

WASHINGTON ENERGY STRATEGY ADVISORY COMMITTEE

Meeting Summary

September 15, 2020, 9:00 am to 4:30 pm

Virtual meeting via Zoom

Meeting Participants

Advisory Committee Members

George Caan, Executive Director, Washington Public Utility Districts Association

Jason Campbell, Chief Executive Officer, Sovereign Power

Co-Chair: Reeves Clippard, Chair, Executive Committee, CleanTech Alliance and Chief Executive Officer, A&R Solar

Dave Danner, Chair, Washington Utilities and Transportation Commission

Kathleen Drew, Chair, Energy Facility Site Evaluation Council

Sandi Edgemon, City of Richland

Will Einstein, Director of Product Development and Growth, Puget Sound Energy

Martin Gibbins, Climate and Energy Issues Chair, League of Women Voters

Deric Gruen, Program Director, Front and Centered

Matt Harris, Director of Government Affairs and Assistant Executive Director, Washington State Potato Commission

Co-Chair: Nancy Hirsh, Executive Director, NW Energy Coalition

Nicole Hughes, Executive Director, Renewable Northwest

Paul Jewell, Policy Director, Washington State Association of Counties

Dan Kirschner, Executive Director, Northwest Gas Association

Kent Lopez, General Manager, Washington Rural Electric Cooperative Association

Clay Norris, Power Management Manager, Tacoma Power

Rebecca Ponzio, Climate & Fossil Fuel Program Director, Washington Environmental Council

Alex Ramel, Representative, Washington State Legislature

Chris Roe, Senior Manager, Amazon

John Rothlin, Manager of Washington Government Relations, Avista Corporation

Jessica Spiegel, Director Northwest Region, Western States Petroleum Association

Alex Ybarra, Representative, Washington State Legislature

Other Meeting Participants

Tom Beierle, Ross Strategic (facilitation support)

Aditi Bansal, Clean Energy Transition Institute (technical support)

Glenn Blackmon, Washington State Department of Commerce

Derik Broekhoff, Stockholm Environment Institute (technical support)

Andy Chinn, Ross Strategic (facilitation support)

Marc Daudon, Clean Energy Transition Institute (technical support)

Michael Furze, Washington State Department of Commerce
Roel Hammerschlag, Hammerschlag LLC (technical support)
Betony Jones, Inclusive Economics (technical support)
Kate Kelly, Washington State Department of Commerce
Michael Lazarus, Stockholm Environment Institute (technical support)
Heather Martin, Ross Strategic (facilitation support)
Lauren McCloy, Office of Governor Jay Inslee
David Paoella, Clean Energy Transition Institute (technical support)
Eileen V. Quigley, Clean Energy Transition Institute (technical support)
Bill Ross, Ross Strategic (facilitation support)
Poppy Storm, 2050 Institute (technical support)

Welcome and Agenda Overview

Lauren McCloy, WA State Department of Commerce, welcomed Advisory Committee members to the meeting. Given the unprecedented challenges of COVID-19 and the impacts of wildfires, Ms. McCloy emphasized that the need to address climate change and economic recovery through the state's energy strategy has never been more important. Today's meeting represents an exciting stage of development for the strategy as we are seeing emerging sector-specific strategies and themes from the Technical Analysis Process (TAP). Today is an opportunity to learn and respond to these ideas. It is clear that meeting the state's energy goals will require transformation of the economy and there are both large challenges and large opportunities in doing so. Ms. McCloy thanked Advisory Committee members for helping the state take on this work.

Tom Beierle, facilitator from Ross Strategic, reviewed meeting objectives and the day's [agenda](#).

Technical Advisory Process Update and Context-Setting

Eileen V. Quigley, Clean Energy Transition Institute, provided an overview of the state energy strategy development process and key milestones between August and December 2020. She said that today is an opportunity to present and discuss draft strategy elements coming out of the Technical Analysis Process (TAP) as a step toward drafting the state strategy. The ideas shared during the day tie the outcomes of the Deep Decarbonization Pathways (DDP) modeling to policy. They reflect the inputs from Advisory Committee members and other experts as well as a wide range of resources consulted and best practices from other state energy plans.

Michael Lazarus, Stockholm Environment Institute, provided additional context for the work undertaken in the TAP. He described the state's emissions profile among major emissions categories (electricity, transportation, buildings and industry, and non-energy, non-CO₂ emissions) and the trajectory of emissions reductions needed to meet the state's emissions targets. The foremost challenge will be halving the state's emissions within the next 10 years, which will require an energy strategy that is transformational, comprehensive, inclusive and equitable, dynamic, and multi-level.

The Advisory Committee then heard presentations and participated in discussions about emerging themes and strategies from each of the sector-specific TAPs (transportation, buildings, industry, and electricity). Context slides and slides for each TAP sector presentation are available here.

Transportation Sector

Derik Broekhoff, Stockholm Environment Institute, described emerging themes and strategies for the transportation sector. Mr. Broekhoff reviewed the outreach and research elements of the transportation TAP, the current composition of Washington transportation emissions, and areas of anticipated emissions growth and decline. The presentation included key takeaways from the DDP scenario results for transportation, key themes for transitioning the transportation sector, emerging strategies, and key transition levers.

