Northwest Power and Conservation Council
Minutes of February 10, 2021 Council Meeting

Council Chair Richard Devlin brought the meeting to order at 9:00 a.m. Council Members Jeffery Allen, Bo Downen, Ted Ferrioli, Guy Norman, Patrick Oshie, Jim Yost, and Doug Grob joined by phone. Chair Devlin welcomed Grob, the new Council Member from Montana. The meeting was held as a webinar. The next Council Meeting is scheduled for March 10, 2021, and will also be a webinar.

Reports from Fish and Wildlife, Power and Public Affairs Committee chairs

Fish and Wildlife Committee

Council Member Jeffery Allen, Fish and Wildlife Committee chair, reported that the committee heard a presentation on the Bird Track Springs habitat enhancement project by the Confederated Tribes of the Umatilla Indian Reservation and the Bonneville Power Administration. BPA's Sean Welch said the agency identified six geographic areas and assigned leads to those. CTUIR's Allen Childs talked about floodplain restoration and the impressive results they achieved. The results have been beneficial for fish, specifically rearing habitat.

Allen also reported Fish and Wildlife Division Director Patty O'Toole walked the committee through the division's work plan as it moves to implementation. There are some new staffers on board. Staff will develop a collaborative framework with BPA to monitor program performance under current fiscal realities. The division's newest review, the Anadromous Habitat and Hatchery Review, is its largest. It will be challenging. For example, project site inspections will have to be done remotely.

Power Committee

Chair Pat Oshie said the 2021 Power Plan timetable remains the same: the division should conclude its work in May and the Council release a draft in July, followed by public outreach. Staff is currently working on scenarios. The committee looked at the energy efficiency scenario yesterday — availability, the ability to ramp up, and bundling costs. It's largely an economic-driven dispatch decision by the model. He said they tweaked the social cost of carbon to see what that impact might have on the energy efficiency robustness going forward, and they're also looking at the model's adequacy reserve margins.

The result is the model is selecting energy efficiency at high rates in the early years — 90% of what's available. Then it tapers off dramatically going forward. The model looks at costs of acquisition. Most of the lower-cost energy efficiency has already been acquired. The amount of energy efficiency availability is sensitive to supply curves and how much acquisition is ramped up. Another conclusion the model is drawing indicates that adequacy needs can drive higher energy efficiency acquisition, but this tends to happen when other options, such as renewables, have been exhausted. System costs are looking extremely low compared to the Power Plan and current regional system costs.

Oshie also reported that the committee will be meeting twice a month for the foreseeable future. It will be looking at the coal retirement scenario and an update on the power plant needs assessment and associate system capacity issue. In March, they begin with extra regional markets adequacy, and the markets for energy and capacity.

Oshie also noted that the model is pointing to a dependency on extra regional markets and the ability to transfer electrons across distances from California and the Southwest. The committee will look at associated risks and will talk in greater depth on that in March.

Public Affairs Committee

Chair Ted Ferrioli reported on three items:

- Division work plan review. A timeline of activities and events was sent to members for feedback, which has been incorporated into the workplan. Travel and gathering restrictions are in many places in the region, so they haven't gone forward planning the Congressional Tour.

- Communications for Fish and Wildlife Program and Power Plan messaging. The Power Plan will be more complicated and have more detail. In previous years, it was clear that conservation was a primary resource. This time will be more complicated due to robust renewable energy resource needs, coal retirements, questions about the role of natural gas, system interties and other questions. Also, the ability to hold public hearings is diminished, so we're relying upon virtual meetings for interaction with the public.

- Council report to the four governors on fish and wildlife costs – This report has been produced for 20 years and is now a mature part of the program. As Council

moves forward on its program revisions, it will want to connect results with expenditures so the governors can see what they're getting for the investments.

1. Presentation on Mitigation and Fish Passage by Mid-Columbia Public Utility Districts

Stacy Horton, policy analyst and biologist, introduced a panel of biologist from the Mid-Columbia PUDs to speak about mitigation and fish passage efforts: Peter Graf, Grant Public Utility District; Tom Kahler, Douglas Public Utility District; and Lance Keller, Chelan Public Utility District.

Douglas and Chelan PUD developed the nation's first Hydro Power Habitat Conservation Plans. Grant PUD has a Salmon and Steelhead Settlement Agreement. For all three PUDs, the protection standard is "no-net-impact," which is unique to the Columbia River and is accomplished with reservoir and dam survival standards, hatchery mitigation programs and habitat restoration.

