

2023 Electric Integrated Resource Plan

Appendix L Public Participation Comments



TAC Member Comments

This Appendix covers TAC member emails of comments made during the 2023 IRP. TAC members generally comment during TAC meetings, those comments and questions are covered in the TAC meeting notes in Appendix A. This document covers comments and questions provided directly to Avista outside of the TAC meetings.

<p>Tina Jayaweera, Northwest Power & Conservation Council, May 15, 2023</p> <ol style="list-style-type: none"> 1. It could use a robust copy edit as there are a handful of typos and discrepancies between text and figures (e.g. Fig 2.2 and 2.4 start year does not correspond to what is in the text, Fig 2.6 data doesn't align with text). 2. Next time, for the natural gas market price forecast, consider using the Council's data on projected build out instead of Aurora's WECC database 3. Please explain more about how the NH3 turbine acts as a storage resource and how it will be balanced as a generator. It's a pretty new approach, so would like to learn more. 4. As noted in the text, there are a number of different GCMs used by the RMJOC and BPA, each with an RCP 4.5 analysis; i.e. there no singular RCP 4.5 model. Which one was selected to represent future temperature conditions and why? Or did you use the median across all 19 like done for the hydro conditions? 5. It's not clear in the IRP report, though may be in App C/D which I admittedly didn't dig up. I recall having the discussion at one of the IRPACs about the interaction of DR and EE (more heat pump water heaters because of EE change the DR potential). How, if at all, was this considered?
<p>Final IRP Response</p> <p>Avista has edited and updated the sections of the IRP discussed in this comment. Regarding the natural gas price forecast, Avista will check in with the NPCC during the 2025 IRP process to see if including their forecast is appropriate. Regarding the demand response question, the energy efficiency and demand response analysis use the same baseline equipment forecasts to assess the potential, but the analysis did not consider the potential impact of EE on DR opportunities. Because the IRP is assessing the need for, and economics of, both EE and DR, there is a question of the appropriate amount of EE to assume for the DR analysis. That said, incorporating EE forecasts into the DR potential analysis is something we can explore in the upcoming CPA, if desired.</p>

Dave Van Hersett, May 1, 2023

Subject: Comments on 2023 IRP Draft

First, your analysis and presentation is very good. You all are to be complimented on your work. Second, I am 84, a retired Professional Engineer and a veteran. Started in the utility industry in 1967 building generation power plants. Finished my career pioneering industrial and commercial conservation in the 80's selling energy savings to utilities. I have actively participated in TAC at Avista since its inception. I have witnessed how the environmental groups have passed legislation that have resulted in killing the forest products industry and increased the emissions over the State dramatically over the years. When I was in high school in the 50's we went to the lake all summer with no smoke days as the norm. Now, due to the "green" rules, the forests are managed to make fuel for forest fires and not to harvest the timber to the benefit of mankind. I have also witnessed, sadly, that the Utility Commission has changed its mission from that of representing the customer to that of implementing the programs of the current political power. Only 1.5% of Avista customers signed up for green power rates, leaving 98.5% of the customers wanting reliable and low cost energy. The Commission is implementing the will of the 1.5% and ignoring the desire of the 98.5%. The Commission does this by not passing Avista rate increases unless Avista implements programs of the 1.5% and the politicians in power. Avista has modified its business plan from providing low cost reliable power to its customers to that of implementing programs desired by the Commission.

COMMENTS ON 2023 IRP

After reading and attending the April 25 presentation of the IRP, I do not see any content on the impact of how our rates compare to that of the world's changing economies. Specifically, the impact that China, India and Russia are having on our state and our nations competitive position to market to the "new" world order. In Washington State we have seen the passage of rules and regulations that impose very significant cost penalties to our businesses that sell products to the domestic and world markets. Examples are airplanes and agricultural products. While we are closing down low cost and reliable fossil fuel generation, the world order is building 60 or more coal generation Plants. Their energy costs will be lower than ours and their emissions will continue to grow negating any environmental benefits that the State of Washington achieves. The result is that as our Washington State businesses costs increase, the world will take their business elsewhere to the lowest price, I call this the Walmart effect.

You are preparing your IRP to meet the artificial regulations, goals and objectives of the current Washington State political trend. You are not including any analysis of the financial penalties our customers will see in their respective competitive markets. We are now recognizing that China is a sole source for many of our nations and states critical materials and components. As our energy rates increase our dependence on our advisories will increase. The IRP does not provide any comparison of how our electric and natural gas rates compare with our significant competitors. An example of one of China's impacts is the closure of 60% of our nations foundries. China did this by making the cost of their castings so low that the US foundry business could not compete and therefore closed. Our Washington State policies to go "Green" by programs like CETA are accomplishing the same effect, they increase our cost of business as compared to that of the new World.

So I would like to see at least one analysis of just how much of a cost premium that our businesses have to face when comparing to our major business competitor like China. In absence of real data on China's energy costs, one could use as a baseline our plentiful and nearby coal fossil fuels and nuclear power generation for energy and capacity. By eliminating the use of Combustion Turbines for energy, the demand for natural gas will be significantly lower and our mix of generation resources will look like it was in the previous decades. The current IRP resource options include significant uses of CT's and other green higher cost resources for energy, very expensive options.

As a side note, the emissions from the 1400 MW Centralia Power plant are 40% less than the 15 vehicle traffic. The Centralia power plant can run the City of Seattle. It would require eight wind units per mile from Seattle to Spokane (some 2000 new units) to replace the 1400 MW Centralia coal fueled Power Plant. Furthermore, emissions from our annual forest fires are many times all the other

combined emissions in the State. Going back to the forest management practices of the 50's and 60's would dramatically reduce the emissions in the state and would drastically lower the price of lumber to lower the cost of housing for our citizens and bring back thousands of jobs. This strategy would meet the goals of the Green movement.

Finally, I wish to thank you for the opportunity to include my two cents as a 50-year residential customer in your valent efforts to provide your customers with low-cost reliable energy resources. I am reminded of an old rule of thumb, the cost of power to the customer is 1/3 generation, 1/3 transmission and 1/3 distribution. You are finally including all of these costs to provide service to your customer. It is looking like that this rule of thumb is not going to be far off.

Final IRP Response

Time and resource limitations preclude us from studying most international comparisons. Avista chose not include any comparisons in this IRP to China because the focus of the IRP is on how Avista serves customers and participates in regional markets. The IRP does include some details about electricity, natural gas, and hog fuel from the Canadian markets, where we do participate. The Planning Team also tries to keep apprised of current events in the energy industry even if we do not have time to include any of those in the IRP. However, recent industrial energy rates in China based on publicly available research ranges from 8 to 9.5 cents per kWh (likely subject to exchange rate fluctuations and the timing of studies). The U.S. average industrial rate in 2021 was 7.26 cents per kWh. Given the results of this comparison other factors beyond energy costs such as labor costs and regulation may drive trade absent larger energy costs differences.

Dave Boleneus, January 3, 2023

Dear All,
Happy New Year and thank you's must go out to Dr. John Lyons, Avista planners and others at Avista for many months of diligent work. You have kept all well informed. Now it is time to reflect.

In case you missed the article last week in the Wall St Journal, A quiet refutation of net zero carbon emissions, you should read it.

https://www.wsj.com/articles/a-quiet-refutation-of-net-zero-climate-change-emissions-energy-global-warming-sec-goals-clean-power-11672262963?mod=opinion_lead_pos8

The two most authoritative energy concerns in our country, Electric Power Research Institute and National Energy Regulatory Commission....

WSJ: The EPRI report concludes that the utility industry can't attain net zero. "This study shows that clean electricity plus direct electrification and efficiency . . . are not sufficient by themselves to achieve net-zero economy-wide emissions."

In other words, no amount of wind turbines, solar panels, hydropower, nuclear power, battery power, electrification of fossil-fuel technologies or energy-efficiency technologies will get us to net zero by 2050. How a net-zero grid could be built and function would be an issue worth studying if it were possible in the first place. But it simply isn't. So, barring some unforeseen miracle technology, "net zero by 2050" won't happen. <https://lcri-netzero.epri.com/en/executive-summary.html> or full article-- <https://www.epri.com/research/sectors/lcri/research-results/3002024993>

WSJ: NERC concluded that fossil-fuel plants are being removed from the grid too fast to meet continuing electricity demand, and that is putting most of the country at risk of grid failure and blackouts during extreme weather. The U.S. just got another taste of this during the Christmas electric-grid emergency. https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2022.pdf

So there you have it: We are dangerously dismantling our electric grid while burdening it with more demand in hope of attaining the goal of "net zero by 2050," which the utility industry has admitted is a fantasy.

This information from these authoritative sources begs the question all must ask, rhetorical or otherwise: Is Washington's energy transition merely a ruse leading to a dismantling of our electric grid? Will we arrive at (or can we get to..) where we're going?

We understand that Avista and other utilities are bound to follow the law, but I think it is time to discuss realities here. Several items raise suspicions and more questions arise as time passes.

Power planners are better authorities in power planning than a one-sided legislature in 2019 that brought CETA or a governor that co-authored a mistake-ridden renewables book. Certainly, the energy transitions in Ontario and Germany provide clear evidence that something is wrong with renewables; they cannot replace fossil fuels as discussed extensively by "Planning Engineer" at JudithCurry.com (Climate Etc.) in the Penetration Problem-The more you do the harder it gets (Oct 2, and Oct. 11 2022) and worsened by the Inflation Reduction Act. All of us rely on--including Avista employees, our families and Avista families--a reliable source of electricity and natural gas so we have a common concern. Can we have that discussion together? <https://judithcurry.com/2022/10/03/the-penetration-problem-part-i-wind-and-solar-the-more-you-do-the-harder-it-gets/...> <https://judithcurry.com/2022/10/11/the-penetration-problem-part-ii-will-the-inflation-reduction-act-cause-a-blackout/#comment-981185>

Passing of CETA came about by a bending of rules far into unreality as I could explain at another time. Also in following of the evidence from the scientific circles as it becomes available, the truth is now revealed (aka, the cat out of the bag): carbon dioxide is not a temperature control knob and now elegantly confirmed by 800,000 years of climate history from glacier ice evidence from several continents, or from earth's several billion years of climate history, with that and related evidence now extensive, incontrovertible, replicated.

