U-240281
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Docket U-240281, Rulemaking required to implement ESHB 1589
Donna Albert, June 16, 2024

Thank you for this opportunity to comment on the rulemaking to ensure proper implementation of ESHB 1589, and for the workshops and materials you provided.

Value of CHP (ESHB 1589, Sec. 3, (4)f)

Combined Heat and Power (CHP), whether fossil fuel or biofuel-based, cannot be zero or very low greenhouse gas (GHG) emissions. When fossil fuel is used to generate electricity, about 2/3 of energy is lost to heat. It is cost effective to find uses for that heat, since it is otherwise wasted. For this reason, CHP was encouraged as an energy efficiency measure in fossil-fuel dominated energy systems. However, in an energy system dominated by wind, water and solar energy sources, there is almost no heat loss when electricity is generated. In buildings and on campuses, CHP is a solution for a problem that no longer exists. It is more efficient to use heat pump technology to heat campus buildings with clean electricity. ANY new fossil fuel infrastructure, including CHP, will result in GHG emissions we cannot afford.

In your rulemaking, limit CHP to industrial applications for which there is no electrification option. Do not incentivize new fossil fuel or large scale biofuel energy infrastructure. (Committed emissions from existing energy infrastructure jeopardize 1.5 °C climate target: https://www.nature.com/articles/s41586-019-1364-3)

Reduce, or eliminate fossil fuels?

I am concerned to see phrases like “reduce natural gas use” or “reduce motor vehicle air pollution” or “reduce GHG emissions” in your Workshop presentation slides. Reaching the GHG limits in state law will require steadily and systematically eliminating natural gas use in buildings, and eliminating the use of fossil fuels in almost all transportation. It is most economical to electrify building systems and replace vehicles at end of life. Steady progress must be made between now and 2050 to reach 95% reduction of GHG emissions by then. There is very little room in our 2050 climate emission budget for any fossil fuels or biofuels - those must be reserved only for the most difficult to decarbonize industries and aviation.

Please be sure that this rulemaking results in the utility achieving the GHG limits in state law. Ask the utility for their plan to reach 45% GHG emissions reductions by 2030, 70% reductions by 2040, and 95% reductions by 2050. Reaching the 2030 limit, 5 years from now, would require aggressive electrification of building heat. Is their 2030 plan to just buy credits/allowances? There are only 15 years from now to 2040 when they must achieve a 70% reduction. Every year of procrastination makes this more difficult. Require effective action now, to avoid failure.

RNG vs electrification

Some utilities are still considering blending either Renewable Natural Gas (agricultural biofuels) or Hydrogen into the existing natural gas distribution system, as a proposed means of reaching GHG emissions limits. (Potential quantities of low emissions RNG from wastewater treatment plants, dairies and landfills is between 3% and 5% of current natural gas use, much of which may be better used onsite or nearby, so significant volumes of RNG can only be supplied by agricultural biofuels, which has higher emissions and greater environmental impacts.) Setting aside whether this fuel blending could be cost effective, environmentally acceptable, and safe, please consider whether it is even possible to use RNG or Hydrogen blending to reach the 2050 GHG emissions limit in state law. It is not possible, because RNG from agricultural sources is not low greenhouse gas emissions (and would require massive amounts of agricultural land), and Hydrogen blending only works with large percentages of natural gas. Neither of these can contribute meaningfully to the 2050 requirement of 95% reduction of GHG emissions. We have only 25 years between now and 2050 to downsize our entire natural gas distribution system to serve a building fleet that is 100% electrified heat, and industries which use substantially less natural gas — all without interrupting service. This is a huge logistical challenge. We don't have time to pretend RNG or Hydrogen blending can contribute to achieving the 2050 GHG emissions limit. They cannot.

In your rulemaking, require the utility to demonstrate they have designed a pathway that will achieve the 2050 GHG emissions limit in WA law. Allow only solutions that will realistically enable them to reach 45% GHG emissions reductions by 2030, 70% reductions by 2040, and 95% reductions by 2050. (The False Promise of Renewable Natural Gas: https://www.vox.com/energy-and-environment/2020/2/14/21131109/california-natural-gas-renewable-socalgas**)**

Other Environmental

On page 13 of the UE-210804 Straw Proposal, “Other Environmental” is a catch-all for such things as land and water impacts. As that category applies to this rulemaking (U-240281), I am especially concerned that the true environmental, land, and water impacts of agricultural biofuel, or any “advanced” fuel which requires large amounts of either biomass or water, are not adequately understood or considered. We are not just in a climate crisis. We are in a biodiversity crisis, which requires restoration of large land areas to a natural state. We are headed for a water crisis. We are likely to encounter future food crises — avoid uses of agricultural land that reduce capacity to grow food. Very large scale land use for either forest-sourced or agricultural biofuel has environmental consequences. What is often labeled now as forest wood waste is not wasted in the natural world - it holds water as it decomposes on the ground, it is recycled into nutrients, and is valuable habitat either on the ground or standing. Removing it on a large landscape scale has large environmental consequences.