Keller said each PUD has its own agreement, but they're very similar. They are long-term agreements, 40-50 years in duration. Each has outcome-based standards and an adaptive approach to use the best possible science.

They try to find a balance between fish loss (in the projects, reservoirs and predators), with mitigation measures. They use a three-pronged approach to reaching a no-net impact. The agreements outline a 93% survival standard for juveniles alone. Hatchery production can be adjusted if a 91% combined survival standard for adults and juveniles is exceeded.

Each PUD has implemented paired release survival — releasing fish above the project at the top of the project area, and then below the projects in order to allow the calculation of project survival.

Keller talked about juvenile and adult survival rates at Chelan and Grant projects, and discussed juvenile fish bypass systems at dams.

Kahler talked about the inner workings of Wells Dam's bypass system and survival rates. He then discussed Rocky Reach and Rock Island survival rates.

Kahler outlined the extent of Mid-Columbia PUD programs, including Okanagan Lake. He listed Fish Water Management Tools partners. Compliance has improved, resulting

in a resurgence of the sockeye population, and he mentioned a program to reintroduce sockeye to Skaha and Okanagan Lakes in British Columbia.

Graf said Grant PUD has spent more than $43 million on habitat and mitigation projects. He cited Wells Dam adult survival rates over the last five years.

He discussed a slide depicting the survival of adult Methow Basin wild spring Chinook returning over Bonneville Dam, and talked about unaccounted-for fish past Wells Dam.

Member Allen asked if Kahler could elaborate on delayed mortality. At what point do you measure that and make that determination? Kahler replied there are two different ways: PIT tag studies and a model to determine survival. Another way is adult returns.

Graf discussed studying returning adults that have been run through hatchery programs. The good news is hatchery fish survival. The bad news is fish spawning in the natural environment aren't doing well. He said hatchery mitigation is contributing to harvest.

He discussed recovery efforts for Upper Columbia spring Chinook. They don't differ from spring Chinook in the Snake River Basin, but they pose a unique recovery challenge. Snake River fish have a more diverse life history, migrating over a longer period of time and are smaller. They also spend less time in warmer tributaries.

Graf traced adult survival rates to spawning. They do well going into Wenatchee River. But because they're spring Chinook, they hold in tributaries, waiting. There, more than half die before they spawn. This also happens in the Willamette River. The reasons are unknown. He discussed the challenges posed by predators — specifically pinnipeds and Caspian terns.

Member Norman said he has visited most of the PUD dams and have been impressed with the innovation and dedication in fish passage and monitoring. He asked, overall, what's the difference between the predation mortality and dam passage? Which is greater?

Graf replied it varies, depending on the species. There is heavy avian predation on steelhead, they're bigger and closer to the surface. There's more mortality in the reservoirs than during the dam passage.

Keller agreed there is greater mortality in the reservoirs. He mentioned Northern Pike control programs in Chelan. They have removed 75,000 Northern Pike from 67 miles of reservoir.

Member Norman said he's aware that habitat conservation plans are regularly reviewed. When is the next review and what is the preparation for that?

Kahler said every 10 years they have to confirm that they're achieving survival standards. They evaluate the number of fish going through our projects, called recalculation. The next review is scheduled this year.

2. Update on Anadromous Habitat and Hatchery Review

Mark Fritsch, project review and implementation manager, said the anadromous habitat and hatchery review incorporates the work of the entire division. There are 134 projects funded through the program. This is the last review of this cycle. In 2017, they began with a wildlife project review (29 projects), followed by a mainstem project review (48 projects), and then a resident fish and sturgeon project review (44 projects).

The last anadromous reviews were in 2011 and in 2013. Fifty percent of the projects are habitat and the other 50% are hatchery activities and screens. The Council initiated the review on February 2, and shared the schedule with sponsors and managers.

Bonneville has opted to be guided by its strategic plan, which is very specific on the cost of our program in that it needs to be below the rate of inflation and there is no new money to be added. Fritsch said they have shared these budget constraints with sponsors and managers.

The review will take place over 14 months. They will be back for a full Council recommendation in April 2022.

Member Allen asked if they will we get pushback from CRITFC since they stole Maureen Hess from them. Hess, the Council's new fish and wildlife program analyst, introduced herself.