The energy transition to net zero is nowhere a success, but a failure everywhere, even a failure where most advanced, in Germany's Energiewende before it has reached its halfway point of renewables which leads us to question the path of energy transition everywhere. Physical barriers to these technologies show that wind and solar will never replace today's energy portfolios. A decade of wind records provides confirming evidence. Global temperature has now leveled off even though carbon dioxide values continue upward. Perhaps we have forgotten that temperatures decreased for two decades in the 60s and 70 before again moving upward, but now stalling again. What! Why? Germany's emissions continue upward while it cannot become 50% renewable because its wind and solar prevents it; Planning Engineer notes "a larger percentage of wind and solar in a portfolio results in erosion of desirable characteristics...and a rapidly decreasing reliability". Italy plans a U-turn from renewables while Germany is dismantling wind turbines to open new coal mines to provide electricity to its people. China, South Korea, and India lead the world in their imports of coal (85% of world's tonnage) to generate electricity as I explained previously yet these countries refuse to reverse citing their citizen's welfare as more important. If Washington State were to reach net zero emissions, Washington's 0.35% share of world emissions would be replaced by China in 50 days provides clear reason to question the effort as silly. And finally, three authoritative sources, the World Bank, Geological Surveys in Finland and United States, and International Energy Agency, show that building an energy system on the net zero basis is unaffordable, costing hundreds of \$Millions of \$billions with resources needed to build but not available on this planet simply confirms the folly because not any of us will see or experience net zero in any lifetime. This information provides more reason to accept the "ruse" as the more likely explanation.

What, really, is the future?

Comments and competing views are welcome.

David Boleneus

Final IRP Response

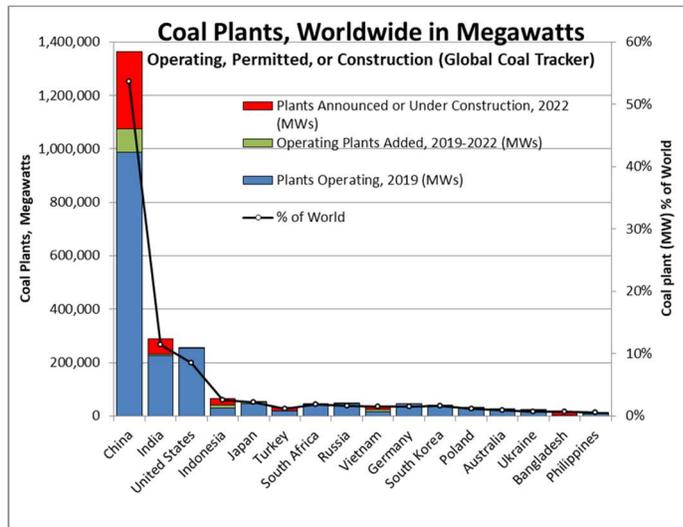
Avista appreciates David’s provided material and concerns. Avista is bound by state law to pursue reliable clean energy for Washington customers with the cost cap requirements.

Dave Boleneus, December 9, 2022

Interesting what’s happening outside Avista’s, Washington’s renewable anomaly sphere.

Although Avista is making giant strides, we often fail to observe what’s happening at a distance.

Chart below shows the expansion of coal generating plants in China and developing countries, while the US bans them (data July 2022). China operates 54% of all coal-electric generating plants in the World and with expansions in coal generation growing, even accelerating there, with 87,600 MWs installed in three years. China is building an average 1 new coal-fired electric generating plant per week. They have 290,554 megawatts planned, under construction or permitted today with 1,074,063 MWs operating, seven times more than the US; that’s 725 new Chinese coal plants coming soon with the average size assumed at 400 MW per plant. New plants announced worldwide are double the number the US will close. Other countries with coal plants planned or underway are India (57,040 MWs), Indonesia (25,959 MWs), Japan (5320 MWs), Turkey (12,228 MWs), South Africa (3250 MWs), Vietnam (15,630 MWs), also S. Korea, Australia, Bangladesh (15,104 MWs), Philippines (3023 MWs); also Ukraine, Poland, Germany. Beyond hydro and waste, the dirt to build clean energy and invisible here is all spewed over there. Does it matter if Washington goes NET ZERO?



John Barbor, December 9, 2022 (RE: David Boleneus)

Seems like there are two points being argued here:

1. Although we are going off of coal, it is still widely used in the rest of the world, and in increasing amounts. True, but ultimately its usage has to go to zero (or nearly so) if there is to be a hope for constraining the increase in the planet’s temperature. So, just because a lot of others haven’t made the decision yet to eliminate its usage doesn’t really mean we should do likewise. Coal’s usage and growth is due to a number of factors, mostly boiling down to vested interests exerting their effect on decision-making bodies, and the fact that it is a known quantity, with abundant technical skill, knowledge and equipment to facilitate and further its

implementation. As the costs of solar and wind continue to diminish, coal will eventually become economically less desirable. At some point, it will be at an economic disadvantage. And if in the meantime we have shown that energy can be supplied without it, the decision to quit coal on a global scale will be pretty straightforward.

2. Producing renewable energy generating equipment requires energy, and since much of that equipment is produced in China, which uses a lot of coal as its source of energy, therefore making that equipment is simply making matters worse. Perhaps true to some extent today, but for tomorrow the story is different. Energy is energy, regardless of how it is produced. Electricity and heat don't care about their source, they are still simply electricity and heat. As renewable energy becomes more prevalent, that energy will become an ever greater factor in the production of additional renewable energy equipment. And, the US is making a big push to create a substantial renewable energy equipment production industry here, where renewable energy will be an increasingly dominant factor. So, the argument that today, dirty energy sources are being used in one country to produce renewable energy products, will become increasingly irrelevant.

John Barber

Art Swannack, December 12, 2022 (RE: John Barber)

I'd say there is one key assumption based upon an unknown that is key to John's response and that assumption may not be valid--China, India and others desire to go to renewable energy operated power systems---and we're especially talking two extremely large countries questionable desire to do so. Remember China is known as the Middle Kingdom for a reason. Their long history and nationalistic pride over centuries traditionally has them as the center of the world. That's not rhetoric, it is culture. It also affects decision making.

China's population will soon be number 2 in the world in size and India will become number one. They both need expanding baseload power supply. Solar and wind don't fit that characteristic due to multiple factors beyond cost per mw. To make either or both baseload power they'd have to so overbuild it would seriously drive up the per mw cost in standby panel/system over capacity as to not be competitive with other energy sources. Nuclear is expensive to construct, manage and secure. I expect they'll build more but it takes time. Hydro has been and is being built in smaller projects. I expect three gorges dam took a bit of gloss off that wrapper, so you're looking at natural gas or coal as baseload add on alternatives. Natural gas is easily sellable on the world market compared to coal. Coal is easy for poor people to heat with directly or for generators to make electricity with it.

In reality our over enthusiastic efforts are most likely just driving up our cost of energy vs theirs on a direct cost basis and not creating much of a net decrease in carbon emissions worldwide. I believe the temperature calculation for Washington state's efforts by 2050 is .0015 degree decrease. Likely also decreasing our financial competitiveness due to higher energy and production costs but I'd guess I'm a bit cynical today.

On the political front Nancy Pelosi and her trip to Taiwan simply gave China an excuse to withdraw from the climate change agreement they signed onto. If it was really important to them they'd have used a different card.

Fwiw
Art

Art Swannack
Whitman county commissioner
509 288-1684

Washington state's open public records act is very broad and pretty much anything you send me is available for anyone to see.

Final IRP Response

Avista appreciates the discussion between TAC members about the challenges of the Washington CETA requirements and the potential effects on future climate. Avista is bound by state law to pursue reliable clean energy for Washington with the cost cap requirements. Avista encourages TAC members to be involved in state policy making to ensure the citizen's goals and expectations are heard and met.

Bill Garry, October 20, 2022

Hi James,

Thanks for your presentation today. I am trying to understand all this, and I have not had much experience at it. I missed a portion of the Greenhouse Gas emissions part of the spreadsheet calculations, which is what I was most interested in. Specifically, was the Kettle Falls facility counted out in future capacity based on GHG emissions? It went by so fast and so small, and I don't have a copy of the spreadsheets to see. I have seen a study about biomass being a big producer of GHG without a quantity and quality of timely tree growth to offset.

I also noted some comments related to community solar which may not be modeled into your 2022-2023 Plan. As you know, the state has approved funding for low-income community solar starting this year to pay \$100 million over the next ten years. These are limited to 199kw arrays each, so they are probably not enough to affect your projections. At \$2.50 per installed watt, the total power produced won't exceed 40 Mw.

Thanks again. I look forward to following your planning process.

Bill Garry

Avista's Response

Kettle Falls does not count toward our greenhouse gas emissions in Washington state sense it is treated as carbon neutral. I agree it does have emissions, but in this case we are treating them as zero due to the carbon cycle and state law. Regarding community solar, we do model small solar and I'm working on adding the functionality to add the low-income community solar option to the model to account for the state funding. While you right it won't add to much for the whole state nor will it won't make much of change to the total plan- but it will have an impact on our energy burden calculation for low income customers. My biggest issue is how much we will actually be able to get given the funding is for the whole state and on a first come first serve basis.

I've included a link below to the model in case you are interested below:

<https://www.myavista.com/-/media/myavista/content-documents/about-us/our-company/irp-documents/prism80expected-case101722.xlsm>

Dave Van Herset, October 18, 2022

Good morning John and James: [REDACTED]

[REDACTED] In the selection of the generation models to include in your evaluations, as a residential customer, you should include at least one case that looks at generation resources that are not based on political objectives, but one that is based on the lowest cost in the long run. As a residential customer we are looking for low cost reliable generation. It is not in our best interest to select generation resources that are costly and do not improve the world environmental goals.

My desired case would be nuclear base loaded, biomass generation like Kettle Falls that provides lower cost lumber for building housing, and peaking from combustion turbines. This resource mix would

provide lowest long term power cost for my electric bill and would minimize the influence of politics and meet the long term environmental objectives.