Advisory Committee Comments and Clarifying Questions on the Transportation Sector Presentation (and responses from presenters, in italics):

- Is any portion of interstate or international air travel or shipping accounted for in the state emissions profile?
 - *We will look this question and follow up.*
- What is the basis for the suggestion of sector-specific targets as opposed to an economy-wide target such as a cap-and-trade approach?
 - *When looking at electrification of transportation and low-carbon fuels, an economy-wide approach does not provide incentives for the types of sector-specific investments needed.*
- An unstated assumption is that strong research and development efforts will be required in the early stages to build out the emerging technologies like electrofuels that will be needed to achieve emissions goals.
- How will transportation that originates in other states or countries be dealt with in the state energy strategy? It would be helpful to know the breakdown of carbon emissions within and beyond the state for various modes of transportation and travel (e.g., passenger vehicles, freight, ports). How do we track and account for travel in and out of the state?
 - *The state's inventory takes into account travel outside the state. This is an example of why it is important to coordinate across jurisdictions. The state energy strategy cannot focus exclusively on in-state factors, it must also complement multi-state, national, or international efforts where possible.*
- State-wide targets for transportation are important because they clarify the 2030 goal.
- For maritime transportation, rail, and long-haul trucks, electrification is important over the long run, but the technologies are not there yet. In the short term, there are opportunities to move away from bunker fuel and other less efficient fuels. According to the DDP model, there needs to be a steep increase in EV sales and a corresponding 80% reduction in sales of new internal combustion light-duty vehicles between 2025 and 2030. Given that this is a short time frame for a significant change in the composition of light duty vehicle sales, how can policies align to accommodate this shift?
 - *A challenge is that approaches taken to date have not been proportional to the transformation anticipated by the DDP model. A more coordinated approach that builds infrastructure, accelerates demand, and increases incentives is needed.*

- A significant unknown is how our economy and society will change following COVID-19, urban unrest, and other features of 2020. This may push people to live outside of large cities. How will we make sure our policy efforts are not counter to people's desires for health and safety? Should we reconsider pushing for high density development?
- Perhaps we shouldn't just focus on higher density development but also on more sustainable and self-contained low-density communities. Even if people are living further outside cities, how can we make sure people can work close to home? How would we support it through investments in things like broadband? What actions can local government take?
- I would like to see more transformative policy ideas about how we use the key levers we have to reduce transportation emissions: increased electrification, reducing the need for travel (including altering whether and how we travel for work), and the travel modes we choose. Where are the transformative policy recommendations that will drive actions related to these levers?
 - *There is a significant amount of detail within the TAP work that is not represented in the current set of slides due to time limitations for this presentation. The draft state energy strategy will include more detail; however, there is also more work needed on specific transportation policies and around the assessment of transportation and equity.*
- It is insulting to "require" electric utilities to reflect ZEV demand in forecasts; utilities already plan for load growth of any kind.
- It would be helpful to see more non-technology approaches in the strategy, such as local government transit policies. In a post-COVID world, this might include more community centers developed outside of large urban areas.
- There are several elements to broadband internet, including both creating the service and developing the technology to use it, that should be included in the state energy strategy.
- There is little discussion of renewable natural gas for transportation. It can both convert a waste stream to beneficial use and help with the transition to a clean energy economy.
 - *These issues came up during TAP discussions in the context of infrastructure and low or zero-carbon fuels.*
- As the strategy development moves toward identifying specific policy approaches, it will be important to coordinate with other efforts underway at the state level, such as the Joint Transportation Committee, WSDOT priorities, the Environmental Justice Task Force, Growth Management Act updates, and local jurisdictions' comprehensive plan updates.

Buildings Sector

Poppy Storm, 2050 Institute, summarized emerging energy strategies and tactics for the building sector. Ms. Storm reviewed the current contribution of buildings to the state's GHG emissions and provided a breakdown of the various segments to consider, each with unique opportunities and challenges. The presentation highlighted key takeaways from the DDP modeling and outlined primary approaches to decarbonizing buildings, market transformation needs, emerging strategies for decarbonizing the buildings sector, and crosscutting topics.

Advisory Committee Comments and Clarifying Questions on the Buildings Sector Presentation (and responses from presenters, in italics):

