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September 11, 2020

To: Utilities and Transportation Commission (UTC) Records Center, [records@utc.wa.gov](mailto:records@utc.wa.gov)  
From: Vashon Climate Action Group  
Regarding: Notice of opportunity to file written comments, Docket UE-190698 and UE-191023

The Vashon Climate Action Group (VCAG) welcomes the opportunity to provide written inputs, enclosed, regarding the Electric Integrated Resource plan (IRP) rulemaking docket UE-190698 and the Clean Energy Implementation Plan (CEIP) rulemaking docket UE-191023. Two VCAG members are part of the 2019 Puget Sound Energy (PSE) Technical Advisory Group (TAG). We participated in the 2017 PSE IRP UTC Hearing and the 2019 PSE IRP planning activity. Our submitted inputs are directly informed by participation in these activities.

The work of the Commission, prompted by the passage this year of the Clean Energy Transformation Act (CETA) is important. Legislative changes, embodied in CETA, have long been called for by PSE TAG members. We look forward to supporting the rulemaking process to assure the intent of CETA are clearly established in the Washington Administrative Code.

Please do not hesitate to contact me with questions should they arise. We look forward to participating in hearings and other proceedings to support CETA rulemaking.

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**Topic: Guidance regarding application of Social Cost of Greenhouse Gas (SCGHG)**

We are concerned that the Commission has not provided explicit instructions in the 2<sup>nd</sup> Draft Rules regarding utility incorporation of Social Cost of Greenhouse Gas (SCGHG) emissions. This concern is particularly acute given the strong disagreement between utilities and environmental advocates currently playing out in the 2021 Puget Sound Energy (PSE) Integrated Resource Plan (IRP) meetings.

With this CETA rulemaking input we will:

- Explain why it is important for the Commission to establish explicit rules regarding utility incorporation of SCGHG in their IRP analysis
- Discuss The role of SCGHG in portfolio optimization analyses
- Propose CETA Rule language regarding incorporation of SCGHG
- Provide point by point rationale for including the recommended language
- Summarize the scope of the content we recommend the Commission include in the rules.

**Why it is important for the Commission to establish explicit rules regarding utility incorporation of SCGHG in their IRP analysis**

The risk to effective CETA rulemaking from leaving the process for implementing SCGHG unspecified is well illustrated by presentation materials used by PSE to justify its preferred method—treating SCGHG as a fixed-cost adder. Slide 20 (below) was presented at PSE’s *Social Cost of Carbon* Webinar on July 21, 2020.<sup>1</sup> In response to a questioner, Elizabeth Hossner, Manager Resource Planning & Analysis at PSE, indicated that the values shown in the table were not atypical of results from previous optimization work PSE had conducted. Values shown in the table as “SCC as a CO<sub>2</sub> tax” result from treating SCGHG as a **variable cost**, while values shown as “SCC as a cost adder” result from treating SCGHG as a **fixed cost**.


Applying the SCC as a cost adder

- How is social cost of carbon being modeled as a cost adder different than a CO<sub>2</sub> tax?
  - Modeling the SCC as a CO<sub>2</sub> tax would understate the costs and emissions associated with the plant. The model is set to optimize the dispatch of the plant including an emission price.

	SCC as a CO <sub>2</sub> tax	SCC as a cost adder
Annual capacity factor from economic dispatch	30%	70%
Annual CO <sub>2</sub> emissions	400,000 tons	1,000,000 tons
Total cost of CO <sub>2</sub> emissions	\$32 Million	\$80 Million

- The higher cost associated with the cost adder will make baseload gas plants less economic.

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The first important conclusion to draw from Slide 20 is that when SCGHG is applied as a variable cost (“SCC as a CO<sub>2</sub> tax” in the table) during economic dispatch, the model assigns a capacity factor of only 30%. When SCGHG is applied as a fixed cost adder (“SCC as a cost adder” in the table) the economic dispatch model assigns a capacity factor of 70%. What does this tell us? The economic dispatch model “discards” the asset which is least economic by assigning a lower capacity factor to that asset. In other words, application of SCGHG as a variable cost (i.e., as a

<sup>1</sup> Presentation including Slide 20 can be found here: [https://oohpseirp.blob.core.windows.net/media/Default/2021/meetings/July\\_21\\_webinar/Webinar\\_5-Social\\_Cost\\_of\\_Carbon\\_presentation.pdf](https://oohpseirp.blob.core.windows.net/media/Default/2021/meetings/July_21_webinar/Webinar_5-Social_Cost_of_Carbon_presentation.pdf)

“CO2 tax”) creates a higher economic penalty than applying SCGHG as a fixed cost, and the model accordingly applies a lower capacity factor to that resource.