The cost of natural gas has increased dramatically due to the politics and will only get worse as natural gas is used to back up wind and solar baseline generation.

Looking forward to reading your workshop report.

Thank you,

Dave Van Herset, Residential Customer of Avista since 1967.

Final IRP Response

Avista appreciates your comments, concerns, and active participation in the TAC process. Avista is bound by state law to pursue reliable clean energy for Washington within the cost cap requirements. Avista encourages TAC members to be involved in state policy making to ensure the citizen's goals and expectations are met.

Nelli Doroshkin, Invenergy, August 10, 2022

Of the four carbon price options presented by Avista in its Carbon Pricing Proposal, Invenergy recommends the Ecology Estimate developed by Vivid Economics. Compliance with the CCA is unavoidable, and there is no reason to discount Vivid Economics' well-supported primary analysis. Alternatively, the second scenario may be used; however, the third scenario should not be incorporated into the analysis, as it lacks support.

More broadly, Avista should include the Social Cost of Carbon ("SCC") as an economic dispatch cost in its modeling for IRP, CEAP, and CEIP filings and resource acquisition. At a minimum, Avista should include CCA allowance prices in economic dispatch modeling for IRP/CEAP/CEIP/acquisitions and in operational dispatching/trading. One approach would be to include allowance prices in dispatch modeling and then add in the SCC, net of allowance prices, post-dispatch modeling. This would ensure that the environmental externality cost represented by the SCC is included in resource planning. The first part (allowance prices) would represent the market-priced part of the environmental externality cost of GHG emissions, and the second part (SCC net of allowance prices) would represent the remainder of the environmental externality cost.

Finally, Avista should include carbon pricing, in the form of allowance prices, as an economic dispatch cost in its modeling of the overall regional power system. The CCA will make allowance prices an economic cost of dispatch for any GHG-emitting generation resource serving load in Washington. This will affect the dispatch economics for all GHG-emitting resources and will thus affect wholesale market power prices.

Avista Response

Hi Nelli,

Thank you for your comments. Regarding your comment on social cost of carbon, your proposed methodology is our planned method for Washington state resource options this IRP and is similar to our prior IRP approach. We will consider your concern of the 3rd scenario in our final decision making. Keep in mind the intent of scenario modeling is include uncertainty in policies, while you believe the CCA will continue in its current form for the next 20 years, laws typically change subject to the impacts of the law and without this scenario we do not cover this potential future outcome, further the third scenario represents your last comment on region wide CO2 pricing as these prices post 2030 will be including in the price forecast for all areas, lastly the scenario does include CCA floor pricing through 2030 which is a plausible outcome of the CCA.

Again, thank you for taking the time to respond to our question, also if you have any thoughts on an alternative low price scenario please advise us.

Final IRP Decision

See IRP Chapter 8 for a discussion on the final methodology to address CCA pricing in the 2023 IRP.

Dave Van Herset, August 10, 2022

1. Using the demographic data of Washington instead of Eastern WA (Avista Service Area) will lead to imperfect results and conclusions. First the weather pattern for the state are very different from the west to the east side. Thus the respective energy usage of the population will vary significantly. Second the demographic incomes of the state population vs eastern are very different. You will find that the average income in western WA is higher than eastern WA. Thus my conclusion is that the results will not be very representative of Avista's customers.
2. The potential generation resource from all of these "estimated" conservation programs is very small and would come into being way out in the future. As a residential customer and as income and the economy dictates, over the years of owning my home since 1967 I have added insulation to my home, upgraded lighting to take advantage of lower energy usage, installed smart thermostat for home heating and cooling, storm windows, to name a few. I did not need a study to install these conservation items, the market place provided the incentives. I did not need the utility to tell me what to do.
3. What are the definitions of 'TRC', 'RTF, and TRM?
4. From an overall perspective, if Avista's rates are the lowest in the state, and only 3997 out of 330,000 avista customers have signed up for the more expensive green power why is Avista being forced to spend so many resources and expense on the IRP and all of the green resources? As I understand, Avista is already way ahead in renewable energy generation of the other utilities in the state, so why penalize existing Avista customers with additional administrative expense of this IRP to serve its customers?
5. Based on my 40 some years of reflections on implementing industrial and commercial conservation programs throughout the state of Washington, the utility commission has morphed its responsibilities from representing the interests of the customers to that of implementing the political objectives of the governor. The Commissioners are appointed by the governor and now the governor is pushing a green program instead of providing low cost reliable electric service to Avista's customers. The result of the commissions directives will result in increasing my power costs by 300 % over the years to come. This large increase in electric service will hit the low-income customers the hardest, just the opposite what the commission is trying to do. I believe that the commissioners should represent the interests of the customers and not those of the objectives of the environmental and green organizations. All of this green generation will only add to the overall expense of Avista's cost of service, resulting in higher utility costs for residential customers like me.
6. So my suggestion is that if the commission wants to do all of these studies, do it at their expense and not mine.
7. Another observation: it seems that the majority of the participants in the TAC process are not actual customers of Avista, they are environmental groups from the west side imposing their wishes with no financial risk or cost to them. So I would recommend that only input from actual customers be used by Avista to build their resource options for the IRP study.

Thank you for the opportunity to participate in the TAC process and give my feedback

Avista Response

- 1) Avista agrees with your assessment, although I don't believe we are using any west side information for our planning on the energy efficiency front. We do have to use statewide incomes to set low-income standards, but we use local conditions for weather impacts on loads.
- 2) Thanks for the comment, I believe utility EE programs have become a carrot to encourage behavior or to lower customer burdens of affordability. I think its shown in states with less

aggressive EE utility programs adoption is less, so these efforts have made an impact on loads, whether or not they are societally cost effective- I've not done this math.

- 3) TRC refers to Total Resource Cost- it's a measure that includes customer cost, societal costs, and utility costs to test cost effectiveness- this compares to UCT- or utility cost test-that only measures the savings vs the cost to run the program. These are required methods set by the I-937 law to use TRC.

RTF refers to Regional Technical Forum- see the link on this one: [Regional Technical Forum \(nwcouncil.org\)](http://nwcouncil.org)

- 4) Thanks for the Comment- we have to be 100% carbon neutral by 2030 from CETA, we are not there, and will need to make investments incrementally to get there. From the CEIP's clean energy requirements that were recently approved, over the next four-year window we will not need to add any new renewables to meet those requirements. As whether or not the requirements are too stringent we are forced to meet state law until such laws are changed.
- 5) Thanks for the comment, one of the goals of the IRP is to illustrate the cost of these objectives, the law does limit CETA power acquisition expenses to 2% per year, but those 2% per year does add up over time. The commission and other groups are well aware of the issues effecting low-income groups- which is why the equity provision is within the law. The equity provision will likely further cause additional costs and wealth transfer between customer classes. I suggest you or your contacts participate in the Equity Advisory Group ([Washington's Clean Energy Future \(myavista.com\)](http://Washington's Clean Energy Future)); so your voice is heard and the equity provisions required by law are implemented in a useful manner to our customers.
- 6) Either utility payments or taxes- so probably pay the same either way!
- 7) Thanks for the comment- keep in mind we take comments we don't have to follow them except where they may point out a legally requirement we've missed or makes sense to our management- the only thing we are required to do is respond to official comments. For example, we'll reply with "official" comments in the IRP progress report filing!

Dave Van Herset, March 22, 2022

Executive Summary: Avista's options for future generation resources should include resources that deliver low-cost reliable generation over the long term – not just the recent fad of the One Percenters.

1. Avista's options should include revised forest management practices that reduce forest fires, provide jobs for its customers, deliver low-cost lumber for housing, and generate biomass generation.
2. If coal is to be replaced, then nuclear should be its replacement. Coal and nuclear generation resources are both base-loaded plants and have a long-term, low-cost profile.
3. Gas turbines should be only used for peaking and filling in when all other sources are not available.
4. Finally, Avista's focus should be on its 300,000 customers, not the one percenters, and to develop strategies that accommodate the state regulations rather than blindly following them to the utilities' corporate advantage.

The above generation strategy is a win for all; the proposed strategy meets both environmental and customers objectives.

Author's background are his observations on Avista's proposed generation strategies of their 20-year plans over the years. It is very important to note that when Avista offered higher cost renewable power as an option for its customers, less than 1% of Avista's 330,000 customers signed up for this higher-cost service. Thus 327,000 customers wanted to continue being served with low-cost reliable power

from Avista generation resources. I am one of these 327,000 customers who is looking for resources providing low-cost reliable power. These resources' options include hydropower, coal, nuclear, biomass, and gas turbines.

The 1% (one percenters) have imposed their will on the 327,000 customers without any regard for cost, reliability, animal life, environment, and local or world competitiveness. The resource mix they are imposing includes a significant amount of solar and wind backed up by gas turbines. This strategy requires a much higher investment and yields a higher cost for power. The lower availability and reliability of solar and wind requires backup from an equal amount of gas turbines fueled by natural gas, another fossil fuel resource. The 1% reduce the wind and solar costs by including significant government financial incentives. These incentives are subject to the will and winds of politics over the years to come.

The reason for the abandonment of coal is to meet the requirements of the recent state-imposed regulations for non-fossil fuel generation. The goal of the state regulations' objective is to reduce the carbon emissions to the atmosphere. These regulations do not take into account the new coal generation being implemented around the world especially in China and India. These two countries will be currently building 20-some coal plants the size of the Centralia 1400 megawatt power plant. So what are we accomplishing environmentally by shutting down Centralia and replacing all of our low-cost, reliable coal generation with wind and solar? The world emissions will not be reduced by our action. The only result will be to increase our cost of electricity by up to three times. This will make our industries less competitive in the world trade and will impose a significant economic burden on the Avista customers. Furthermore, as our cost of goods increases, we will purchase lower-cost goods from countries like China, India, etc. Their generation is not as environmentally efficient as ours. The other ploy used by the 1% (one percenters) is to save the birds and wildlife to promote their objectives. Installing thousands of wind turbines will slaughter thousands of birds every day. Remember the spotted owl they used to highlight and promote their environmental objectives? The wind turbines will also kill our national bird, the eagle. I thought it was protected. Why is slaughtering thousands of birds now OK?