- It is important to look at source and site considerations when looking at building decarbonization opportunities. If we are just looking at energy use and efficiency on-site, we are missing opportunities for increasing efficiency at the source and distribution system.
- How would you describe the distinction between “energy efficiency” and “energy optimization” in buildings?
 - *We have tended to primarily focus on energy efficiency in the past, but buildings will increasingly offer opportunities for energy optimization. On-site storage, micro-grids, and other technologies create roles for buildings to help optimize energy use on the grid through demand response. We don't currently have a well-developed way of accounting for and understanding these benefits.*
- As stated in previous meetings, the DDP analysis seems biased against natural gas in the “gas in buildings” scenario because it assumes lower energy efficiency in buildings alongside the assumption of retaining natural gas use in buildings. The assumption about energy efficiency influences the results on end-use energy for this scenario. The analysis also does not account for energy efficiency in the natural gas distribution and transportation system (approximately 92% efficiency from wellhead to burner tip). Although the technical team has considered studies submitted about these topics, it isn't apparent how they are reflected in the results.
 - *Based on input from the August 25 Advisory Committee discussion of the DDP analysis, the technical team developed an additional case that looks at gas in buildings along with deep energy efficiency. The results will be available soon and we will share them with Advisory Committee members. The technical team reviewed other suggested studies on natural gas as part of the analysis and would welcome other suggested studies or highlights from these studies on which to focus. The emerging themes and strategies presented in this section are informed by all of the DDP analysis (as well as many other considerations), not just the results of a specific case.*
- Acknowledgment of equity considerations is important, as there is potential to create equity issues across a broad range of energy users.
- Are there opportunities to look at regional variability? For example, residential space heating shows reduced energy burden under the electrification scenario, but in colder regions high-efficiency electric heating is still not as effective as high-efficiency natural gas.
 - *The technical team is looking at aggregate statewide data for electrification and Commerce will need to look into variations across the state for implementation purposes.*
- Market transformation takes a long time and even when accelerated, market acceptance is difficult. It is not clear if the strategy is mandating adoption of low-carbon solutions to accelerate market transformation—for example requiring heat pump technology statewide.
- There was some discussion among the TAP about a renewable fuels standard that included hydrogen. This included the possibility of injecting hydrogen into the natural gas system to displace some natural gas in buildings. Within 10 years it is possible to eliminate 10% of natural gas in pipelines, which would aid in the state's 2050 goals.
 - *Hydrogen use in the natural gas pipeline was not ruled out, and the modeling shows some natural gas use continuing over time for certain end uses.*
- Zoning or land use should be considered as strategies for the buildings sector. This includes policies to discourage local restrictions on density and construction of multi-use properties (e.g., apartments, duplexes, triplexes, etc.), which can be significantly more energy efficient than stand-alone single-family homes.
 - *Good point, which we will consider going forward.*

- It seems like there could be intersections with the transportation strategy on land-use, in particular regarding urban design for transportation and building efficiency (e.g., looking at energy use per occupant rather than per square foot)
- Given the current air quality crisis, the Advisory Committee should consider opportunities to mitigate how climate impacts as GHG emissions are reduced, such as weatherization to address heat and smoke. “Piggybacking” policies may create more demand and help achieve the scale of change we need.
- The technical team should provide a bibliography of background research.
 - *This will be available as a supplement to the draft strategy.*
- Training and code enforcement are critical aspects of a successful building code approach for energy efficiency.
- Whenever a clean energy bill is proposed in the state legislature, it means more wind farms and solar farms in Eastern Washington to meet the energy needs of Western Washington. During the first Advisory Committee meeting, the technical presentation from PNNL laid out the amount of energy required to meet demand if all light-duty vehicles were converted to electric. If the energy transition occurs in the near future as discussed, it is important to ensure that both sides of the state can produce renewable energy, not just Eastern Washington.
- Embodied carbon in building materials (e.g., cross-laminated timber) is a huge economic development opportunity for Washington. As a strategy for meeting the state’s goals, it rivals energy use.
- Maximizing efficiency should not happen at the expense of decarbonization efforts. How is funding and financing for retrofits and innovative technologies addressed?
 - *This will be looked at in greater detail during the next phase of analysis but will be part of developing an implementation strategy for the state energy strategy.*
- Microgrids are not sufficiently reliable in case of a power outage. They require a power supply, and in Western Washington a storm system can mean three to four days of back-up power is needed to maintain reliability of microgrids.

Industrial Sector

Roel Hammerschlag, Hammerschlag LLC, summarized emerging energy strategies and tactics for the industrial sector. Mr. Hammerschlag reviewed the industrial TAP’s outreach and research efforts, the industrial sector context in Washington State, and sector-specific takeaways from the DDP modeling. The presentation highlighted the primary approaches to decarbonizing the industrial sector as well as cross-cutting topics.

Advisory Committee Comments and Clarifying Questions on the Industrial Sector Presentation (and responses from presenters, in italics):

- Are emissions from Computing Services direct or are these attributed to electricity emissions?
 - *Data center emissions are nearly all from electricity generation.*
- What is the “biomass economy,” and how does it benefit the environment?
 - *The biomass economy includes use of forest resources to decarbonize. In the best case, forest floor waste and waste from wood processing would be used as fuel. In the worst case, semi-mature forest would be used as fuel, but this would lose its value for carbon sequestration. Biomass-based fuels can play a key role in a biomass economy, especially given*

Washington's robust forest economy, and could be reserved for the harder-to-decarbonize sectors, such as aviation.

