC. A notable change was discussed for peak load due to the NREL variable adoption values. ETAC was provided an explanation of the 4 changes in inputs for this year and the data did not indicate this changed the forecast with any significance.

Following the presentation, some questions and answers were discussed:

Question - Are Gallatin and the other large counties forecasted to stay at current growth rates in the economic forecast subscription used?

Answer – NorthWestern will look at that and get back to ETAC.

Question – Will NorthWestern model recession impacts for the future?

Answer – No, business cycles are included in the historic values used for forecasts.

### **NorthWestern presented weather impacts to load forecasts.**

Question - Was the shortened history of 10 years based on statistics?

Answer – No, more from other utilities as they trend to more near term history, but NorthWestern’s weather data supports a trend of warming weather over the last 20 years and we feel a 10-year historical average is more indicative of current and future normal weather than a 30-year average. This does lower the forecast. Summer peaks are growing faster than winter peaks.

Question – Does NorthWestern monitor major cities? How does it get Degree Days?

Answer – NorthWestern subscribes to DTN, a weather service, and receives data on 9 stations that represent the most populous service areas.

Question – Has NorthWestern looked at snow water trends and the long term viability of hydro fleet that covers about 60% of resource threat?

Answer – Yes, Energy Supply looks at it. The trend of historical snow is projected out to future.

Comment – Industry projections indicate western MT might get more precipitation with climate change. It does not threaten the value of hydro resources in MT, unlike Washington and Oregon.

Comment – NWPCC information shows earlier spring runoff but increased reservoir storage dwarfs the runoff change.

Comment - Smart meter adoption could impact capacity based on time of use.

Comment - At this point, it might be too early. Demand charges that are not tied to coincident peak confuse the issue and don't help NorthWestern.

### **NorthWestern presented net metering impacts to load forecasts**

The NREL study indicated a higher penetration of net metering than previously projected by NorthWestern - mainly solar - and the growth was largest among commercial customers.

### **NorthWestern presented peak demand impacts to load forecasts.**

Net metering primarily impacts NorthWestern's summer peak load forecast.

Question – How will new loads like bitcoin mining impact the forecast?

Answer – Bitcoin mining impacts the control area, which is not relevant to the retail forecast.

Question – Is peak shaving good for NorthWestern?

Answer - NorthWestern does not serve the large customers able to provide that service. DSM does not help NorthWestern as much as it does utilities with more electric water heaters and electric heat systems.

Question - Does joining an RTO remove the peak or capacity issues?

Answer – No, it just changes the discussion.

Question – Were the Navigant and NREL assumptions on all forecasts?

Answer – No, there was a high adoption rate based only on a full retail rate. It did not make adjustments for back-feeding or other connection costs that can change customer economics.

Comment – NorthWestern's negative impacts to growth are similar to other utilities growth as a result of adoption of LED lighting, etc. This has a lot of utilities concerned because negative load growth impacts rates.

Question – In the different portfolios over time you see all assets coming in but then not when they are retired?

Answer - Yes, but investments add capital to replace the depreciation. So you might not see the loss in rates.

Question - Does the Plan indicate industry changes?

Answer - Yes, this Plan will talk about the changes to the industry which is one reason we model portfolios.

Comment - ETAC wants some mention of electric vehicles, even if they are not yet part of the Plan.

### **Planning Process Timeline and Strawman**

Comment - ETAC wants the MPSC updates to be circulated.

Question – As to the RTO information changing rapidly, will it be a base case in the next Plan?

Answer – NorthWestern agreed with ETAC that there could be impacts with an RTO, but it agrees the potential move to a market is not firm enough to be a base case, but perhaps a proxy RTO model.

Comment - ETAC recommends that NorthWestern monitor RTO development.

Comment – RTO entry needs to be prepared for, NorthWestern can't join because it is short capacity.

Comment – NorthWestern should not be acquiring resources that could not operate in an RTO.

Answer – NorthWestern believes those to be flexible capacity resources that can be dispatched.

Question - If a market seemed viable to NorthWestern and set resource adequacy how long would it take NorthWestern to refresh its analysis?

Answer - The analysis would take probably about 4 months if most of the Plan, except fuel prices, were kept static.

Request of ETAC – Will ETAC provide feedback on the Strawman to the whole team so everyone is aware of suggestions?

Question - How does NorthWestern go from an indicative portfolio to an action plan?

Answer - Indicative portfolios will be based on known costs from which we will derive specific needs. RFPs designed to meet those specific needs will result in different answers than indicative portfolios.

Question – Will NorthWestern provide a refresher on how the optimal expansion model will work?

Answer – Yes, NorthWestern would like Ascend to provide a refresher.