How about the one percenters' efforts to limit the harvesting of timber over the past four decades? Now forest fire smoke is the largest polluter of all other pollutants combined on the entire West Coast. The cost of homes is going out of reach of the customers due to higher cost construction and increased demand for housing as our populations grow. Good forest management would reduce our pollution and make lower-cost housing available in one stroke.

Avista vs WWP: What have we gained from Avista since they took over from WWP?

WWP developed low-cost reliable power resources for its customers.

WWP delivered long-term power resources that were not subject to political whims and other inflationary events. Thus, our power costs today remain low and predictable over the years. We are still enjoying the benefits of the low-cost generation resources developed and operated by WWP.

What has Avista accomplished since they took over WWP.

1. First, the officers increased their compensation from ten times the average income of its customers to 100 times the average income of its customers.
2. Next, they tried to sell our utility two times, only to be prohibited by the utility commissions.
3. Recently, Avista is in the process of adopting and implementing the higher-cost generation resources into their long-term generation plan as required by the CETA laws in WA state. The result of this policy will be to increase our customer electric rates by up to 300 per cent. Increasing Avista's revenue may be good for the company but certainly not good for its 327,000 customers.

The reason for the increased cost is the long-term use of natural gas for the back-up fuel for gas turbine generation. Natural gas fuel prices are being driven up by the large increase in demand for natural gas to replace other fossil fueled coal plants in the nation. In the last two years, the Avista

exhibits show that the cost of natural gas has doubled and is predicted to increase even more over the years to come.

Another significant factor is the recent federal government actions to limit the use of fossil fuels and limit the acquisition of new oil and natural gas supplies. In the meantime, our population continues to grow. These are the major contributing factors to the endless increase in natural gas prices. We need to have our generation resources minimize the use of Natural Gas.

So what solution should Avista be considering to deliver a low-cost and stable-power cost to its customers over the years to come. Develop only new resources that satisfy emission requirements and at the same time provide low-cost reliable power for its customers. Here are the options to include:

1. *Nuclear generation.* Once installed, nuclear generation cost is very stable and not subject to the political winds to increase its cost. Nuclear is a base-loaded generation resource identical to coal-generation plants' performance characteristics.
2. *Biomass generation* - actually an approved CETA resource. Avista should lobby for incentives for forest-derived fuels as enjoyed by wind and solar. This will make biomass even lower in cost than wind and solar. Biomass fuels from forests will go a long way to reduce the fuels available for forest fires. Forest fires are the largest pollution sources in the PNW. Another benefit of biomass fuels is to improve the production of timber products, lowering the cost to build homes for our citizens. The price of lumber has increased from \$300 per thousand board feet to over \$1100 per thousand board feet in recent years. Going back to the forest management practices of the 60's and 70's would increase lumber production dramatically. Revitalizing the forest products industry would bring back some 30,000 jobs to the Avista service area. The jobs would bring back to life some 13 lumber ghost towns in our area and the town services needed to support the forest products industries.
3. *Finally consider changing the utility business model.* The business risk of Avista is minimal as their service area and rates are protected and controlled by the Utility commissions of Washington and Idaho. As Avista continues its adventures into non-utility areas such as real-estate, it is losing its focus on its primary job, that of providing low-cost reliable power to its 330,000 customers.

Maybe Avista should consider changing its focus to that of its customers instead of its company performance. This could be accomplished by the 330,000 customers voting to convert to a public utility, like Inland Power, etc. These public utilities' boards of directors are actual customers with their own customer services as their primary focus.

Right now Avista is subject to the whims of the politics of Washington State, by the political appointments to the utility commissions, and the lobbying efforts of the one percenters. These commissions adopt and implement the political and environmental objectives of the west side of our state and ignore the desires of the east side 330,000 customers. By changing to a public utility business model, the policies and objectives of the utility become those of its customers rather than the political and environmental objectives of the one percenters and the west siders.

To test the logic of my proposed generation resource plan above, Avista could publish the number of its customers that have actually changed to the "Green Power rate schedule" and determine the number of customers that wish to continue their preference for low-cost reliable generation for the future. These numbers would put into focus for Avista what the desires of the majority of its customers actually want from their utility.

In Conclusion: The super majority of the 330,000 Avista customers want low-cost, reliable power not subject to the whims of politicians and the one percenters. The options that provide power not subject to the whims of the politicians, one percenters, or the variables of wind and sun are nuclear and biomass generation. Avista should be focused primarily on its customers' needs, not just the political whims of the west side.

Final IRP Response

Avista appreciates your comments, concerns, and participation. Avista is bound by state law to pursue reliable clean energy for Washington with the cost cap requirements. Avista encourages TAC members to be involved in state policy making to ensure the citizen's goals and expectations are met.

Dave Van Hersett, February 9, 2022

Coal Politics in Washington State

Background: China has 1400 coal plants, India has 1200 coal plants of the 5000 coal plants in the world. USA has 245 coal plants. China and India alone have 120 new coal plants in construction. This data is from the internet. One will find many different numbers on the internet but the conclusions are the same. While Washington State and the USA is shutting down coal plants, the rest of the world is adding new coal for electric generation and more planet pollution.

Locally, WA state political and environmental groups have joined forces to pass legislation to shut down the Centralia Coal power plant and replace it with wind, solar, biomass and gas turbines. The result for the State of Wash will be to triple our electric rates, making Avista's customers products and living more expensive. We will then import cheaper goods from China and other world countries, resulting in loss of jobs in WA state and the USA. The world coal use will increase in other countries to produce goods for the USA market resulting in an increase in world pollution. So what did we accomplish by not using low cost energy from coal. If we keep our WA cost of business competitive to the rest of the world, we will keep jobs here for our ever-growing population instead of shipping our jobs overseas.

It should be acknowledged that when Avista offered higher cost "green" electricity rates less than one percent of the Avista customers chose higher cost power. More important from an environmental perspective, the USA coal plants are more efficient than those in other countries. Higher efficiency results in lower environmental impacts. So, we should be encouraging more use of high efficiency coal plants here in the USA to "save the world".

To give you an idea how fast our energy costs are rising note that in the last two years the price of natural gas has increased by 200%. Looking forward to seeing how the 2023 IRP natural gas price predictions will be. I expect that one of the major factors for price increase is the increased demand for fuel for power generation. Refer to gas price data in the last two IRP's.

The current WA coal and environmental policy is folly and will result in the opposite of the objective of creating a better environmental world and in the long run will reduce jobs in WA. Remember we live in this world and we get the pollution from China and India and other countries in the world. More important in the near term, Avista customers will be forced to pay a much higher price for both electric and natural gas supplies by only considering wind, solar and natural gas resources. Nuclear and Biomass should be considered as its long run costs are likely to be lower than wind, solar and natural gas. Avista's IRP should include the economic impact on its customers in addition to the current legislative dictated environmental impact's on its customers for resource plans selected for analysis and evaluation. I would expect that the economic impact of higher energy prices on Avista's customers will far exceed the carbon neutral costs to Avista's customers.

CASE FOR BIOMASS AS A PRIMARY RESOURCE OPTION

In WA state the major pollution source is forest fires, more than 200 times all the other pollution sources combined in WA state. I-5 auto emissions are 4 times the centralia coal plant. The politicians and environmentalists claim they will save the environment. However, you will need to add 1400 wind mills and 24,000 acres of solar and seven 200 MW gas turbine plants to replace the one 1400 MW coal plant. This does not provide for the ever-increasing population growth. The centralia coal plant can run the city of Seattle by itself. The windmills will kill many more birds every day than the Centralia Coal Plant that does not kill birds. Why then are the Sierra club and other environmental originations that historically tried to save birds with their policies but now they do not care about the bird deaths? Instead of going after the most significant polluter, forest fires, the politicians spend our

money to build a tunnel to improve the Seattle waterfront. To reduce pollution in Seattle they should have built a major bypass around Seattle to keep traffic flowing.

The solution to improving the environment is to attack the largest polluter first, forest fires. This will require a major change the forest management practices. The approach will be to producing products for mankind like was done in the 50's and 60's. Their efforts and policies starting in the 80's was to shut down harvesting timber from forests to save birds and animals. They proposed letting the forests grow "naturally" resulting in making fuel for forest fires. The result increased forest fires that are now killing birds, burning wildlife, killing people and destroying property.

Holding back timber harvesting has lowered timber supply for sawmills. In the last three years the price of lumber has risen from \$2.50 per MMBDFT to \$1,100 per MMBDFT. Housing is much more expensive now contributing to the shortage of housing for all of WA state residents including the homeless. Home prices in Spokane has risen from \$250,000 to \$600,000 in the last three years. Now the young can not afford to purchase homes contributing to the increase in homelessness.

The solution to improving the environment and economy is to harvest timber for the benefit of mankind. This provides fuel for biomass generation and jobs for our ever-increasing population. Biomass and coal energy will provide low-cost energy for our economy to be competitive in the marketplace and lower Avista's customers cost of living. Eliminating coal generation will drive up our electric and natural gas costs forcing businesses to move to business-friendly locations.

Quoting from the 2023 IRP Plan "Avista intends to create a PRS (Preferred Resource Strategy) using market and policy assumptions based final rules from the Clean Energy Transformation Act (CETA) and the Climate Commitment Act (CCA) for Washington and using the least cost planning methodology in Idaho." End quote. **These are environmental objectives and they do not include providing low-cost energy to Avista's customers. The 2023 IRP should also include the economic impact on its customers as a major consideration.** As the IRP includes "Global Change" impact studies, our impact on Global Change should be calculated and presented for consideration to the selection of resource options. It is likely that our Global impact even with coal is insignificant by only following the legislative dictated options.

Final IRP Response

Avista appreciates your comments, concerns, and participation. Avista is bound by state law to pursue reliable clean energy for Washington with the cost cap requirements. Avista encourages TAC members to be involved in state policy making to ensure the citizen's goals and expectations are met.

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Avista's Natural Gas & Electric Integrated Resource Plan Public Meeting

March 8, 2023

Avista held two Integrated Resource Planning public meetings on March 8, 2023 in an on-line format. Invites to the meeting were sent to all customers with emails and to all advisory committee members. Meetings were held at 12:00 pm and 5:00 pm. The meeting discussed draft resource plans for both the 2023 Natural Gas and Electric IRPs.