3. State of Utilities Report and Update on 2020 Loads and COVID Impacts

Massoud Jourabchi, economic analysis manager, began with a list of the determinants of demand for energy.

The regional economy continued growth in 2019. Jourabchi showed the progressive impact of the pandemic on the economy in 2020. Washington was the first to experience contractions. Regional employment that was expanding in 2019, declined in 2020 by almost 300,000 jobs. He listed job losses by sector. Leisure and hospitality have been impacted the most.

Still, population and income continued to increase in 2019 and 2020. Jourabchi listed an assortment of economic indicators related to regional employment. He talked about the uneven impact of Covid-19 on communities in Oregon. Also, job losses have been greatest in lower-wage industries, such as food services. The financial impact on renters hasn't been even among different ethnic groups, he said. Food insecurity, which had been on the decline since the 2008 recession, began to climb during the pandemic.

Moving to energy, Jourabchi said the region continues to produce more goods and services with less electricity. Also, the per capita demand for electricity has been decreasing.

Member Downen asked if he uses historical weather or climate change data? Jourabchi replied he's using observed loads and temperature information, not climate change projections.

Looking at transportation electrification, there was a huge change in EV markets as major automakers increased a commitment to going electric. Globally, EV sales grew from a 0.2% market share in 2013 to over 4.2% by 2020. In the U.S., 2020 sales were up 19% compared to 2019. Washington leads in vehicle sales regionally with 12,650. Idaho has about 500 vehicles now.

Jourabchi listed temperature impact on loads compared to historic averages:

- Heating and cooling requirements represent about 30% of total load
- 2019 winter heating requirements decreased by 2%
- 2020 winter heating requirements decreased by 7%
- 2019 summer cooling requirements increased by 25%
- 2020 summer cooling requirements increased by 27%

Regional sales of electricity showed signs of a modest recovery in 2019, as regional demand increased by 200 aMW. The largest increase was in industrial, followed by residential and transportation. IOUs' demand increased more than POUs'.

A survey of utilities for the first 10 months of 2020 indicates there's been a small decline in demand of about 536 aMW (0.4%).

Consumer demand for natural gas has increased slightly over the past two decades.

Jourabchi looked at total energy expenditures in the past three decades. Revenues collected in 2019 increased by $300 million.

Residential monthly bills have declined slightly in 2019. Regional electricity rates continue to represent some of the lowest in the nation. Washington has the lowest electricity and one of the lowest for natural gas. About half the region's residential customers have access to natural gas.

Member Downen asked, is it all of Montana or just Columbia Basin utilities? Jourabchi replied he thinks it's limited to the Council's footprint, but he will let him know.

The estimated energy expenditure including transportation $/year per household national average ~ $4200.

Flat load growth continues. Winter peaks are declining while summer peaks are rising.

After normalizing for weather conditions and Covid-19, regional net loads declined by about 370 aMW.

Next, Jourabchi looked at behind-the-meter resources: solar, demand response and time-of-use rates. For solar, there has been phenomenal growth over the past seven years.

Demand response totals in 2019 show a long road ahead for the Northwest. There are currently 151,163 demand response customers in the region.

There are 13 time-of-use schedules available throughout the region, but mostly with the IOUs as voluntary programs. None of the utilities offered peak pricing.

Member Downen asked why we don't consider a data point for Montana for weather considerations, instead of just Spokane and three other points. Jourabchi said they

don’t have the historic information. Long term, we look at all of Montana. For a short-term modeling, we look at four sites.

Member Grob said since the 1970s, there have been large amounts of thermal generation, which has a great capacity factor, coming into the Northwest. Now that looks like it’s going to change. He said he’s getting a sense of concern over reliability throughout the state. How can I tell people in Eastern Montana that the reliability is there in this plan? Jourabchi replied that it comes to generation, he defers to John Fazio. It’s a difficult topic for us (western versus eastern Montana). Most of the data they get is for the whole state.

Member Grob said he needs an answer on reliability as it applies to Montana. It’s a concern. Member Devlin agreed. Fish and wildlife concerns are restricted to the Columbia River Basin, but power extends outside Bonneville’s territory, he said.

Jourabchi said they have a request from Northwestern to look at reliability issues for all of Montana.