- Tax incentives for electrofuels (or even biomass), such as a production tax credit or an investment tax credit, are possible policy approaches.
- There are 3,300 industrial consumers, 1.3 million residential consumers, and 100,000 commercial consumers using natural gas. Industry is very energy-intensive and highly sensitive to energy costs. Displacing pipeline fuel with renewable natural gas will result in a ten-fold per-unit cost increase. Industries must be viable and competitive and should use the low cost of natural gas to remain so. Also, transitioning the workforce is easy in theory but harder to do compassionately and equitably in practice.
 - *For the 2050 target, the amount of technological development that can or will occur is impossible to predict and therefore future prices of fuels are difficult to estimate. There is a possibility that natural gas infrastructure can be used to deliver synthesized methane; over the long term this might be one of the lowest cost ways to lower the carbon-intensity of industry (as well as other natural gas customers). For workforce transition, there is high sensitivity among stakeholders that high quality jobs could be replaced with lower quality jobs. The TAP and technical team are keeping this sensitivity at the forefront of their thinking.*
- Is there currently any industrial carbon capture in Washington State?
 - *The technical team is not aware of any industrial-scale carbon capture in Washington State. Globally, deployment of carbon capture technology has been slow for various reasons. The most commonly implemented carbon capture and storage (CCS) is to inject CO₂ into the same formations that-fossil fuel was-extracted from. Outside of oil and gas-extraction, the applicability of CCS is industry-neutral because it involves injecting the carbon molecules that are generated by any fossil fuel combustion, for storage.*
- The technical analysis accounts for Scope 3/out-of-boundary emissions in some sectors (e.g., embodied energy in buildings) but not all sectors, and it should be considered. Food is an example where embodied carbon can vary significantly based on production and transportation. Are there opportunities for the state energy strategy to address reducing emissions from the food sector?
 - *The Dormant Commerce Clause prohibits the state from requiring citizens to buy food locally, but one option is to encourage Washingtonians to purchase food with low embodied carbon without referring to its country or state of origin.*
- It is surprising how prominent hydrogen and synthetic liquid fuels are in the DDP analysis results. What type of regulatory structures are required for this new clean fuel industry? There is also the value in having an end user that can use excess energy; can there be a mechanism in place to monetize that value? There is also possibility of double counting, for example carbon that was taken out of the ground, used, and then re-captured? Both sides of industry will want to claim the value for the captured carbon.
 - *These are all valid tensions to consider and will ultimately need to be worked out through policy negotiations supported by technical analysis.*
- It is important to remember that clean energy jobs are not necessarily less competitive or lower-paying than other work. Solar installers, for example, share a common labor pool with other industries. Many solar installation electricians earn more than engineers. It is important to ensure that work skills are transferable across industries as we look at new technologies to avoid dead-end skills pathways.
- Clean energy jobs are generally well-paying. Additionally, it is important to keep in mind that the renewable energy industry agreed (under the Clean Energy Transition Act) to enter into project labor agreements and other fair labor practices for new construction.

Electricity Sector

Marc Daudon, Clean Energy Transition Institute, summarized emerging themes and strategies for the electricity sector. Mr. Daudon reviewed the electricity sector TAP's outreach and research efforts and how electricity fits into a low-emissions future in Washington State. The presentation highlighted relevant results from the DDP modeling, CETA and the policy framework, and the connections between electricity sector strategies.

Advisory Committee Comments and Clarifying Questions on the Electricity Sector Presentation (and responses from presenters, in italics):

- According to the modeling, increased electrification will require substantial upgrades to interstate transmission infrastructure, which takes a significant amount of time to permit and build. What are some interim steps to help build this transmission infrastructure?
 - *The technical team welcomes Advisory Committee suggestions to help unlock the ability to develop needed infrastructure; the first step is recognizing the magnitude of challenge in the transition. A distributed energy strategy could potentially reduce the need for transmission facilities and also help address the inevitable issue of timeliness.*
- One of the policy suggestions is to require certain standards on methane emissions from natural gas production, however natural gas is not produced in Washington. Is it legal to require stricter methane rules given that most gas production is out of state?
 - *Some utilities in Washington are considering applying these standards. There are new solutions for monitoring and reducing leakage worth investigating. Methane emissions from leakage are a significant source of GHGs, and it would be useful to hear Advisory Committee suggestions on how to decarbonize or address methane emission from natural gas production.*
- While the general comments about relying on regional markets (as well as hydrogen and electrofuels) are positive, because of the nature of energy transmission across borders it is unclear what can be done at the state level, aside from indicating support for regional efforts.
- It is not clear how much impact distributed energy resources (DER) can have. Washington State already has a significant amount of community energy infrastructure, so the ability to create greater inroads in that area is uncertain.
- In Western Washington, winter peak solar is beneficial at the local scale but much more difficult at the utility scale.
- Creating an entity such as Energy Trust of Oregon (ET) might have the effect of slowing down clean energy uptake in Washington.
- Are microgrids considered "safe", in light of risks from climate change (e.g., wildfires)?
 - *Any strategy around distributed energy resources should include allowances for increased resilience and reduced fire risk.*
- The state energy strategy should include distribution system planning for transportation electrification, including demand response opportunities for EV owners. Utility transparency around points of system congestion would be helpful to inform this process, within the limits of federal security requirements.
- Distributed energy and microgrids are typically lower voltage systems, and the resiliency benefit of microgrids is their ability to disconnect from the larger energy system when necessary. Distributed

renewable systems, while they might not have an outsized impact on emissions, provide an equity consideration in that they advance the restructuring of the energy system in a more equitable manner.