This document summarizes feedback from the participants from these meetings including:

- 1) Poll Question Results
- 2) Table of Questions and Answers
- 3) Follow-up Email Correspondence

These are results of the poll questions given to the audiences for both public meeting webinars.

Webinar Poll Questions

What would you prioritize among the choices below, acknowledging that they are all important?

- Environmental issues - 12
- A reliable system - 18
- Affordability - 9
- Equitable investments – 1

How should Avista meet state policy objectives to lessen greenhouse gas emissions on the natural gas system?

- Invest in renewable or synthetic natural gas - 21
- Use ratepayer funds to subsidize building electrification - 9
- Use taxpayer funds to subsidize building electrification - 2
- Pay state “taxes or fees” to continue to use natural gas - 10

What type of Demand Response program interests you?

- Different electric prices by time or day or season (time of use) - 6
- Paid to reduce if utility notifies of an opportunity (peak time rebate) - 12
- Utility controls your thermostat or water heater (direct load control) - 1
- None interest me – 4

What does an equitable transition to clean energy mean to you? We achieve cleaner energy along with:

- Affordable costs - 8
- Energy is resilient and secure - 9
- Everyone has access to clean energy - 5
- Improved public health - 2
- Increased economic development for the community – 1

How much of your bill do you think should go toward assisting individuals and communities who are economically disadvantaged?

- \$0 per month - 13
- \$5 per month - 10
- \$10 per month - 2
- Greater than \$20 per month – 1

Participant Questions/Comments During the Meetings

Avista answered these questions during the meeting

The response below are summaries of these response with additional context

Question	Avista Response
How does Avista buy natural gas in advance?	Avista has a hedging program where we're looking ahead up to three years and in the futures markets or the forward market with our local basins we purchase from. Purpose is to try to remove some of the cost risk. Avista also participates in the daily market for the same purpose.
How will Avista be able to reserve and or sell off extra energy during non-peak times?	Avista sells extra energy whenever we're "long" and have more energy than customers need. Revenue from these sales benefit customers.
Is anyone exploring natural gas in Washington or northern Idaho?	There are no known shale formations in either Washington or Idaho. Also, in 2019, the State of Washington signed into law Senate Bill 5145 imposing a permanent ban on the use of hydraulic fracturing.
If electricity is knocked out for a lengthy time, will natural gas still flow to my home in a disaster?	Gas flow along the interstate pipelines, and all of our distribution lines will continue to flow due to the upstream pressure (energy) unless pipes are knocked out, no electricity is necessary. But any appliance that has electric-powered components (fan, electronic ignition for furnace, etc.) will not work. The blower and electric ignition on a furnace won't work without on-site generation, but a gas stove and hot water tank should continue.
Will the OR & WA mandates (CETA, CCA) have cost impacts on Idaho customers?	There are some circumstances where Washington's CCA will have cost impacts on Idaho customers. Avista will minimize these cost as directed by the IPUC.
Is Avista planning on more solar panel generation?	Yes, solar projects are in the resource plans for the benefit of highly impacted communities and vulnerable populations.
I have solar panels that are producing more electricity than I use, can I not receive a credit toward my gas consumption?	Avista has a net-metering program. State-specific information can be found at Getting connected (myavista.com). Questions can be directed to solar@avistacorp.com .
What is the thermal efficiency of your natural gas turbines to produce electrical generation?	There's two typically two types of gas generation that Avista controls. The first ones are typically combined cycle combustion turbines and those are approximately around 50% to 60% efficient. Plants used higher load events are approximately 40% efficient.
Will Avista have battery bank backups for excessive renewable power generation?	It goes back to our resource strategy of needing energy storage. Due to Washington goal 100% clean energy goal by 2045. There will be times of the year we have excess renewables and times, years we will have shortfalls. The IRP plans to store this energy, the big question that we have is

	what does that technology that's going to be storing that energy.
How will Avista compensate people who add power to the grid through solar and wind power?	So currently if a customer wants to install solar on their house or their business, we have a net metering program and what happens is if you generate power and that's less than the amount of your demand, you get to reduce that energy use compared to your bill.
How will heat pumps be able to heat when the temps are lower than 20 degrees F?	This might be referring to the building codes that got passed a few months ago where requires heat pumps to be installed and the challenge with heat pumps that were in actually in the law specifically allows you to use backup fuel below 38 degrees. But I have a heat pump that does not work when it gets cold out. It's a brand new heat pump. It's just the technology is not there yet for extreme cold temperatures in our geography to create enough heat during these temperatures. It is worth noting duct less heat pumps to have diminished capability to produce heat in below 38 degree temperatures, but may not be enough to satisfy your heating requirements.
Are you or will you be using salt water for production of synthetic methane now that that technology is available?	This is the first time Avista has modeled methane within the natural gas IRP. So it's not a common technology, however, the chemistry has been around for a long time. Avista will consider salt water if the cost is lower for customers then other alternatives.
What is the expected impact on energy bills as government regulations kick in over time?	Avista has the estimates in its resource plan. We will see cost increases, but it will depend on a many of factors. For electric, we compare an Idaho versus a Washington cost escalator. Using simple numbers to illustrate the concept. if Idaho is increasing around 2%, you might see Washington increase by 3 1/2% a year. So there will be a divergences due to the various state policies and their impacts on customers' bills.
When Avista plans on purchasing power from renewable projects is Avista taking into consideration whether the renewable project has labor standards (prevailing wage, Local hire, Apprenticeship utilization...?)	These are among the considerations when Avista purchases power from renewable projects.
Is gas more costly in the winter?	Generally in the wholesale market, yes, but depends on market supply and demand economics.
Since most fossil fuels will start going away by 2050, what are the long-term goals to provide energy in the future?	Avista's preferred resource strategy can be found in our electric IRP on Integrated Resource Planning (myavista.com)
What I see missing from this whole discussion is how to help individual homeowners convert their homes to infrastructure that utilizes less gas and more home-generated electricity.	If residential electrification of all homes becomes mandated, it's likely that assistance such as rebates would be available. It is unknown at this

	time where it will be utility, customer, or government driven.
At what percentage of electrical generation by renewable sources (wind and solar) that system generation become unstable? What mitigation systems are considered for this possibility?	Variable energy resources such as wind and solar are very intermittent thereby requiring other technologies across the system to compensate for these types of resources. Avista's system is approximately 50% hydro which allows for more flexibility. Avista as well as the Western Resource Adequacy Program are studying the impacts on our system as more of these Variable Energy Resources (VER) are added to our system. In the end stability will depend on the other resources/storage available to integrate VERs.
Regarding synthetic methane, you mentioned that there are different sources of carbon. Seemingly, for it to be emissions free, it would have to be carbon captured from the air that hasn't been retired or already credited for being stored. In order for this to be cost feasible, carbon capture will have to be cheap. Has Avista considered a scenario wherein OR CPP offsets are achieved without synthetic methane, but instead with brown natural gas and lots of carbon capture and storage?	Carbon is found from many sources not only energy so tracking carbon at a wholistic level is impossible. Synthetic methane is a way to reuse carbon with a green energy in the form of hydrogen to deliver with current natural gas infrastructure. Carbon capture may be considered as a resource in future IRPs, especially considering incentives from the Inflation Reduction Act (IRA) help drive down costs of this technology. This would of course need to be added with the energy, brown gas, as you've mentioned.
Isn't it more efficient to use Gas 90% efficiency appliance at home versus converting to electric heat and Avista burn Gas and Coal to send me electricity? We should slow down electric conversion until we have electricity generated without fossil fuels	Direct use is of natural gas especially paired with efficient appliances is the most efficient use. However, Avista also has to balance efficiency and least cost with compliance of federal and state laws in which we operate.
What are the requirements being put in place to ensure that the workers constructing the projects are at least 50% of the local workforce?	There are no specific requirements to use local workforce for construction.
What happens when electric cars come online in significant numbers?	Avista's existing resources nor the regional transmission or distribution can sustain significant increases in electric cars and building electrification. There will need to be significantly more resources, infrastructure development and customer rates would need to increase to accommodate these. Avista is evaluating alternatives to meet this demand if it arrives.
Do you see Avista going to nuclear energy in the future?	Not at this time because of the high costs involved. This may change as the small modular reactors are developed. We will reevaluate nuclear costs with every IRP.
How long would it take to get energy back online in the case of an EMP attack?	The time to get energy back online in the case of an EMP attack varies depending on severity of the event.
Would a Thorium reactor be better than a nuclear reactor for energy production?	Avista is not an expert on nuclear technology, but understands there is potential in using thorium in the future as an alternative.
Will solar power farms be viable in the states like it is in other countries?	Solar farms provide summer capacity and while Avista can have some capacity needs, its winter capacity requirements that are greater for Avista.

	Each IRP evaluates solar along with other resources based on the energy and capacity provided and resources are selected by balancing least cost, federal and state requirements, energy/capacity needs and selected accordingly. Often times solar is viable in other states due to incentives, mandates, or limited options for grid power. Also consider just because another area is pursuing a technology does not mean it's the best options for all areas.
Would micro solar grids work in some areas like India is doing?	It is possible if you had a small community of 5 houses off-grid. A micro-grid could serve their energy needs. A storage device would probably be needed as well. Additional resources such as a diesel or gas generator may be needed to provide extra help. Always have to think about reliability, storms, etc. Microgrids aren't reinforced to the same extent as resources on the grid.
Avista should educate public that there are heat pumps that can operate in very cold temp. CO2 as refrigerant units & newer technology like Mitsubishi has cold weather units	This is correct, unfortunately the costs of these technologies are out of reach for most customers. In addition to CO2 heat pumps ground source is another option.
Will this webinar also be available on the web page?	Yes, this will be posted on IRP website.
Where are these fuels coming from minus dump sites?	There's several ways you can get renewable, natural gas. One is from solid waste like a potato processing plant. That solid waste will produce methane as it's an organic and it decomposes. Dairy farms have a large amount of methane and the manure gets put into a sludge pond, and then there's a cap on it. Think of like a parachute type thing or a tarp. It's more complex than that. But I think it's kind of something that, you know, generally captures that methane as it's decomposing.
What are the benefits to customers from Time of Use? ToU does not sound like a benefit to customers.	The price signal is thought to motivate users to modify their usage to lower-priced periods, thereby fewer power purchases from the market (or less required generation) during high priced times (i.e., overall lower rates).
What is an example of a customer energy efficiency project?	Upgrades to more efficient furnaces, lighting, and appliances. Upgrading insulation, using smart thermostats.
I like the idea of geothermal of CO2 batteries for long-duration energy storage.	Geothermal as well as long-duration storage generic resources are evaluated in Avista's electric integrated resource plan. For Avista needs, longer-duration storage of 24 hrs or more is what's needed for our cold winter events.
How will replacing gas turbines meet the Avista goal of clean electricity by 2045?	Avista serves electricity to Washington and Idaho. Washington has the 2045 clean electricity requirements, whereas Idaho does not, just lowest cost. Avista has to balance the needs of both states as well the applicable federal and state requirements while maintaining affordability and a reliable system.

