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VIA ELECTRONIC FILING

Amanda Maxwell, Executive Director/Secretary Washington Utilities and Transportation Commission
621 Woodland Square Loop SE
Lacey, WA 98503

RE: Washington Energy Decarbonization Examination, Docket U-210553

Dear Ms. Maxwell,

The Washington State Energy Office ("Energy Office" or "Office") appreciates the opportunity to comment on the Commission's energy decarbonization examination.

The Energy Office, within the Washington State Department of Commerce, offers these comments as the state agency responsible for developing and monitoring energy policy. These comments are based in part on the analysis and recommendations of the 2021 Washington State Energy Strategy, a comprehensive, economy-wide roadmap to meeting the state's energy and climate goals.

From what data is available in June 2023, the Energy Office believes the Commission's dashboard may be in on the right track; however, it lacks accurate scenario descriptions and complete policy and economic analyses in a few concerning areas. Of particular concern is the labeling of the "hybrid" and "electrification" scenarios. The Office highlighted in its last set of comments how it is important for the Legislature to have clear terms, and for examination to acknowledge differences in its modeling assumptions with the state's overall strategy for decarbonization, the 2021 State Energy Strategy. This is particularly important because both studies have "electrification" scenarios with different assumptions regarding hydrogen and the use of other alternative fuels in hard-to-decarbonize sectors.

In grossly simplistic terms, the 2021 State Energy Strategy allows for hydrogen and alternative fuels use to decarbonize hard-to-decarbonize sectors, if it is more cost-effective than electrification or an end use to that cannot be electrified. The Commission's "electrification" scenario only allows for electrification of hard-to-decarbonize end uses, leading some areas of the economy on fossil fuels. This is an unrealistic modeling constraint resulting in a misleading result.

The data from the Commission's dashboard supports the observation that the electrification scenarios in the State Energy Strategy and this study are quite different. Hydrogen end use demand equals 70 TBTU under the electrification scenario in the 2021 State Energy Strategy. The Commission's electrification scenario uses roughly 13 TBTU of hydrogen, which is less than the business as planned scenario. The Office recommends the electrification scenario in the Commission's final report be labeled the "electrification-only" scenario to better reflect the scenario's underlying assumptions, or the Commission loosen the restrictions placed on the electrification scenario.

Another principal concern regards the lack of analysis and recommendations around the decarbonization of the natural gas sector. There is little discussion of natural gas decarbonization in the executive summary or dashboard. The dashboard does have a section entitled "fossil natural gas use declines, carefully," but the claim that fossil natural gas will be decline in a careful fashion is unsubstantiated. There are significant risks to an orderly transition and many risks to Washington residents and natural gas investors if they do not plan for the transition. The Office recommends the idea of requiring our dual-fuel and natural gas utilities plan for a transition to clean heat, first purposed in the 2021 State Energy Strategy.

The Office highlights additional areas of concern below.

Modeling objectives
The emissions level in 2050 is about 20 MMT in hybrid and alternative Fuels scenarios and 21 MMT in the electrification scenario. Commerce does not understand why there is 20-21 MMT in any of these scenarios, as opposed to 5 MMT allowed in the GHG limits, or even to 0 MMT since this analysis is limited to energy emissions. Shouldn't the objective of the model be 0 or 5?

The report lacks a discussion of the impacts of the Climate Commitment Act on fossil natural gas
The "insights" statements on the current dashboard make no mention of the impact of Washington's cap-and-invest program, the Climate Commitment Act (CCA), on Washington's natural gas system. It should also be noted that the modeling does not say one way or another whether careful planning and consumer protections will occur in this transition. Commerce offers the following summary of the issues raised by the CCA, for the Commission's consideration.

The CCA will require that gas companies surrender allowances to cover greenhouse gas emissions from the use of their product, and expanded use of fossil natural gas will increase the allowance requirements on gas companies. The program provides no-cost allowances to cushion existing customers from rate shock, but most new customers are excluded from that cost protection mechanism. The credit mechanism for existing customers must be designed to ensure that the per unit price of natural gas reflects the cost of allowances, so it is reasonable to expect that the volumetric charges will increase for all natural gas customers.

The tendency for line extensions to lock in customers creates further cause for concern. Once a household is connected to the gas distribution system, it is difficult and expensive to transition to another fuel source, leaving customers at risk of higher costs in the future. If customers discontinue gas service anyway, the investment costs associated with their original connection will likely result in some combination of stranded costs borne by company investors and increased rates for

remaining customers. To support gas utilities and their workers in the transition to clean heat, gas utilities should be allowed to recover decarbonization efforts through customer rates.

None of these issues are covered in the report. Commerce recommends the Commission include a discussion of these items and recognize the need for the Legislature to require the natural gas industry to develop plans for a just and equitable transition to clean heat.

The report lacks a discussion of assumptions about CCA allowances and general fund investments
The CCA will raise significant amounts of funding and provide allowances for utilities to offset costs of the program. How these revenues are spent will have significant impact on meeting the state's climate objectives and keeping rates low for Washington's most vulnerable customers. The report needs to be forthright with its assumptions around CCA electric and natural gas utility allowances and investments from the general fund, and explain the implications of alternative scenarios if only conceptually.

Explanation of emissions reductions under the electrification scenario needs greater clarity
Commerce recommended above the Commission retitle its "electrification" scenario the "electrification-only" scenario. Commerce also recommends the Commission thoroughly detail why the emissions for this scenario are lower than the hybrid and alternative fuels scenarios.