Question - Will the capacity module incorporate carbon and select different resources?

Answer – We will have Ascend address that in a refresher.

Question - Other IRPs are spending a lot of time on Colstrip retirements. How will Northwestern address Colstrip in the 2018 Plan?

Answer - That is not explicit, but does depend on other partner's timelines and increases to operational costs that are modeled in portfolios.

Comment – NorthWestern should talk about DGGs and how it operates over time.

Question - Why did NorthWestern pass on Hardin?

Answer – Hardin is expensive and has environmental pitfalls. Also, it can't be paid off in a 15 year recovery period.

Question - What about Transmission planning issues?

Answer - That is not part of the Plan requirements.

Question – What about Chapter 9 infrastructure upgrades?

Answer - This will be in the form of fuel storage costs or pipeline upgrades.

Comment – The Plan should have more detail on system costs.

Question is Power factor penalty or power conditioning in the Plan?

Answer – No, it is not in the Plan.

Question – The Strawman in two places has 15 vs 20 years?

Answer – Those refer to the cost recovery and planning horizon.

Comment – The MPSC states you only get a 15 years cost recovery period. The rest is on the utility.

Comment – The reason for NorthWestern to model over 15 years is to make the greater expense be justified in a scarcity regime – as if the capacity need was expressed in a market.

NorthWestern could take the risk over the life-cycle if it was modeled in the Plan.

Comment – NorthWestern should plan over the life-cycle and ignore the MPSC.

Comment – NorthWestern should model by life-cycle but the MPSC has ordered so both should be done so we can compare.

Question – Can information from NorthWestern on SPP be discussed in public?

Answer – Yes, you can talk about it outside of ETAC.

### **Price Forecast Methodology**

NorthWestern presented information about the history of price forecasts leading up to the current method with MPSC inputs. NorthWestern suggested looking at liquidity and not at a formulaic approach for escalation.

Question - In previous discussions, the impact between solar and natural gas prices with heat rate indicated their degradation. Are they correlated?

Answer – NorthWestern will check with Ascend and provide a discussion.

Question - Can NorthWestern evaluate forward price curves to determine liquidity and present that?

Answer – NorthWestern will look into that.

Question – Why doesn't NorthWestern use Aurora to forecast Mid-C prices?

Answer - Aurora simulates market prices based on shortage then adopts a unit for price. Because of renewables, real markets do not act that way. Solar duck-curve pricing is an example.

Question – Are wholesale prices overstated or understated because renewables are zero cost?

Answer – They are more likely overstated. I think I agree that more renewables goes with more volatility and declining heat rates.

Comment - We should see that relationship but the MPSC is not seeing that change in heat rate.

Answer – It is seen in the hourly market. It is billed under the OATT, so hourly prices might be on the OASIS.

Question - How will public meetings be advertised?

Answer – NorthWestern's public relations department uses social media and advertisements.

Comment – NorthWestern should have a flier sent to ETAC members.

Question - If NorthWestern talks about need, will it have a resource adequacy standard?

Answer – No, but resource relative to peak and to WECC reserve margins will be analyzed. Adequacy will be in future planning as it addresses RTO development.

Question - What about risk analysis on dams or cyber threats, is this an ETAC topic?

Answer – No, NorthWestern assumes a secure plan but it does model financial risk.

Question – Will NorthWestern discuss capacity and RTO entry in the 2018 Plan?

Answer – NorthWestern will treat RTO entry as a generic case but not a base case.

Comment – NorthWestern needs to be more formal about explaining resource adequacy to retail customers.

Comment – A back and forth discussion about modeling capacity in the market and the time it can be relied on was held.

Answer – The 2018 Plan should layer in capacity over time with assumptions, but RFP responses will show what resources actually provide capacity in the future.

Question – Will there be a market resource available to stop-gap the plan that you can then switch?

Answer – It is not that easy because what is available may lock you in to a product you do not need.

Comment – The MPSC wants us to explore that market rather than build a new facility.

Answer – NorthWestern is looking at options like curtailments and a rapid response RFP, but these resources are not like flexible capacity requirements. NorthWestern will look into capacity vs. energy on the short term market.

Question – Will NorthWestern provide the VER study?

Answer – Yes, NorthWestern will send the VER study to ETAC when it is released.

Comment – NorthWestern should send out a link to website with all studies.

Answer – Ok, we will.

### **Future ETAC Meeting Dates**

March 22 meeting to be in Helena, will try for the Wingate Inn. [Note: The March meeting was cancelled.]

Note: Committee members provide advice to NorthWestern as individual professionals; the advice they provide does not bind the agencies or organizations that the members represent.