And where is the gas purchased from?	It comes primarily from Canada and the Rocky Mountain states (Rockies).
Customer efficiency projects sound like an expense borne by customers.	Only cost-effective energy efficiency resources that are less than purchasing in the market are rebated using customer funds
ToU is beneficial if the grid is strained, keeps it from going down. Strained grid sounds like a resource issue.	This is correct, but reducing demand could be a lower cost alternative, if customers are will to reduce demand and if the costs to develop the program is lower. Although not building additional new generation means older more inefficient technologies will operate since new more efficient machines were not constructed.
Regarding clean energy, while I do NOT condone chemicals going into the atmosphere, has anyone considered how the trees and other plants would feel if we completely got rid of carbon emissions? You want to get rid of more carbon in the atmosphere? Plant more green stuff, trees, hemp, ect. 1 acre of hemp consumes as much carbon as 5 acres of trees and hemp has over 20,000 uses excluding recreational use.	Greenhouse gas emission regulation are designed to reduce levels, they do not eliminate all emissions.
Avista is being forced. No choice. Just explaining Inslee's orders.	Avista must balance state law requirements and customer's expectations of the energy supply.
I think the predictions for synthetic methane use at an affordable price are much more iffy than banking on wind and solar with backup energy storage. Wind and solar are already there economically but I think synthetic methane has a long way to go (even considering the recent advances at PNNL in tri-cities). What are your thoughts on this?	Wind and solar are the same methods proposed to generate the green hydrogen to create the energy side of synthetic methane. In a future where these green resources have a massive buildout to replace carbon resources such as natural gas generation, surplus energy in the middle of the day with solar can be used to create synthetic methane to store electricity in current infrastructure. As we've seen with wind and solar incentives, technology advances would help to drive down these costs over time.
Natural gas is cleanest. My husband retired from southern Calif gas co! Look at Texas and what wind did...FROZEN...people died.	Thank you for the comment
How you're considering the costs of climate change from emissions in Idaho. For instance, how do you add/consider costs to customers for hospital visits due to wildfires, health impacts, flooding due to extreme rain events? Those costs should be added into your cost considerations.	In Idaho, there's not a requirement to include a cost of climate change or direct costs, although we do include a cost for Idaho to account for the risk of a cost. We also conduct scenarios to understand the impacts of the portfolio if those costs were included.
Avista has been great. It's the self appointed bureaucrats who want the impossible. It looks like gas will always be cleaner than batteries and the cost of electricity.	Thank you for the comment
No wind no power. Solar won't run a refrigerator! I know people and renewables don't work.	Thank you for the comment
Solar in the Pacific Northwest? Sounds like an oxymoron. No sun here	Thank you for the comment
When Avista does large scale renewables will Avista make sure these projects create good paying construction jobs like prevailing wage, full family medical, and apprenticeship utilization.	Avista does pay prevailing wages, utilizes apprenticeship labor and additional considerations when hiring for these construction jobs.

<p>While I agree, during the winter there is a decent amount of wind but those big turbines that are put up cost more to produce than they produce in their lifetime. They just don't make sense to use, they are a waste.</p>	<p>It is incorrect wind requires more energy to produce a wind turbine then it produces in its lifetime, but rather best questioned if the value of the energy created from the wind energy is greater than the cost to produce it (energy, labor, etc). The answer to this question depends on the location of the wind farms installation and the cost or benefits the owner receives.</p>
<p>Three of the EIA's conclusions from their 2022-2050 Energy Outlook are: 1. "Electricity continues to be the fastest-growing energy source in buildings, with renewables and natural gas providing most of the incremental electricity supply" 2. "Renewable electricity generation increases more rapidly than overall electricity demand through 2050." They point out that falling technology costs for wind and solar, along with incentives for those energy sources, will, quote "...SUPPORT ROBUST COMPETITION WITH NATURAL GAS FOR ELECTRICITY GENERATION" Based on those conclusions, I think this proposal relies too much on natural gas and too little on wind and solar. –And as a result is also not giving enough consideration to improvements in electric transmission capabilities either. What are your thoughts?</p>	<p>1) This is likely true due to multiple factors including municipalities requiring electric rather than natural gas, also some building owners are opting for electric to qualify for LEED building status. Most of our residential customers prefer natural gas, but in Washington new construction will be have limited natural gas growth due to restrictions on its use and additional costs to connect will be required to be fully funded by the customer. I don't see much change from past growth in Idaho. 2) Avista's plan separates Washington and Idaho generation needs, Avista will have the ability to generate 70% of its energy via renewables next year for either state. Additional wind is within the long term plan for Washington. For Idaho, additional wind could be added if economic. What we are finding is transmission costs could be the limiter of adding wind to Idaho in order to be economic somewhat due to the fact that Washington requirements may absorb available transmission. Our greatest challenge in adding renewables is how much we can add without requiring significant transmission. Right now I think we could only add around 600 MW before we require substantial construction. Depending on customer energy growth, this should be enough to satisfy Washington targets. Another transmission related risk is other utilities siting wind/solar in our area and using our transmission to meet there renewable requirements. Customer will benefit from selling the rights of these assets. I did want to bring up why natural gas is still in our plans, this has to do with reliability serving customers, we must serve customers every hour of the year, including those with extreme cold and heat. Currently natural gas is best positioned to due this. While we are investigating clean technologies, the costs are much higher- such as using ammonia rather than natural gas for WA customers. We'll be required to invest in these types of assets in Washington, but Idaho will restrict this investment until the costs are more inline with</p>

	<p>the least cost methodology to serve customers.</p> <p>3) The Ukraine war has place some pressure on natural gas prices in the US, although I argue this is limited due to the fact the USA does not import much natural gas from overseas, but rather exports it. The northwest's greatest natural gas price risk is what experienced this winter where the west coast had difficulty moving gas to California. Due to California not building enough gas supply lines and limiting their gas storage, they had high demand and prices actually skyrocketed to the highest levels in local history. Avista procures pipeline for our requirements so customers where protected against some of this price pressure, but not there will be some impacts. Renewables can help protect from some of these risk, but only protects us when there is generation, for example solar does not produce much energy in the winter so we are not protected unless we storage the energy from the summer- which will have extreme costs.</p>
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Public Meeting Email Comments & Questions

Reply comments are included where related to resource planning, comments/questions not related to resource planning were directed to other departments within Avista.

<p>Email Comment</p> <p>As a resident of Idaho I have a few comments regarding what you're being forced to do to maintain your services for Washington and Oregon.</p> <ol style="list-style-type: none"> 1. I agree there should be diversity in the types of energy produced and used, however, it should be cost effective and make good sense. The actions of states such as Washington and Oregon <u>should not impact</u> those who live in states that do not have such restrictive policies that make no sense. 2. Wind turbines, solar farms, and any other infrastructure to support this unwise move by those states, should be <u>located within those states boundaries</u>. They should not encroach upon other states to support their poor decisions. 3. The costs to meet Washington and Oregon's requirements should be the burden of their taxpayers exclusively. <u>No one outside of those states</u> should be burdened financially or otherwise. Their rates should be high enough to cover the costs. 4. The wind turbines being proposed for the Public Land in Southern Idaho is a fine example of what should never be allowed. Why would you put turbines (that are not efficient) in Idaho to support California! California has the same types of landscape and public lands, which should be used for their needs, not ruin the landscape of another state. If a state wants to limit their energy resources, it should not be on the shoulders of other states or its residents. 5. Sadly, these are the same states that want to breach dams. The graph shows clearly the impact that would have on your services if that were to happen. If residents don't like having high energy costs, blackout dates, etc. maybe they'd rethink who they vote into public office. This is ludicrous when you look at the entire world and the impact it will have globally. Not even a pin drop in the bucket! <p>I appreciate the work you do to keep us warm in winter and cool in summer. I look forward to the meeting. Thank you for the opportunity to comment.</p> <p>Wendy Walter Idaho</p>
<p>Reply Response</p> <p>Wendy,</p> <p>Thanks for the heads up on the email issue and your time to review our plans and comments. We will include your comments in our filings. I understand your point of view on state regulations in other states. I will offer up one benefit for Idaho if generation I built within the state, they do provide high paying jobs and local tax revenue, you can think of similar to a manufacture who exports their goods. Anyway, thank you again for participating.</p> <p>James Gall Manager Integrated Resource Planning, Avista</p>