- Many of the issues discussed today are in the direction we need to go. However, many are very complicated or outside of the control of Washington State. The model and some of its outcomes assume certain significant resources (e.g., offshore wind, amount of energy imported into the state) and if these resources are not available as quickly as anticipated (or at anticipated levels), it will be harder for the state to reach its energy goals. Siting and permitting energy resources both in Washington and throughout the Western United States will be critical. We should have a strategy that accounts for the possibility that some of these things don't happen.
- Distributed energy resources will be needed to fill resource gaps because of the challenge of building large infrastructure. Utilities are working on this, but there is a cost associated with replacing long-standing mechanical assets.
- Permit streamlining should not happen at the expense of environmental and public review; community consultation and engagement are important channels for building support for state goals.
- Having a common definition of equity across the four sectors is important, followed by a framework that asks consistent questions. The state's Environmental Justice Task Force is nearing final recommendations related to this topic.
 - *The technical team is working on a common definition across the four sectors.*
- The state energy strategy should include both utility-scale and distributed storage as part of a distributed energy resource strategy and also as an opportunity for utilities. The strategy should say more about storage.
- The electricity sector has a role in producing low-carbon fuels. Should those fuels also be used for power generation? And how do fuel cells fit in?
 - *Specific technology solutions have not yet been discussed but will be incorporated in the next phase of work.*
- A microgrid can provide the ability to decouple from the main energy grid and provide emergency load, but to do so for multiple days requires either storage or a fossil-fuel burning generator.

Wrap Up and Next Steps

Co-Chair Nancy Hirsh noted her appreciation for the work to move from the DDP analysis into strategies and policies. Ms. Hirsh suggested that Advisory Committee members discuss this work with peers and colleagues, to provide feedback from the broader community on emerging strategies.

Co-Chair Reeves Clippard thanked the CETI team for their work and to the Advisory Committee for providing thoughtful feedback.

Public Comments

Members of the public were provided an opportunity to address meeting participants. Comments are summarized below:

- Our buildings are a big potential solution to the problem. Buildings use 75-80% of energy on the grid today. This demand doesn't need to increase, it could decrease even if we electrify transportation. Much of the opportunity for buildings relates to demand management, especially

when peak energy demand occurs in winter. If managed correctly, there is an opportunity in the next two years to recover from COVID-19 and push energy efficiency as a job creator and a problem solver for energy demand. This would not require additional wind farms or solar panels in Eastern Washington because existing buildings could become up to 50% more efficient, and new buildings could use almost zero or negative energy. What is required is the legislative strength and courage to make it happen.

Breakout Sessions

Following the plenary session, Advisory Committee members divided into three small groups for further discussion. Participation in each group is listed for each session in the summary, below.

Breakout Group 1

Participants

Advisory Committee Members

- **Co-Chair:** Reeves Clippard, Chair, CleanTech Alliance and Chief Executive Officer, A&R Solar
- Dave Danner, Chair, Washington Utilities and Transportation Commission
- Nicole Hughes, Executive Director, Renewable Northwest
- Rebecca Ponzio, Climate & Fossil Fuel Program Director, Washington Environmental Council
- Chris Roe, Amazon

Commerce, Governor's Office, and Consultant Team

- Tom Beierle, Ross Strategic (facilitation support)
- Glenn Blackmon, Washington State Department of Commerce
- Eileen V. Quigley, Clean Energy Transition Institute (technical support)

Tom Beierle, facilitator from Ross Strategic, gave an overview of the objectives and focus for this discussion. Tom asked participants to share their perspectives on the presentations from the plenary—what resonates, what doesn't, and what alternatives should be considered? A thematic summary of the discussion is provided below.

Adapting to Climate Change and Building Resilience: Advisory Committee members discussed the need to recognize that we are planning for a changing and uncertain world and that the strategy should emphasize resilience of the energy system and flexibility to adapt approaches as we move forward.

- Recent events suggest that a changing climate is the new normal—for example, high winds, wildfires, and recent questions about the availability of water for hydroelectricity. The state energy strategy needs to recognize that our state is changing, and the future is increasingly unpredictable. This includes testing and validating assumptions built into modeled future energy forecasts.
- It is difficult for regulators to make the case that ratepayer money should be spent on hardening infrastructure against unpredictable future vulnerabilities. Rate cases are usually about

investments that are prudent based on the past as opposed to looking forward to predict the future.

- Given future uncertainty, we should build information gathering, reassessment, and adaptation into future energy planning to make sure we remain on the right track. For example, there are significant reporting requirements in CETA and there is flexibility to make sure that we are using the most appropriate data. The Northwest Power Planning Council is now reflecting climate change in all models and incorporating resiliency as it relates to planning. We should retain flexibility to adapt the energy strategy over time.
- We should be looking at various future scenarios to identify resilience needs. For example, how might wildfires cut off essential institutions or services (e.g., hospitals and health care) from power in rural areas? Oregon's studies of climate resilience are good models.
- As CETA was being drafted, there were discussions about incorporating more resiliency. We need more about land use. We need more about upgrading our energy infrastructure (e.g., what power lines should be buried or removed) and simplifying the system. We should use a systems-based approach to look ahead. I hope we are not dealing with just the problems we have today, but also those expected in 10 or 20 years and start planning for those (perhaps in five-year increments) rather than continuing rounds of fights over new infrastructure. As we plan, it is important to connect the dots across the sectors.