This means that applying SCGHG as a fixed cost adder creates a **lesser** economic penalty than applying SCGHG as a variable cost adder. This explains the unexpected conclusion from PSE that SCGHG has only a small impact on portfolio decisions – because they have not modeled SCGHG properly. Treating SCGHG correctly as a variable cost adder is consistent with CETA’s legislative intent to reduce the likelihood of utilities choosing high greenhouse gas emission supply side assets.

PSE’s interpretation of the data on Slide 20 are patently incorrect. The final bullet states that using SCGHG as a fixed cost adder make gas plants less economic. As explained above, the opposite is true. Application of SCGHG adds the same cost to each unit of electricity whether the plant operates at 30% capacity factor or at 70%. However, a gas plant operating at 70% capacity factor will be able to produce electricity at lower unit cost than one operating at 30% capacity factor, because the fixed costs of the plant will be spread over its much higher production. We see this phenomenon playing out all over the country where capacity factors for coal plants are falling, driving up unit production costs, and causing them to close.

The higher capacity factor that resulted from treating SCGHG as a fixed cost adder makes gas plants more economic (not less) and better able to compete successfully with demand side resources (DSR) and non-emitting resources like wind and solar, **which is the opposite of CETA’s intent in requiring use of SCGHG.**

PSE’s statement that treating SCGHG as a variable cost will understate emissions and costs is not germane to selection of least reasonable cost portfolios in the IRP process. Rather, the far higher CO2 emission costs from treating SCGHG as a fixed cost (\$80M vs. \$32M) illustrate why a gas plant operating at a 70% capacity factor was rejected as uneconomic.

### **The role of SCGHG in portfolio optimization analyses:**

For SCGHG to make a difference in the optimizations performed by utilities to arrive at their lowest-reasonable-cost portfolios, SCGHG must be included as a variable cost. If it is treated as a fixed cost it will impact the apparent total cost of the portfolio but not its composition. We have shown that this is the case using a series of graphs in the attached document entitled, *Why Treating Social Cost of Carbon as a Fixed Cost Neutralizes Its Impact.*

However, a verbal explanation of why this is the case may suffice. Consider the economic evaluation of a small increment of a non-emitting demand-side resource, such as replacing an inefficient lamp with an LED. Deploying the LED lamp in place of an incandescent lamp will save electricity, and the social cost of the associated GHG emissions from CO2 emitting generators will also be reduced. When those social costs are treated as a variable cost, the LED lamp saves

both energy and social costs, and its economic merit is improved. In contrast, if the social costs associated with the power generation are treated as a fixed cost associated with the plant, the LED lamp will save only energy costs, and not social costs, and the apparent economic merit of its deployment will be lower.

Treating SCGHG as a fixed cost is like adding the same value to both sides of the equation. It may increase the total cost, but it does not alter the cost difference attributed to deploying the LED lamp vs. not deploying it. For any economic optimization exercise to yield useful results, it must be structured correctly. Treating what is clearly a variable cost as a fixed cost in an optimization analysis is an egregious error that will strip the resulting analysis of useful analytical power.

We don't believe the Legislature included the requirement to use SCGHG in planning with the expectation that it would have no effect on resources the state's utilities acquire. But that is exactly what will happen if CETA rulemaking does not require all resources be evaluated using the full variable cost, including the social cost of greenhouse gas, of the resources they stand to displace.

### **Proposed CETA Rule language regarding incorporation of SCGHG:**

#### **Methodologies to incorporate social cost of greenhouse gas emissions**

(1) Each utility must incorporate the social cost of greenhouse gas emissions when evaluating and selecting conservation policies, programs, and targets; developing integrated resource plans, resource plans, and clean energy action plans; and evaluating and selecting intermediate term and long-term resource options.

(2) Utilities must include the social cost of greenhouse gas emissions in their baseline analysis case.

(3) Utilities may, but are not required to, consider the social cost of greenhouse gas emissions in their operations, such as in real-world dispatch decisions.

(4) All demand-side and supply-side resources shall be evaluated against the full variable cost (including the social cost of greenhouse gases) of any GHG-emitting resources they stand to displace.

Exception: Where it can be shown that a GHG-emitting supply-side resource would emit more under real-world dispatch conditions as a result of assuming SCGHG in the planning phases required under item (1), this requirement may be ignored.

(5) The social cost of greenhouse gas emission values used to meet the requirements of this rule are specified in WAC 194-40-100.