<p>Email Comment</p> <p>Dear IRP Team,</p> <p>I am an Avista Electric customer in Post Falls ID. As Avista has requested public comment, I read through the TAC 1-8 presentations. In brief, I think you should abandon pursuit of "green" and "equitable" activism and focus on minimizing cost to the end user.</p> <p>I am appalled by the focus on "Renewable Energy" "Clean Energy" and reducing "Greenhouse Gas Emissions". CO2 emissions have improved the climate for both humanity and the ecology. If anything we should be increasing greenhouse gas emissions, not reducing them. I realize much of this is merely required reporting, but you should be pushing back against this foolishness, not playing dumbly into it.</p> <p>I am also deeply offended by the insistence on "equity" which amounts to illegal discrimination. These discussions are present in only TAC 1, 6, and 7, but are nonetheless a fatal hazard to your organization given the political shifts that are occurring. It would behoove you to quietly cut all ties with the "Equity Advisory Group" and all such ideologically motivated organizations.</p> <p>The public utilities should be focused on delivering reliable power at the lowest net cost, without engaging in environmental and social activism. It is true that emissions have some costs associated with them, but they are trivial compared to the cost of "green energy". Enmeshing "equity" concerns in your planning will only lead to grief. Power generation and grid stability is a difficult enough technical challenge on its own. Distracting your organizational focus will only lead to an inability to effectively compete. If you want to stay in business, you have to stay sharp.</p> <p>Sincerely, Paul Spooner P.E.</p>
<p>Reply Response</p> <p>Hi Paul,</p> <p>Thank you for your comments, we will include your comments in our filing with the commissions. I would also like to let you know most of your concerns and the costs/benefits of those actions will be for Washington customers. For Idaho customers we will be only adding resources based on economic decisions as directed by the Idaho Public Utility Commission.</p> <p>Again, thank you for taking the time to look through our IRP, if you want to be involved more in the Technical Advisory Committee process feel free to let me know.</p> <p>James Gall Manager of Integrated Resource Plans</p>

Email Comment
<p>Our planet is in dire trouble. We must act intentionally to reduce our use of fossil fuels, especially. We need to reduce overall energy usage, and work to increase use of renewable energy sources.</p> <p>Diane Packard</p>
Reply Response
<p>Hi Diane,</p> <p>Thank you for your comment. We will include it in our documentation to the utility commissions</p> <p>While it will take time to remove all fossil fuels, Avista’s goal is increase clean energy and keep our rates affordable, currently Avista is one the cleanest electric utilities in the nation, but we’ll continue to clean our resource portfolio over time.</p> <p>Thank you,</p> <p>James Gall</p>

<p>Email Comment</p> <p>Will the, or have the, mandates (CETA & CCA)from WA & OR have a cost impact on Idaho customers?</p> <p>Asking as we in Idaho should not be burdened with the cost incurring due to other states irrational energy source mandates.</p> <p>Particularly the mandate to new construction be electric heat pump versus 95% gas water heater/boiler/furnace seems very silly as you are burning coal & natural gas to give them electricity.</p> <p>If Idaho is burdened, have you considered a separate LLC or selling the Canadian gas line access to Idaho distribution?</p> <p>Similarly, Idaho customers should pay less per KWH as you can continue to burn Nat Gas to supply Idaho demands. Costs to switch to other sources than gas and coal should be factored only to the KWH sold to customers in WA & OR.</p> <p>What is the average thermal efficiency of burning natural gas to generate electricity at the generation plant sources currently used?</p> <p>What is the average electrical distribution losses (efficiency factor) from the gas thermal plant to a customers home/building?</p> <p>This information is required in order to determine the true real world efficiency comparison to a 95% efficient low carbon condensing boiler/water heater/furnace. The carbon factors in burning natural gas to produce electricity + the distribution line loss factor (that further derates gas electrical production efficiency) has to calculated to know the true total carbon production to send the power to a home in Idaho.</p> <p>I suspect the real world total emissions from production to customer is likely higher or close to same in thermal gas electrical plant + losses versus the carbon cost of 90%+ condensing boiler or furnace.</p> <p>Thank you, looking forward to your presentation meeting upcoming</p> <p>Dave Lockhart</p>
<p>Reply Response</p> <p>Hi Dave,</p> <p>I have included answers to your questions in your email below. Thanks for participating in our IRP process, your welcome to our Technical Advisory Committee if you desire. Let me know if you would like to be added.</p> <p>Thanks,</p> <p>James Gall</p> <p>Will the, or have the, mandates (CETA & CCA)from WA & OR have a cost impact on Idaho customers?</p> <p>As stated in the call yesterday there is potential for impacts to Idaho customers for the CCA, these will be related to one plant we own located in Washington, there will also be impacts to the energy markets that may impact Idaho customers, but those could be both positive or negative and we are unsure of the impact at this time. As far as CETA is concerned the impacts will be limited to the costs the Idaho Public Utility Commission allows us to recover from Idaho customers. As you may have expected the</p>

Idaho Commission is concerned customers will be shielded from cost from another state. More work needs to be done in this area, but is definitely a concern to Avista.

Asking as we in Idaho should not be burdened with the cost incurring due to other states irrational energy source mandates.

Answered above

Particularly the mandate to new construction be electric heat pump versus 95% gas water heater/boiler/furnace seems very silly as you are burning coal & natural gas to give them electricity.

This is a difficult mandate in our climate, for now natural gas is still allowed for Washington customers for backup heating, but not for water heating. This will propose challenges to acquire additional generation in the long run. While you are correct it is more efficient to using natural gas, Washington's argument is the power will be from clean resource and therefore efficiency is not a main concern. While I can't say I agree with the logic, we have to comply with the laws we are given and try to educate policymakers of the ramifications of these actions.

If Idaho is burdened, have you considered a separate LLC or selling the Canadian gas line access to Idaho distribution?

Avista is considering separating the power supply system from Washington and our IRP models the system this way, I expect there will be future commission proceedings to discuss this.

Similarly, Idaho customers should pay less per KWH as you can continue to burn Nat Gas to supply Idaho demands. Costs to switch to other sources than gas and coal should be factored only to the KWH sold to customers in WA & OR.

This will be the case, when we finalize our IRP later this year, you will see this difference.

What is the average thermal efficiency of burning natural gas to generate electricity at the generation plant sources currently used?

Combined cycle turbines are 50 to 60% efficient at producing electricity from there heat content, our lower efficient technologies used for extreme load conditions are approximately 40% efficient

What is the average electrical distribution losses (efficiency factor) from the gas thermal plant to a customers home/building?

Avista loses around 5.5% of the energy via transmission and distribution

This information is required in order to determine the true real world efficiency comparison to a 95% efficient low carbon condensing boiler/water heater/furnace. The carbon factors in burning natural gas to produce electricity + the distribution line loss factor (that further derates gas electrical production efficiency) has to be calculated to know the true total carbon production to send the power to a home in Idaho.

Agree with your statement if natural gas is used to power the grid, although like I stated earlier Washington requires clean energy. Our goal is keep our gas system for all customers who desire to keep their natural gas.

I suspect the real world total emissions from production to customer is likely higher or close to same in thermal gas electrical plant + losses versus the carbon cost of 90%+ condensing boiler or furnace.

Agree so long as the electric system is not near 100% clean energy.

Email Comment

I want to thank you for producing that very helpful pre-recorded webinar on your process. I really appreciate the work you're all doing to look ahead for the next 20 years.

I'd like to address all three of the things you're working toward: ...reliable power ...at a reasonably cheap price ...that includes environmental stewardship and sustainability.

I hope you'll help me become better informed if I'm wrong on some of the things I'm going to cover here, but I think this Resource Plan has some problems that need correction.

It's obviously hard to predict what will be happening in a 20 year window. But I think we all, including you folks, need to use the best available information to assure that we are all part of solutions that give us the best possible future, for both ourselves and our kids.

I've been getting some more recent information from the US Energy Information Administration, or EIA. –And Their 2022 Annual Energy Outlook, which is a Projection and analysis of U.S. energy supply, demand, and prices through 2050. I might add that some of you folks here at this meeting may not know this but the EIA is by law instructed to prepare studies, analyses and products that are independent of policy considerations. And they are also legally independent of review by the Executive Branch

Three of their conclusions are:

1. "Electricity continues to be the fastest-growing energy source in buildings, with renewables and natural gas providing most of the incremental electricity supply."
2. "Renewable electricity generation increases more rapidly than overall electricity demand through 2050." They point out that falling technology costs for wind and solar, along with incentives for those energy sources, will, quote "...support robust competition with natural gas for electricity generation"

Based on those two conclusions, I think this proposal relies too much on natural gas and too little on wind and solar. –And as a result is also not giving enough consideration to improvements in electric transmission capabilities either. **What are your thoughts?**

3. "...NATURAL GAS PRODUCTION IS INCREASINGLY DRIVEN BY NATURAL GAS EXPORTS"

Based on that conclusion, It seems you should be thinking more about US independence from international gas prices. This reminds me of how Putin's war in the Ukraine has affected European and world stability in more than one way. We can be more independent of the world's gas prices if we shift more to renewable energy sources here in the US, which are more likely to insulate Avista's customers from large price fluctuations in the future. **What are your thoughts?**

Three final considerations:

A. I think the predictions for synthetic methane use at an affordable price are much more iffy than banking on wind and solar with backup energy storage. Wind and solar are already there economically but I think synthetic methane has a long way to go (even considering the recent advances at PNNL in the Tricities).

B. In general terms, this plan needs to better encompass the needs of all your customers with a perspective that pays more attention to both technological trends and environmental stewardship that will keep our region economically viable and give us a livable environment. **You folks really are** part of getting environmental changes under control in order to give us all better futures.

C. More specifically, **Given the EIA's analyses, can you comment** on how the likely technological improvements in wind and solar power, and the more limited control we have on world gas prices would seem to say we should encourage MORE use of electricity AND GREATER TRANSMISSION capacity for electricity, plus LESS use of gas than you are presently proposing?

Thanks for putting this March, 8th meeting together.