Mix of Appropriate Solutions: Advisory Committee members noted that many solutions will be needed.

- We should craft policy and investments to be flexible and appropriate for variations in location and scale. For example, perhaps we should streamline permitting for larger projects but not for others that are not at that scale. There are a range of good solutions out there, but they don't address all of our challenges on their own. For example, why look for solar in the NW to solve the winter peaking challenge? Microgrids are great when the power goes out but can only provide an alternative for a few days. We can't throw the baby out with the bathwater.
- Applications should be appropriate for the need. For example, location-based incentives can encourage the right solution for the right place. We should understand there are a lot of solutions and pathways to get where we want to go and not get locked into a pathway that closes future doors.

Consider Systems and Behavioral Solutions, not just Technology "Fixes": Advisory Committee members discussed the tendency to focus on technology solutions and the opportunities (and challenges) for more systems-based and behavioral solutions.

- There is a dangerous tendency to look for technology fixes rather than solutions that rely on systems or behaviors. Technology comes up a lot because it is what we know and it is easier to change.
- We tend to gravitate to technology-oriented solutions because we are trying to maintain the same level and quality of service and not impact lifestyles (e.g., same travel patterns, same size homes, etc.).
- We have a lot of policy levers beyond CETA that can influence systems and behaviors, such as the Shoreline Management Act, Growth Management Act, comprehensive planning, and transportation bills. We have a lot of tools but need to coordinate more to use them effectively.
- Institutions tend to (and often are required to) stay in their own lanes. For example, utility regulators don't get into zoning, shorelines, etc. However, we are sharing a lane; everything affects everything else.

- Behavioral solutions can be more uncertain than technology solutions because we don't know how people or businesses will respond. Will they make the changes or investments we expect? How much skepticism should we bring to our assumptions about behavior change?

Regional Connectivity: Advisory Committee members shared that regional connectivity is important to the future of Washington's energy strategy and the state could play a stronger leadership role regionally.

- Regionalization is important for advancing large scale renewable energy. As you decarbonize the grid, you need more regional planning. The more coordination, the better.
- We should integrate a regional market lens into the strategy. For example, what electricity are we exporting to California and importing from it? How does California's cap and trade system influence how we exchange power (and account for it)?
- Washington has an important role in helping decarbonize the rest of the West, for example by coordinating markets and accounting methodologies. We should play more of a leadership role and emphasize how decarbonization in our state contributes benefits for the region as a whole. Coordinating across the electricity grid is happening even if we are not actively guiding it.
- As we coordinate, we need to recognize that Washington has regulatory needs that are different than other states in the region.
- Other regions and systems (e.g., PJM in the mid-Atlantic) are potential models for our region.
- The electricity sector strategy elements we saw today did a good job of capturing the regional issues and opportunities.

Core Focus of the Strategy: Advisory Committee members identified opportunities to articulate the "core" focus or features of Washington's energy strategy.

- We should be clear about the core focus of the strategy. Where will Washington place its major bets and why? Where are we uniquely positioned to play? Where do we lead and where do we rely on our neighbors?
- We could focus on core areas where there is both need and opportunity for Washington, such as low-carbon building materials, energy storage solutions, and/or large-scale renewable energy.
- Rather than focusing on core areas of the energy sector, we could emphasize core features of our strategy that are guiding investments, such as 1) Connectivity: connecting supply to demand and recognizing system connections across sectors, 2) Integration: planning and market integration within the state and regionally, and 3) Contextualization: using a range of solutions appropriate to different places and scales.

Low-carbon Building Materials: In discussing the focus of the energy strategy, some Advisory Committee members emphasized the opportunity of growing the state's production of building materials with low embodied carbon.

- Embodied carbon and forestry are opportunities for Washington to lead. Companies with commitments to reduce emissions are trying to figure out different structures for what to build.
- Low-carbon building materials are hard to find. The Living Buildings Institute is a good resource for information. Washington State University is working on cross-laminated timber. How do we amplify the resources that are already there?

Positive Vision of the Future: Advisory Committee members discussed the potential benefits of a low-carbon future and the value of articulating it in terms of opportunities rather than sacrifices.

- With COVID, wildfires, and other challenges this year we've seen a lot of changes to our lifestyles. Some of these may ultimately be positive—for example being able to telecommute and therefore not needing to drive to work. This may mean I don't need as big a car or even a car at all. At the same time, the things that are harming us this year have connections to climate change and will continue to happen if we don't address it.
- These changes have very real implications for investments. For example, if people will be driving less, we can invest transportation funding in very different ways.
- Framing a compelling vision of a low-carbon future requires leadership and study of psychology.
- We have the opportunity to articulate a better way to recover and build out for the next generation.

At the end of the session, participants emphasized gratitude for the other committee members—what a pleasure it is to work with smart people trying to solve complex problems in a thoughtful way.