(6) Where other policies that monetize the cost of GHG emissions are in effect, such as with a state or federal carbon tax, the carbon price measured in \$/tonne CO<sub>2</sub>eq may be subtracted from the social cost of greenhouse gas emissions values in WAC 194-40-100 to prevent double counting of costs.

**Point by point rationale for including the recommended language:**

We believe that the language that appeared in the first discussion draft [194-40-110, above, with modifications] provided useful clarity on where and how CETA's requirements for social cost of carbon should be implemented. We think Items (1), (2) and (3) above in our proposed language additions reflect the consensus views that have emerged from the two rounds of stakeholder input on the first discussion draft. Item (5) is similarly straightforward and noncontroversial. We believe Item (6) is a fair, reasonable, and a common-sense provision to include. Its inclusion should reduce the legitimate concern of utilities and fossil-fuel suppliers that they could otherwise be at risk of sudden changes affecting their business due to the cumulative effect of different government entities imposing prices on carbon.

Item (4) is, in our view, the most important provision. It is also an area in which there appears to be little clarity and shared understanding. In responses to Question 10 (found in Summary of June 2, 2020, Comments on 1st Discussion Draft), UTC wrote:

“Concurrent with PSE’s comments, Staff does not believe that the inclusion of the social cost of greenhouse gases will have a quantifiably large impact on the incremental cost if it is modeled as a planning adder and not to dispatch. The impact of the application of the SCGHG should only occur if a utility intends to purchase additional carbon resources. Staff recommends the SCGHG is incorporated as a planning, or cost, adder.”

We have several major concerns with this response:

“Incorporating SCGHG as a planning adder” is insufficiently clear language to ensure that SCGHG will be treated correctly in the planning process. As we have seen in the case of PSE’s 2021 IRP process, PSE’s preferred method for implementing an SCGHG cost adder is to apply it as a fixed cost.<sup>2</sup> We have demonstrated above and in our attachment that when SCGHG is treated as a fixed cost, it has no impact in determining the lowest reasonable cost portfolios using economic optimization. Including SCGHG as a fixed cost in planning may affect the apparent total cost of the portfolio, but it does nothing to further CETA’s intent of decarbonizing the state’s electric grid by giving preference to resource options with lower social costs from GHG emissions.

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<sup>2</sup> Presentation including Slide 20 can be found here:  
[https://oohpseirp.blob.core.windows.net/media/Default/2021/meetings/July\\_21\\_webinar/Webinar\\_5-Social\\_Cost\\_of\\_Carbon\\_presentation.pdf](https://oohpseirp.blob.core.windows.net/media/Default/2021/meetings/July_21_webinar/Webinar_5-Social_Cost_of_Carbon_presentation.pdf)

Including the language we propose to require use of the “...variable cost (including the social cost of greenhouse gases)...” is vital if the SCGHG requirement in CETA is to serve a useful purpose.

In responding to Question 10, PSE commented: “The inclusion of the SCGHG does not make a significant difference in long-term resource modeling.” We strongly disagree. PSE’s own presentation materials illustrate that when SCGHG is correctly applied as a variable cost, it is not atypical to see gas plant capacity factors drop from 70% to 30%. Those with earned experience in the energy field performing economic optimizations would likely disagree with the statement that a threefold increase in energy costs, which we see with the inclusion of SCGHG, would “not make a significant difference.”

The following comments pertain to what guidance the rule should provide on CETA’s requirement to use SCGHG in planning. They are not intended to address the separate question of how the incremental cost of compliance should be calculated. At the risk of taking Staff’s comment above out of its intended context, we want to clarify that CETA’s intent requires that SCGHG be applied as a variable cost throughout the planning process including dispatch modeling. For resource addition and retirement planning, it does not make sense to recognize the very real costs of greenhouse gas emissions in some phases but ignore them in others.

Some commenters have raised concerns that using SCGHG for system planning and acquisitions but not in real-world operations, such as actual dispatch decisions, could undermine CETA’s decarbonization intent. For example, “Doing this [*incorporating the social cost of greenhouse gas emissions*] will artificially suppress the dispatch of fossil fuel resources in a utility’s system simulation and create the impression of a portfolio that is lower-emitting than said portfolio would be in actuality.”<sup>3</sup>

We agree that planning a system assuming one set of costs but operating that system under a very different set of costs holds the potential for unintended consequences. However, we have examined the consequences of this planning vs. real-world disparity and have concluded that any adverse consequences are speculative and highly unlikely to undermine CETA’s decarbonization intent. It is imperative that this concern for adverse real-world impacts, not inadvertently prevent effective implementation of SCGHG in planning.