4. Council decision on Regional Technical Forum PAC Charter Renewal and Membership Appointments

Jennifer Light, Regional Technical Forum (RTF) manager, said this is a decision item with three pieces related to the RTF Policy Advisory Committee (PAC). The first is a renewal of the RTF PAC Charter. It includes a proposal to add state energy offices to the member organizations of this group. She said the second proposed change in the charter is the appointment provisions, and that's to reflect how we have traditionally managed the member appointments. She also asked for the appointment of Council Member Pat Oshie and Avista’s Tom Lienhard to serve as RTF PAC co-chairs. She is not recommending refilling one of the public interest positions at this time.

Motion

Vice Chair Downen moved as follows:

- That the Council renew the RTF PAC Charter as revised, as presented by staff;
- That the Council appoint Council member Pat Oshie and Tom Lienhard of Avista as the RTF PAC co-chairs; and
- That the Council appoint the RTF PAC member organizations as presented by staff.

Member Norman second.
Motion carried.

5. Washington State Energy Strategy

Elizabeth Osborne, senior energy policy analyst, introduced Glenn Blackmon, Manager of the Energy Policy Office, Washington Department of Commerce.
Blackmon talked about the state's energy strategy to meet greenhouse gas emissions reduction goals. Blackmon said the strategy is a product of state law as part of the 2019 Clean Electricity Statute. The last one was prepared in 2011 and 2012. The strategy's objectives are:

- Maintaining reasonable and fair prices and sufficient supply of energy;
- Promoting a competitive clean energy economy and workforce development;
- Understanding and addressing the needs of low-income and vulnerable populations; and
- Reaching and responding to both urban and rural communities.

There were a couple of specific elements added in the 2019 legislation. One was to ensure the effective implementation of the Clean Energy Transformation Act, and then align the strategy with the state's greenhouse gas emission limits, which were enacted by the Legislature in 2011. He showed a slide with the following:

Align strategy with clean electricity laws

- Energy Independence Act (I-937, 2006)
- Clean Energy Transformation Act (SB 5611, 2019)
    - After 2025, no coal in resource mix
    - By 2030, greenhouse neutral electricity supply
    - By 2045, 100% renewable or non-emitting sources

Align strategy with greenhouse gas emissions limits (HB 2311, 2020)

- By 2030, 45% below 1990 levels
- By 2040, 75% below 1990 levels
- By 2050, 95% below 1990 levels and achieve net-zero emissions.

He said achieving these goals on this pace is very challenging, given where we are today.

Blackmon said they have had great support, from a 27-member advisory committee representing varied interests, including Member Oshie.

Blackmon described the energy flows in the economy. Transportation is the largest source of emissions and represents the greatest challenge. There's a very steep path to reach the 2030 target. Even more challenging is that energy choices have already been decided by consumer purchases, so it's a huge constraint in the modeling. The 2050 target is also very challenging because they need to remove all emissions in the energy sector.

They did this work using a deep decarbonization modeling framework. He talked about different scenarios to meet emission limits set by the legislature. If you want to allow some emissions in one sector, such as transportation, you need to cut even further in another, such as buildings. All scenarios rely on substantial improvements in efficiency.

He discussed the use of gas in buildings, and moving from natural gas to a different form of gas. The electrification scenario achieves reductions at the lowest cost. The behavior change scenario is a little different from the others because it relies less on technologies and more on consumer behavior, which would affect the state's ability to meet its targets.

He described the effort to ensure an equitable transition for communities. We realized that because this is such a big transition, it's really easy for customers who don't have ready access to investment capital to get left behind. They could end up being the ones to still be using the outdated equipment, paying for inefficiency, while everybody else is able to move forward with more efficient equipment.

He described what's needed to achieve a 100% clean electricity, smart grid power transition:

- Accelerate new renewables and transmission expansion;
- Deploy flexible solutions and smart grid technology to manage load;
- Develop market mechanisms for clean power;
- Enhance reliability and resource adequacy; and
- Ensure effective implementation of the Clean Energy Transformation Act.

He said in the transportation sector, it's very difficult because the responsibility is shared so widely. It's not clear who's responsible. We need to be more specific and more

accountable, and to set targets for the transportation sector and ensure that those are implemented. He also mentioned enacting a low-carbon fuel standard.

In the building sector, the headline is high-efficiency heat pumps. We really see those as the strategy to reduce emissions in the building sector for space heating and water heating, and to do so in ways that benefit consumers.