Breakout Group 2

Participants

Advisory Committee Members

- Kathleen Drew, Chair, Energy Facility Site Evaluation Council
- Will Einstein, Director of Product Development and Growth, Puget Sound Energy
- Deric Gruen, Program Director, Front and Centered
- Dan Kirshner, Executive Director, Northwest Gas Association
- Clay Norris, Power Management Manager, Tacoma Power
- Rep. Alex Ramel, Washington State Legislature
- John Rothlin, Manager of Washington Government Relations, Avista Corporation
- Sen. Tim Sheldon, Washington State Legislature
- Rep. Alex Ybarra, Washington State Legislature

Commerce, Governor's Office, and Consultant Team

- Aditi Bansal, Clean Energy Transition Institute (technical support)
- Michael Lazarus, Stockholm Environment Institute (technical support)
- Heather Martin, Ross Strategic (facilitation support)
- Lauren McCloy, Washington Governor's Office
- Bill Ross, Ross Strategic (facilitator)

Bill Ross, facilitator from Ross Strategic, gave an overview of the objectives and focus for this discussion. Bill asked participants to share their perspectives on the presentations from the plenary session, as well as what challenges, barriers, or key assumptions that the state energy strategy needs to address. A thematic summary of the discussion is provided below.

Equity Challenges and Opportunities: Advisory Committee members discussed various equity considerations for the state to consider:

- The state energy strategy needs to create equitable solutions for all populations. For instance, the ability to work from home is a privilege that not everyone has. The state should consider

geographic equity in its strategy, including how to align incentives for different populations based on their unique needs and characteristics.

- Equity is an element of CETA. Participants involved in CETA mentioned working on equity with respect to siting of facilities and delivering clean energy to all populations. Utilities are struggling with ensuring that new technology and infrastructure will bring benefits to disadvantaged communities, even when these communities might not be in their service territories.
- This state energy strategy will not be a low-cost solution. It will require changing community-wide grid infrastructure and technology. It will be crucial for the state to consider who pays those costs.
- From a utility's perspective, one of the critical equity issues is to keep rates as low as possible. It's more efficient for the state to provide social goods, rather than utilities becoming social agents and increasing rates. The state energy strategy should strive for simplicity in the role utilities play.

Comprehensive Strategy for Natural Gas: Advisory Committee members shared ideas on the role natural gas and renewable natural gas should play in the state energy strategy.

- The cost of transitioning away from the gas system on a building-by-building basis is a huge challenge. On the other hand, the cost of maintaining the gas network should also be contemplated. Everyone who transitions away from using gas to electricity reduces the number of people who are paying to maintain the same size gas network. The state needs to be planning decades in advance to enable a fair transition.
- Discussions around the role of gas over the entire timeframe of the energy transition will be critical. Once policies are adopted, it will take a long time to see the desired change. What seems to be missing in these Advisory Committee meeting conversations is recommendations on how the transition will take place to reach the state's 2050 goal.
- The state needs to examine whether there are industrial customers who can't change their processes, and whether industry will be left to pay for the remaining gas system.
- The state should consider renewable natural gas as a solution for utilizing the existing 45,000 miles of installed infrastructure that we have in the state and know how to maintain.
- There will still need to be a natural gas pipeline, even if it's only being used 10% of the time.

Transportation Incentives and Behavior Change: Advisory Committee members discussed challenges with encouraging behavior change, such as adopting electric vehicles.

- It's important to think about how the state will encourage residents of rural areas like Duval and Whatcom County to own an electric vehicle and whether the current EV models will meet their needs. To a certain degree, state policy will play a bigger role than utility programming in driving that behavior change.
- To encourage EV adoption, the state should focus incentives and infrastructure on urban areas where there will be higher adoption rates. Driving adoption of EVs in urban areas also makes sense from an air quality perspective, given that most auto-related pollution is focused in these areas.
- The market itself will not be able to deliver the EV target of converting sales of internal combustion vehicles from 80% to 10% in five years. This will require streamlining of policies and regulatory elements, as well as utilities to provide the charging infrastructure.

- In terms of shared mobility, the state should look at examples of what's being done in countries (e.g., England and Norway) who are setting ambitious goals and adopting aggressive policies to facilitate this transition.
- There may be opportunities for the state to promote conversion to natural gas in the heavy-duty transportation sector, especially at ports, which are often near low-income neighborhoods. Diesel trucks that often serve the ports run on old technologies, so the state should consider how it can encourage retrofits on those diesel engines.
- The state should consider how it can leverage federal and local levels of governments in a way that makes investments at the state level count the most.

Nuclear Energy: Advisory Committee members briefly touched on the idea that the state cannot meet its goals through renewable energy (e.g., wind and solar) alone, and therefore should contemplate other carbon-free sources of energy.

- The state should consider small modular nuclear and the benefits to carbon-free energy that those can provide.

Breakout Group 3

Participants

Advisory Committee Members

- Sandi Edgemon, City of Richland
- Martin Gibbins, Water Issues Chair, League of Women Voters
- Matt Harris, Director of Government Affairs and Assistant Executive Director, Washington State Potato Commission
- **Co-Chair:** Nancy Hirsh, Executive Director, NW Energy Coalition
- Paul Jewell, Policy Director, Washington State Association of Counties
- Kent Lopez, General Manager, Washington Rural Electric Cooperative Association
- Alex Ybarra, Representative, Washington State Legislature

Commerce, Governor's Office, and Consultant Team

- Andy Chinn, Ross Strategic (facilitation support)
- Marc Daudon, Clean Energy Transition Institute (facilitation support)
- Michael Furze, Washington State Department of Commerce
- Kate Kelly, Washington State Department of Commerce
- David Paoella, Clean Energy Transition Institute (technical support)
- Sarah Vorpahl, Washington State Department of Commerce

Marc Daudon from the Clean Energy Transition Institute facilitated an open discussion with breakout group participants on key themes from the plenary session. A thematic summary of the discussion is provided below.