The discussion of energy burden leaves many unanswered questions, and it is unclear why reduction in energy burdens is classified as a "co-benefit" rather than a financial benefit.
The stated results concerning household energy expenditures and energy burden are certainly encouraging – a 50% reduction in energy expenditures under all three decarbonization scenarios. However, no details results are provided to help understand this result. Moreover, the term "energy burden" is not defined, and we have no indication that is has the same meaning as in CETA rules and Commerce's energy assistance report. Greater detail is needed to understand both the assumptions supporting this result and the sources of the expenditure reductions. For example:

- Is energy burden described as residential energy costs above 6% of household income, not including transportation costs?
- What is the difference in energy burden between low-income households and other households?
- How did the modeling take into account that wealthier households have more means to afford energy efficiency and distributed resource programs than other households?
- What is the role of direct bill assistance programs and what assumptions are made about those programs?
- Are energy burden reductions different across households with different fuel types?
- Could low-income households have higher energy burdens in the short- to medium-term, but benefit greatly from the decarbonization scenarios in the long-run?
- What data is used to determine energy burden for households? If the data does not rely on older DOE LEAD Tool data, the Commission's report could significantly overstate its estimates.
- Does the modeling for utility-scale solar projects also contemplate those projects being low-income community solar projects?
- What is the annual energy burden that remains in 2025, 2030, 2040, and 2050?

- How much of the energy burden reduction is simply from moving customers from natural gas to electricity?

Absence of a discussion on transmission
The current executive summary makes some general statements about the need for transmission. While we agree with these statements and believe they are supported by many other analyses, the modeling results are missing necessary details on the transmission requirements and costs for each scenario.

Resource adequacy
The dashboard's executive summary includes statements concerning resource adequacy that are not supported by the data and analysis presented in the dashboard and model results. We do not disagree with the need to apply rigorous standards and analysis to maintain resource adequacy and reliable service. However, these statements appear to be generic observations not grounded in any specific resource adequacy metric or program used in Washington. The Commission certainly should be open to critiques of current practice, but any such critique must be specific for it to carry any weight.

Washington cannot have unspecified electricity in its mix after 2045
The current modeling shows unspecified electricity in Washington's mix after 2045. Unspecified electricity is prohibited under the Clean Energy Transformation Act (CETA) beginning in 2045.

The emissions and energy results appear to be inconsistent with respect to coal.
The emissions by fuel type data shows emissions from coal under the alternative scenarios in 2050. However, the data for energy used by fuel type shows no coal being used. More information on this apparent discrepancy would be helpful.

Drop-off in hydro after 2030 in all but BAU scenarios
All of the scenarios use 591 MTBU of hydro until 2030. Afterward, hydro production drops to 467 MBTU in all but the BAU scenario. There are no policy constraints that would limit the use of hydro after 2030. What explains this change in modeled production?

Unspecified supply
The model results include "unspecified supply." As used here the term apparently has a different meaning[1] that the term "unspecified electricity" defined in statute and rule. The model results show unspecified supply in Washington's mix after 2045. The potential confusion should be avoided. Unspecified electricity is prohibited under the Clean Energy Transformation Act (CETA) beginning in 2045. There may be further confusion with terms in that "unspecified electricity supply" appears as a (substantial) cost in the financial results. We understand "unspecified supply" to be, essentially, a

[1] "Represents the supply that cannot not be met by adding more renewables. […] Unspecified supply is a proxy for various options that utilities have available to provide this supply, such as importing clean electricity from neighboring states and regions, firm and 100% dispatchable resources, such as RNG power plants or hydrogen fired power plants, engaging industry to further shed electrical load and emerging technologies."

plug-in value of $500/MWh to solve the energy balance equations. Yet "unspecified electricity supply" is shown in the financial results as a capital investment with no operating costs.

Grid electricity
The fuel type data includes a category called "grid electricity." The Commission should clearly define this term and the assumptions made concerning the emissions from this source.

Industrial sector emissions
The emissions tab makes the following claim, which we find to be inconsistent with other elements of the analysis:

- "The ability of the industrial sector to electrify has limitations which have been represented in the modeling. This limitation results in more non-natural gas related fossil fuels emissions left in the industrial sector. These emissions fall out of the scope of this analysis."

More information is needed to understand this statement. For instance, it would be useful to know if the modeling considered carbon capture and sequestration. The hybrid and alternative fuels scenarios clearly do use renewable natural gas and hydrogen in industrial sector. This is not reflected in the above statement.

Nuclear power
The current model shows nuclear power generation being held constant through 2050 under all scenarios. It would be helpful to know what assumptions were made about nuclear power to better understand these results. Did the analysis include nuclear as an option and conclude that it was not preferred over other options? Or was it excluded as an option?

Offshore wind and geothermal
As with nuclear, it is unclear whether the analysis considered offshore wind and geothermal as potential resources and did not select them in any scenario or whether the resources were excluded as options.

Energy input requirements for hydrogen
It is not clear that the substantial electricity requirements to produce hydrogen are included in the scenarios that rely on hydrogen as an energy form.

Energy production as a sector
It is unclear from the dashboard what is included in the energy production sector. We assume the generation of electricity and the production of steam and process heat are included, but it is not clear whether the production of hydrogen is included. For that matter, we are unsure whether production or refining of fossil, synthetic, and biogenic fuels are included.

Final energy demand by energy form
The dashboard would be more informative if it included information on final energy demand by the form in which the energy is consumed at final demand. In particular, it is difficult to see in the current format the amount of electricity and hydrogen that are consumed in final demand, rather

than being used as inputs to other energy forms such as synthetic or biogenic liquid or gaseous fuels.

Please contact Austin Scharff, Energy Policy Specialist, Austin.Scharff@commerce.wa.gov with any questions regarding these comments.

Sincerely,

Austin Scharff
Energy Policy Specialist, Energy Policy Office