He mentioned the need to remain aggressive and vigorous in code development. In the industrial section, he wishes they had more information. It's important to coordinate with other states and other jurisdictions because of the risk that, as you try to push on emissions in the industrial sector, production moves to another state because of that action. So, you don't actually reduce emissions, you just cause them to occur in a different place.

Blackmon said they also see potential within the sector for producing clean fuels and hydrogen.

The overarching themes he mentioned from his slide presentation are:

- Planning, data analysis and outreach.
- Research, development, early deployment of clean technologies.
- Investment to ensure equitable and inclusive transition – viable for some households and businesses, but not all. Finding mechanisms to provide capital to make these investments is an equity issue.
- Transition the fossil natural gas industry. We can't hit emissions targets using the same product in the pipeline. Probably will be decarbonizing the supply and electrifying end uses. Doesn't have to happen overnight, but over the coming decades. Gas industry has recognized the environmental imperative and are interested in transitioning as well.
- Develop hydrogen and clean fuels industry.
- Comprehensive pricing mechanisms.
- Universal broadband access — this shows up a lot in terms of having a smart, flexible electricity grid.

Member Oshie said it's a good encapsulation of the strategy and goals. The strategy has been on the street for a short period. But what are the first steps in implementation and which entities will be taking them?

Blackmon replied he's seeing some quick recommendations in Washington's Legislative sessions. The building sector is addressed in Bill 1084. Benchmarking commercial buildings, expanding to more buildings, gas transition work is under the WUTC. They're

also working on a low-carbon fuel standard, which has been debated for a few years. This strategy can help a lot of existing policy and implementation work go forward and help people see the bigger picture than they would otherwise.

He said their electricity analysis wouldn't replace the Council's Power Plan, but hopes it will show utilities if we meet objectives, it would create opportunities.

Member Oshie said one of the key questions is how quickly the industry will move. Significant changes will have to happen in a short period of time. We're questioning whether what can be accomplished over the life of the plan in real terms, when it comes to a significant investment in new resources. Blackmon agreed that it's a very complex question that's not easy to answer.

Member Ferrioli observed that there a 27-member advisory board. How did you select the tribal members? Blackmon said the advisory committee has Jason Campbell, who they found through a tribal liaison in the Department of Commerce. He doesn't represent all tribal interests. We see a continuing need to consult tribes as we move forward.

Member Ferrioli said we have trouble getting multiunit owners to install ductless heat pumps and other capital-intensive measures. How do you tackle that in Washington? Blackmon said they have not come up with a solution, but recognize that problem. He noted the possibility of different financing mechanisms as a way of breaking that deadlock between property owner and tenant. He's encouraged to see some local jurisdictions exploring that mechanism. They may need to try more generous incentives. It's a good example of the risk we face of having some people left behind in the transition. A lot of low-income are apartment dwellers, so it's important we figure out a solution.

Member Ferrioli said we're all aware some are being left behind in this equation. Some utilities aren't meeting their conservation goals currently.

Chair Devlin noted that in terms of statutory authority, it's clear you have authority on sources they can be used after certain dates. Are some portions of the strategy outside that authority? Blackmon said the State Energy Office's authority would fit on the nickel on his desk. A lot of measures will require state legislation to accomplish.

Chair Devlin said you have biofuels staying fairly constant. A case could be made that those might be carbon neutral, but they're not carbon free. Blackmon said when biomass is burned, emissions are released into atmosphere.

Member Grob said he was surprised and pleased with the reference to universal broadband. In Montana, we find that a heavy lift in our mountainous region. We identified the benefits of access in terms of accomplishing our goals, but there are no estimates of costs to make that happen. Blackmon recommended that he ask Member Oshie about this problem, given his tenure on WUTC.

Chair Devlin alerted those signed up for public comment that they will be limited to three minutes each.

6. Summary of Baseline Condition Modeling Results for Power Plan

Ben Kujala, power division director, and John Ollis, planning and analysis manager, briefed Council Members on modeling results for the 2021 Power Plan.

Kujala said the high-level themes are:

- Implications for GHG emissions;
- Resource adequacy;
- Market expansion – they're in a dynamic place right now with CAISO and EIM expansions; and
- Clear recommendations to Bonneville.

Next, he defined baseline conditions as assumptions that are common between two or more scenarios. Baseline conditions are not: business as usual, the most-likely scenario, a default forecast or a recommended regional resource strategy.