Energy Supply, Markets, and Reliability: Advisory Committee members discussed the ability of the state to meet energy supply needs given the expected demands over the next 20-30 years and in the context of recent rolling blackouts in California, market sharing/coordination, and reliability.

- With the added emphasis on electricity and the electricity sector, there needs to be a serious analysis of supply availability.
- Resource adequacy is an important consideration. A recent example of policy not matching technical capability is the scenario in California with rolling blackouts during a heat wave. Grid operators warned regulators about this scenario and the increased likelihood of it occurring; however, policymakers are now saying that the system operators did not provide warning. The state energy strategy should put forward directions and ideas for decarbonizing the economy while simultaneously providing some analysis or provision to ensure adequate energy supply.
- Today's discussion includes coordinating with regional markets; is there a role for intra-state coordination? Not necessarily closing the state's borders but looking at the managing authorities and determining what capacity is needed.
- Because of regional integration it is difficult to isolate Washington State from the other balancing authorities in the Northwest, but there are studies in progress that are looking at this. One concern with developing a more robust market scenario is that it will provide a false sense of security because of the capacity available throughout the region. This can help in the short term but during the rolling blackouts in California the Pacific Northwest-California energy transmission intertie was at full capacity as energy was sent to California. If a similar weather event had occurred in the Northwest simultaneously, there would have been rolling blackouts in Washington as well.
- A full analysis of what led to the blackouts in California will be helpful for planning purposes to ensure a reliable grid that incorporates renewable sources.
- Expanded energy-sharing markets are possible and balancing authorities are currently working on this. Some utilities and balancing authorities in Washington and Oregon are planning to join the California Independent System Operator (ISO), for example. However, an expanded, regional market would likely not have prevented the California blackouts.
- Hydro projects provide a backstop by holding water in reservoirs because of the intermittency of wind and solar. This resource is much easier to turn on or off than starting up a natural gas or coal-fired power plant.

Equity: Advisory Committee members discussed equity at multiple levels and time scales.

- Equity has been an issue in many communities as energy projects have been developed. Previous comments in the plenary about the risks of permit streamlining are also well-taken and point to the need for ample opportunity for local input as projects are designed and developed to ensure accountability.
- Local government has the authority to make siting and other decisions around energy projects, but recent years have seen a push to reclassify projects as having state-wide significance. This runs the risk of usurping local authority.
- Eastern Washington counties have some of the cheapest electricity in the country, and many farm communities have high poverty levels and would not be able to absorb higher energy costs.
- Equity is a consideration beyond just Washington State, for example the effect of increased demand for batteries will impact places like South America where lithium is mined. Equity can also be thought of in terms of equity for future generations. If no action is taken, the state's economy will shift in future years due to climate change impacts on multiple sectors.

Transportation Electrification and Infrastructure Funding: Advisory Committee members briefly commented on the impacts of transportation electrification on tax revenue and infrastructure funding.

- Counties maintain a significant amount of road infrastructure, and funding is heavily based on fossil fuel tax revenues. Electrifying transportation will require analysis of how to replace or expand those revenue streams.
- Every community is different. Quincy, Washington has the highest number of COVID-19 cases per 100,000 population because it is an agricultural community with 95% of workers as essential. Transportation infrastructure in rural areas is generally limited and could be further impacted by reduced tax revenues.

Community Redevelopment: COVID-19 experiences and subsequent recovery, provide a challenge and an opportunity to rethink urban and rural communities.

- The pandemic has opened many possibilities around technology fundamentally changing the workplace. Providing broadband access to remote areas could have a major impact on reducing vehicle miles traveled, which in turn could help Washington meet its climate goals. This also has implications for transportation infrastructure but could potentially level the playing field for less-developed areas to compete with the Puget Sound region.
- Empty office buildings as workers continue to work from home are both a challenge for property managers and an opportunity for re-purposing.

Buildings: There are various levers to encourage energy efficiency in buildings as a means of achieving the state's energy goals.

- Achieving the state's 2030 targets requires a rapid technology shift in buildings. Are there policies that can be put in place to realistically achieve these goals or should expectations be adjusted?
- Retailers can be incentivized to carry high-efficiency equipment for buildings, and consumers can have more opportunities for rebates or other incentives. Consumer education when there is stock turnover can also move us toward more energy efficiency in buildings. However, the equipment must be affordable for all communities to ensure equity as well as uptake into the system.

Competition: Maintaining a competitive business environment is important for a strong state economy.

- Businesses must compete with organizations in other states and countries that may not have the same deep decarbonization constraints placed on them. Looking at economic activity and tax generation, the state's decarbonization goals will disrupt this activity with significant impacts on the economy.

Breakout sessions wrapped up around 4:30 PM with facilitators thanking participants for sustained engagement and thoughtful contributions throughout a long day.