Michael Cantrell
Reply Response
<p>Hi Michael,</p> <p>Thank you for your comments and questions. I've answered some of your comments below in red.</p> <p>James Gall Manager of Integrated Resource Planning, Avista</p> <p>Three of their conclusions are:</p> <ol style="list-style-type: none"> 1. "Electricity continues to be the fastest-growing energy source in buildings, with renewables and natural gas providing most of the incremental electricity supply." This is likely true due to multiple factors including municipalities requiring electric rather than natural gas, also some building owners are opting for electric to qualify for LEED building status. Most of our residential customers prefer natural gas, but in Washington new construction will be have limited natural gas growth due to restrictions on its use and additional costs to connect will be required to be fully funded by the customer. I don't see much change from past growth in Idaho. 2. "Renewable electricity generation increases more rapidly than overall electricity demand through 2050." They point out that falling technology costs for wind and solar, along with incentives for those energy sources, will, quote "...support robust competition with natural gas for electricity generation" Based on those two conclusions, I think this proposal relies too much on natural gas and too little on wind and solar. –And as a result is also not giving enough consideration to improvements in electric transmission capabilities either. What are your thoughts? Avista's plan separates Washington and Idaho generation needs, Avista will have the ability to generate 70% of its energy via renewables next year for either state. Additional wind is within the long term plan for Washington. For Idaho, additional wind could be added if economic. What we are finding is transmission costs could be the limiter of adding wind to Idaho in order to be economic somewhat due to the fact that Washington requirements may absorb available transmission. Our greatest challenge in adding renewables is how much we can add without requiring significant transmission. Right now I think we could only add around 600 MW before we require substantial construction. Depending on customer energy growth, this should be enough to satisfy Washington targets. Another transmission related risk is other utilities siting wind/solar in our area and using our transmission to meet there renewable requirements. Customer will benefit from selling the rights of these assets. I did want to bring up why natural gas is still in our plans, this has to do with reliability serving customers, we must serve customers every hour of the year, including those with extreme cold and heat. Currently natural gas is best positioned to due this. While we are investigating clean technologies, the costs are much higher- such as using ammonia rather than natural gas for WA customers. We'll be required to invest in these types of assets in Washington, but Idaho will restrict this investment until the costs are more inline with the least cost methodology to serve customers. 3. "...NATURAL GAS PRODUCTION IS INCREASINGLY DRIVEN BY NATURAL GAS EXPORTS" Based on that conclusion, It seems you should be thinking more about US independence from international gas prices. This reminds me of how Putin's war in the Ukraine has affected European and world stability in more than one way. We can be more independent of the world's gas prices if we shift more to renewable energy sources here in the US, which are more likely to insulate Avista's customers from large price fluctuations in the future. What are your thoughts? The Ukraine war has place some pressure on natural gas prices in the US, although I argue this is limited due to the fact the USA does not import much natural gas from overseas, but rather exports it. The northwest's greatest natural gas price risk is what experienced this winter where the west coast had difficulty moving gas to California. Due to California not building enough gas supply lines and limiting their gas storage, they had high demand and prices actually skyrocketed to the highest levels in local history. Avista procures pipeline for our requirements so customers where protected against some

of this price pressure, but not there will be some impacts. Renewables can help protect from some of these risk, but only protects us when there is generation, for example solar does not produce much energy in the winter so we are not protected unless we storage the energy from the summer- which will have extreme costs.

Three final considerations:

A. I think the predictions for synthetic methane use at an affordable price are much more iffy than banking on wind and solar with backup energy storage. Wind and solar are already there economically but I think synthetic methane has a long way to go (even considering the recent advances at PNNL in the Tricities). **Agree, the only other option to meet state requirements would be to lose the customer so we'll try to give our customers the option.**

B. In general terms, this plan needs to better encompass the needs of all your customers with a perspective that pays more attention to both technological trends and environmental stewardship that will keep our region economically viable and give us a livable environment. **You folks really are** part of getting environmental changes under control in order to give us all better futures. **It is difficult to balance environment, reliability, and costs. Can't achieve them all, our elected officials typically determines how they balance these factors. In Washington Environmental and Reliability is a priority over cost, while Idaho places cost and reliability above environmental. We are stuck in the middle.**

C. More specifically, **Given the EIA's analyses, can you comment** on how the likely technological improvements in wind and solar power, and the more limited control we have on world gas prices would seem to say we should encourage MORE use of electricity AND GREATER TRANSMISSION capacity for electricity, plus LESS use of gas than you are presently proposing?

One thing to note, when Avista adds natural gas this does not mean it is operating all the time, most of the time these resources only operate when cost effective- this will depend on how much renewables are on the entire system. Most of our gas additions are for reliability not for energy production. As far as technological improvements for wind and solar will be limited to cost savings rather than efficiency savings. We do expect the cost of renewables to fall in the future. Although past experience tells me the costs are cyclical. As you stated additional transmission is needed- we agree- but we'll need to justify it to get it build and recover the cost of its construction.

Email Comment

1. Get out of Colstrip. We Avista customers are still receiving power from this coal plant, which has been referred to as the dirtiest in the West. Soot pollution from this plant has killed hundreds if not thousands of people over the years (currently estimated at 30 lives/year) and caused many, many thousands of other serious health problems in people. Avista withdrawing from Colstrip will contribute to its ultimate shutdown. I am happy to hear that Avista plans to be out of Colstrip by 2024.
2. Avista has committed to supplying 100% clean, renewable electricity to its customers by 2045. I applaud this goal, although it really needs to be 2035. This commitment, and assumption that Avista will make this a reality, was a major factor in the City of Moscow's recently adopted Climate Action Plan (which I and many others worked tirelessly at), and goals for net zero carbon emissions. I expected to hear and see plans from Avista for accomplishing this 2045 goal. Instead I heard about plans for replacing gas turbines. When I asked specifically about this, it seems the response was that Avista was not going to achieve this goal if it was too difficult. It seems to me that Avista is not really serious about this stated goal, and not even trying. This is very disappointing. Where are the plans? No goal is achieved without plans!
3. Natural gas is a problem. Some studies indicate its not much better than coal in terms of greenhouse gas production. Avista needs to de-emphasize gas, quit giving rebates to homeowners for switching from electricity to gas. Instead give rebates for switching from gas heating to electric heat pumps which are more efficient and economical than electric resistance or any form of gas heating. Avista needs to eventually work its way out of the gas business. Please establish a goal for 100% clean/sustainable (all) ENERGY production – not just electricity.

Sincerely,

Al Poplawsky
Moscow, Idaho

Reply Response

Hi Al,

Thank you for taking the time to participate in our public process. We will include your comments in our filings and to our management. I would like to clarify more about the 2045 goal. Moving to 100% clean energy is a difficult task with a temperate climate we have in the inland northwest, achieving 100% clean energy will require substantial investment in new technologies. Based on what we know today, the cost for a full transition acceptable to Idaho customer is not there yet. While we have the ambition to reach the goal and will move toward that goal over time will require significant technological, economic, and reliability challenges ahead. Until we can overcome these challenges, I don't think any utility in any state will achieve 100% clean energy.

Also to note to clarify a couple statements, yes we will be out of Colstrip, but by 12/31/2025. As far as natural gas greenhouse gas emissions, NG produces less than ½ the carbon emissions as coal when producing electricity. The studies you refer to about natural gas being worse than coal blame natural gas leakage into the atmosphere, this is actually very rare and minimal and federal requirements both in Canada and the US minimize these leakages. Unfortunately these studies are taken out of context when produced.

Again, thank you for your comments.

James Gall
Manager of Integrated Resource Planning, Avista

Email Comment

Hi James,

Please see below. AI

"A recent [study](#) by the Environmental Defense Fund found that 3.7% of natural gas produced in the Permian Basin leaked into the atmosphere. That's enough to erase the greenhouse gas benefits of quitting coal for gas in the near term."

"The first thing to say is the 3.7% number really jumps off the page," said Daniel Raimi, a researcher at Resources for the Future. "It is a really high emission rate. It is yet another indicator that the U.S. oil and gas system emits more than current EPA estimates would suggest."

<https://www.scientificamerican.com/article/methane-leaks-erase-some-of-the-climate-benefits-of-natural-gas/>

Reply Response

Thanks for sharing, the article does give a few counter points to the EDF's argument (see below). Regardless methane emissions are real, while as you can see it is greatly debatable on the amounts emitted and there actual greenhouse gas effect. In our planning we call these emissions "upstream" emissions. Typically natural gas creates 117 lbs per mmbtu from combustion, we add 9.8% to this values for these emissions totaling 128.4 lbs/mmbtu. This increase is based on studies for leakage in our sources of natural gas. Coal's emissions are closer to 205 to 210 lbs per mmBTU. In the future you will see less combustion of both coal and natural gas in exchange for renewable energy, but until we see cost effective long duration energy storage moving off natural gas in times renewables are not producing will be a challenge to meet demand.

Here are a few other observations from the article:

Energy In Depth, a project of the Independent Petroleum Association of America, has questioned EDF's use of "technology warming potential" (TWP), the environmental group's metric for measuring the climate impact of one technology versus another. Global warming potential, a more commonly used metric for assessing a gas's climate impact, measures the effect of a single pulse of emissions over a 100-year period. Nicole Jacobs, a spokeswoman for Energy In Depth, pointed to other peer-reviewed studies that found leakage rates of between 5-9% were needed to negate gas's advantage over coal. "EDF's use of TWP is an outlier in the scientific community to the extent that I don't think it's even an available option in [life cycle assessment] calculating software," Jacobs said in an email. Hamburg, the EDF scientist, called that argument spurious. EDF's methodology uses the same inputs as global warming potential, but it considers emissions on a continuous basis, reflecting real world conditions. Arguments about the time frame ignore a more important point, he said.

Email Comment

I won't be able to attend your planned meeting so I am providing my comments by email. The following represents my thoughts.

I live a little bit past Bennet Bay off of Coeur D'alene lake drive with natural gas connections ending around Sunny Side Road. I would like to see these gas connections go further east on Coeur D'alene lake drive. There has been significant increases in the number of houses in this direction to possibly justify extending the gas line further to make natural gas available in this area. Additionally there will be continued building in this popular area of the lake as there is still acreage available to be developed. Especially up Yellowstone Rd where there has already been significant development. This should be something that is considered in the 20 year plan since future Coeur D'alene development can only go and will go in this direction.

Thank you for the opportunity to make comments to you. I appreciate your consideration.

Jon Thoma

Email Comment

Avista wants to hear from us? YOU HAVE A MONOPOLY AND YOU ARE HARMING PEOPLE WITH WHAT YOU ARE CHARGING.

Our Comfort Level Billing just increased by nearly 50%!!! Our usage has NOT changed drastically to warrant that! If anything we are using LESS gas because we have been using our woodstove for heat more than we had in the past three years!

I am awaiting a response from Avista on my inquiry sent on Saturday because there is no way that over \$600/month is feasible for any family. Avista clearly drastically raised rates at a time when humans can't afford it! Ridiculous!

Stop being a monopoly and let us choose where to get our energy. Then you might actually have to be competitive with your rates and actually care what the customer can afford.