He described how to create a scenario. Scenarios provide the Council with analysis to inform decision-making when developing a final resource strategy for the region and Bonneville. In building the 2021 Power Plan, they take a baseline condition and do scenario analyses to develop a resource strategy.

The model shows the buildup of 9.3 GW in nameplate renewables by 2027, which is a substantial increase from the Seventh Power Plan. He said once you build a lot of renewables into a market with a lot of renewables, you don't end up using all the power that they can produce. There will be times when you have too much power, which leads to curtailment.

They looked at IRPs in the region and it appears they're on track to meet 8 GW of renewables by 2025.

Another big impact is the social cost of carbon. The cost is high, consistent with Washington State legislation. Starting with $62 per metric ton, it has a big impact on the model.

2019 Emissions were ~56.6 MMT from the electric sector, but that was before the 2020 coal plant retirements of Boardman and Central. The emissions continue to fall until they get down to the 10 MMT level around 2030.

Ollis discussed emissions from external market purchases. Emissions in the rest of the West are assumed to fall throughout the plan due to coal retirements and more renewables being built outside the region. The current WECC nameplate is 250 GW, which doubles by 2031. Most of the resources have zero variable cost. The major drivers are in California and the Desert Southwest.

He talked about meeting Clean Policy Requirements until the late 2030s, and the impacts on curtailment. He discussed the impact on pricing, including the Duck Curve. Kujala said that off-peak electricity prices are frequently negative by the end of the study. He said that this is unlikely to be the way that markets would work going forward. I don't want to say that we're projecting that you're going to pay this price for power in 2040, but I think that this shows you that there's a lot that is changing in the grid, he said.

Member Yost observed that we're building six times more renewables than we need. Kujala said the rest of the West will spend a lot of money building renewables that are going to end up with a very low market price because they have no marginal cost, even a negative cost with renewables. That doesn't mean that they're not going to spend a lot of money. People are going to spend a lot of money building resources.

Member Grob said, looking at the volatility of renewables coming into the Northwest market, some of the RECs expire. Will there be a change in market behavior and conditions in the next 10 to 20 years? Kujala replied that RECs are hard in this world. Every time you turn it off, you don't get the RECs for it. If you still have a policy that is pushing to eliminate carbon, and we include something like the social cost of carbon in the model, it still wants to take renewable energy whenever it's available.

Ollis said when they did a test on REC prices, the builds had to go up because no price was enforcing the dispatch of renewables. There was a detailed explanation of the issue in the modeling.

Member Ferrioli said a concern growing is we're so fixed on reducing carbon we're not considering having an adequate supply of dispatchable resources. We could have a huge build of renewables and still have brownouts and underserved areas. Under the requirement for least-cost consideration, maybe we don't build something that can't be dispatched at night. The Columbia has some ability to supply, but takes a couple of days to be responsive. Is there some way that we can add an overlay that says that reliability of the system and dispatch ability of the resources has to figure into the total cost, so that we build a system that's safe, reliable and inexpensive with the whole mix of resources?

Kujala said even though we have 9 GW of renewables coming online, we also have a build out of 1,600 MW of natural gas resources showing up in the model by 2027 to support adequacy. This is controversial. Many on the advisory committee feel strongly that new natural gas is not going to be built. But this is a baseline comparison. The model still understands that there's a need for adequacy and natural gas as the resource that it picks to support that need.

Chair Devlin said many of our existing resources have large nameplate capabilities, but their actual generation is lower than that. Hydro is a good example. But remember with renewables, the cost is up front. There's no purchase of fuel.

Kujala said testing adequacy is a fundamental part of anything we do. Also, new natural gas plants will burn more efficiently and emit less carbon than current gas plants. But states won't want to show they're pursuing that.

Kujala said there is a conservation target of 1,400 MW by the end of 2021. The model is now picking 500 MW by the end of 2027. Energy efficiency has been a big part of the resource strategies in Power Plans Five, Six and Seven. A lot has been accomplished in past years. On an aggregate basis, we only have about 1000 aMW at or around $100, he said.