In your rulemaking, require the utility to identify and avoid the environmental impacts of using very large amounts of biomass, and associated impacts to biodiversity. (Climate, economic, and environmental impacts of producing wood for bioenergy: https://iopscience.iop.org/article/10.1088/1748-9326/aab9d5. Biofuels Are Bad for Feeding People and Combating Climate Change: https://www.scientificamerican.com/article/biofuels-bad-for-people-and-climate/)

Energy efficiency, combined with electrification

Large energy system efficiency gains are inherent in transitioning from natural gas to all-electric building heat, because heat pumps are much more efficient than gas heat. Do not use outdated assumptions associated with inefficient fossil fuel electricity generation when calculating the actual efficiencies of replacing gas heat with clean electricity. Until recently, marginal electricity was always assumed to be generated with natural gas, which lost 2/3 of energy to heat (very inefficient), and that was used to penalize electric heat. Always assume marginal electricity is now 100% clean electricity — marginal electricity is NOT generated using inefficient natural gas turbines now in WA state under CETA.

In your rulemaking, set more aggressive energy efficiency goals, and combine them with electrification efforts. Gas heating systems are often used for 15-20 years or more, and our 95% GHG emissions reduction limit is only 25 years away. Replacing gas equipment with systems that use clean electricity cuts GHG emissions substantially and immediately. Always incentivize replacement of natural gas heating equipment with all-electric systems as the gas equipment ages out.

Neighborhood electrification

When electrification projects begin to substantially reduce the natural gas residential customer base, prices will rise for existing natural gas customers because maintenance of the existing distribution system will become a larger and larger percentage of each customer's bill. It may be more economical for the natural gas company to decommission the distribution system by neighborhood, to more quickly reduce the miles of pipeline maintained. In low income neighborhoods (in both rentals and occupant-owned housing), it would be ideal to combine electrification with basic weatherproofing, all new appliances, electrical box upgrades, heat-pump water heaters, and heat pumps for heating and air-conditioning — you might get neighborhoods to compete to be electrified, if it comes with new appliances and AC. Energy efficient appliances and heat pumps will save customers on their energy bills, while improving safety, convenience and comfort. The upgrade that saved our family the most money was getting an electric vehicle — make sure the electrical box capacity will accommodate a future car charger.

In your rulemaking, consider how to allow for electrification and gas distribution system decommissioning by neighborhood. A combination gas and electric utility has a unique opportunity to find new revenue in increasing electrical demand due to building and transportation electrification, as demand for natural gas service ramps down. That synergy between gas decommissioning and greatly increased demand for electricity is the whole point of this legislation — ensure that this rulemaking succeeds in implementing it. Ask the utility to show you their plan for controlling natural gas system maintenance and operation costs, without disrupting service, while successfully decommissioning much of that distribution system and achieving the 2030 (45%), 2040 (70%) and 2050 (95%) GHG emissions reduction limits.

Cost effectiveness testing

My experience with cost-benefit analysis in other contexts is that it was easily manipulated to get wildly different results by limiting what alternatives were considered. Input assumptions can also make a big difference. Watch out for outdated formulas or preconceptions that have not been updated to fit new circumstances. Characteristics of the old fossil-fuel-based system may be embedded in the model itself and in assumptions commonly used in the industry. The best solution to these challenges may be a collaborative review process that allows UTC to point out alternatives that were not included and identify problematic inputs or incorrect assumptions, so the utility has the opportunity to verify and agree on any changes, and then re-run the model. If possible, use relatively simple, widely-accepted models or tools which everyone understands well. Make the entire analysis and review process iterative, collaborative, and transparent.

If you have not already done so, please apply Public Counsel comments 9 and 10 from Docket UE-210804 to this rulemaking (Docket U-240281). The UTC staff and consultants doing the review must have repeated opportunities to interact with the utility's cost-effectiveness modelers to challenge inputs and assumptions, and to require alternatives to be included in the analysis.

Thank you for considering my comments. — Donna Albert, PE (retired), MCE, LEED-AP