The primary concern that has been voiced is that a portfolio decision will be justified by including SCGHG but lead to larger emissions under real-world dispatch decisions than if SCGHG had not been used in planning. We have proposed the exception “*Where it can be shown that a GHG-emitting supply-side resource would emit more under real-world dispatch conditions as a result of assuming SCGHG in the planning phases required under item (1). , this requirement*

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<sup>3</sup> Vlad Gutman-Britten, Climate Solutions, July 21, 2020 Social Cost of Carbon Presentation Responses and Feedback Downloaded from: [https://oohpseirp.blob.core.windows.net/media/Default/2021/meetings/July\\_21\\_webinar/Attachment\\_2\\_Climate\\_Solutions.pdf](https://oohpseirp.blob.core.windows.net/media/Default/2021/meetings/July_21_webinar/Attachment_2_Climate_Solutions.pdf) on 090520

*may be ignored.*” to guard against this possibility (refer to item (4) in the recommended CETA rule language above).

One can analyze how use of SCGHG in planning is likely to play out in practice by examining its impact on the different types of resources that make up a utility’s portfolio.

- **Demand-side resources** (DSR) are virtually all inherently dispatched, so there should be little concern that DSR will be acquired assuming SCGHG but not dispatched in its absence.
- **Non-dispatchable renewables**, such as wind and solar, have zero or near-zero marginal costs of operation. They will always sit at the bottom of the dispatch stack. If they are built, they will run, hence there is little concern with a planning vs real-world dispatch disparity.
- **Dispatchable renewables**, such as bio-fuels, renewable natural gas, storage, and renewable hydrogen, are all resources that might be acquired assuming SCGHG, but dispatched less often in its absence. However, the downside risk would be economic, not to the climate.
- **Emitting supply-side resources**, such as gas plants, would be less likely to be built, more likely to be retired, more efficient, and more likely to have carbon neutral renewable fuel (e.g., hydrogen) capabilities if SCGHG is assumed in planning. In the absence of SCGHG, they would be more likely to dispatch, but only for the now-smaller loads not met by DSR and renewables. Imports from emitting sources would also dispatch on smaller loads.

Given the huge boost to non-emitting resources that correct implementation of SCGHG in planning would have, it is hard to see how those benefits in emission reductions could be offset by speculative, unintended consequences involving increased operations from emitting resources.

We do not believe that it makes sense to circumvent CETA’s legislative intent through rules that allow anything other than full and effective application of SCGHG in all phases of electric utility resource planning.

### **Conclusion and scope of the content we recommend the Commission include in the rules:**

As explained above, Vashon Climate Action Group strongly recommends explicit instructions in rules that compel utilities to apply the SCGHG as a cost adder to the utilities VARIABLE analysis costs (eg: Dispatch modeling).

Artificially lowering the impact of the SCGHG cost adder has additional system ramifications, none good.

First, the rules should eliminate artificial cost manipulation that favors fossil fuel resources in the “alternate lowest reasonable and reasonably available portfolio” (aka: that portfolio utilities would select in the absence of RCW 19.405.040 and RCW 19.405.050) by requiring that utilities include SCGHG

in their analysis “base case”. Failure to require this provision would disadvantage non-emitting resources in the “alternate lowest reasonable and reasonably available portfolio”, thus reducing the number of non-emitting resources the Utility would procure in the absence of CETA. Failure to require this provision further allows the Utility to claim purchases of non-emitting resources are obligated by the CETA schedule, when in fact the Utility would have purchased these resources on purely economic merit in the absence of the CETA schedule.

Second, we also strongly support the Northwest Energy position that applying SCGHG to a utility's fixed costs leads to cost distortion in the model which devalues the contribution of other energy resources like demand response and energy efficiency. PSE IRP analyses which do not favor demand response, so prevalent in other utility portfolios, is yet another indicator that PSE modeling of SCGHG as a fixed cost is not appropriate.

In summary, our recommended CETA rule content includes:

- The social cost of greenhouse gases should be applied, as a variable cost adder, to:
  - All IRP analyses that support utility facility acquisition or decommission decisions,
  - All IRP analyses associated with electricity dispatch modeling,
  - The utility’s IRP “base case”
- All demand-side and supply-side resources shall be evaluated against the full variable cost (including the social cost of greenhouse gases) of any GHG-emitting resources they stand to displace
  - With the exception as noted above

Mr Rob Briggs *Why Treating Social Cost of Carbon as a Fixed Cost Neutralizes Its Impact* analysis accompanies this input.