A lot has changed since the release of the Seventh Power Plan:

- State clean policies across WECC
- Significant coal retirements
- Large renewable builds

- Market prices are rapidly decreasing and frequently negative by ~2030
- Dramatic decrease in price for renewables
- Decrease in gas prices
- Decrease in price of combustion turbines
- Dispatchability is of paramount importance
- Energy efficiency has a lot more competition with lower-cost renewables

The energy efficiency cost dynamic is that by the action plan period, about 120 aMW out of 550 aMW (or approximately 22% of energy efficiency) is purchased at a negative cost. About 450 aMW of that amount is from buckets that have an expected net cost below zero. The model says energy efficiency is less-desirable from a cost perspective than lower-cost renewables.

The model shows that the resources we have are not adequate for the Council's standards. It shows the need for a 4 GW capacity build for first fiscal year, but then it's slow and steady after that. The early capacity contribution is what the model is looking for.

Kujala discussed a forecast of resource adequacy contribution during summer for capacity and for energy.

7. Council Business

Council approval of the January 2021 Council Meeting minutes

Vice Chair Downen moved that the Council approve for the signature of the Vice Chair the minutes of the January 13, 2021, Council Meeting held in Portland, Oregon, via webinar, as presented by staff.

Member Oshie second.
Motion carried.

Public comment:

Richard DeBusman – He said he's awestruck by the time and analysis going into the Northwest power situation. He is encouraged that the path forward could include restoration of our devastated salmon fisheries in other fisheries. He recalled catching his first fish 70 years ago. He was helped by a First Nations man who said first you took

our women, then you came and took our land and how you take our fish. DeBusman said we gave development and cheap energy priority over wildlife and fish. Now fish are on the endangered species list. We must now make fish and wildlife, and First Nations commitments a priority. We must insist that BPA and the U.S. Army Corps of Engineers breach the Lower Snake River Dams so salmon can make their way up the rivers.

Scott Levy, Bluefish.org – He talked about an estimate of juvenile survival. He said there's a correlation between flex spill and miserable survival rates. He's fearful that the Power Plan being developed will use the Lower Snake River Dams as a battery. He showed a rate chart showing the impact of dam removal.

Nina Sarmiento – She said your fish and wildlife program has cost tax and rate payers almost $20 billion. No actions have worked. Wild salmon and steelhead are close to extinction in the Snake River. BPA is burdening future generations with $15 billion debt. The Northwest River Partners has been misleading the public, blaming fish decline on ocean conditions. They say dams provide a critical amount of power, but they only provide a third of their capacity. You are required to use participation to make a Power Plan and a Fish and Wildlife Program. You have a responsibility to recover endangered species. Please breach the Lower Snake River dams.

Owen Begley-Collier – A resident from Seattle, said he has been obsessed with orca since first grade and talked about his experience viewing wales. He said we have been starving the orca populations. Now we're at or past the point of no return. We need to increase chinook salmon abundance in as many areas as possible. We should remove the Lower Snake River Dams. It's within our power to do so. Dam breaching as a least-cost salmon recovery method.

Karen Davis – The job of the Council is to balance environment and energy. What grade would you give yourselves? The smolt-to-adult ratio of chinook salmon returning to the Snake River in 2020 was .06%. Four percent is required for recovery. That's a big, fat fail. You're failing the public you're supposed to serve — failing the public, tribes, orcas, environment and Pacific Northwest ecosystem. The Lower Snake River Dams are just 3% of the grid. They could be replaced by other renewables and conservation efforts. They're tourniquets on the Snake River. I want the Council to pursue breaching as a least cost salmon recovery method.

Jeane Murphy Ouellette – A resident of Seattle, she called for breaching the Lower Snake River Dams. Salmon has been on the ESA for 20 years. Lower Snake River Dams is an economic burden on BPA. For every dollar invested, only 15 cents are returned. Lower Snake River Dams breaching is a least-cost salmon recovery method.

Liam Doucet – A resident of Portland. The four Lower Snake River Dams have been only able to operate at one-third capacity, giving a combined total of 1075 megawatts from all four dams, 285 of which is not guaranteed, which can increase to as high as 650 megawatts during the summer and winter. Reservoirs impede debris removal. There are greenhouse gas emissions because of that. Fish boil in water or are crushed by turbines. Sockeye and orca are endangered. BPA continues to bribe task forces and First Nations in an attempt to stop them from trying to protect them from extinction. Breaching the dams and replacing its electricity can be done within a matter of months, and it's a quarter of the price to remove them rather than keep them in place. Every expert has called for it to happen.

Chair Devlin noted that February 2020 was the Council's last in-person meeting.

Chair Devlin adjourned the meeting at 3:00 p.m.