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Follow-up comments in support of SB685

Chair Sollmann and members of the Senate Committee of Energy and Environment:

I submit these follow-up comments from Southern Oregon Climate Action now as a result of testimony offered during the Public Hearing.

The first comment with which I take issue is that suggesting NWNatural will reduce its greenhouse gas emissions by incorporating so-called turquoise hydrogen into its product. According to National Grid (2023) turquoise hydrogen is hydrogen produced by pyrolysis of methane at a very high temperature with hydrogen and solid carbon as the products. Since the process uses methane as its input, there is no reduction in methane extraction, processing and transmission. This means that the fugitive emissions of methane throughout this sequence, the main greenhouse gas problem with natural gas, will continue.

In discussion of turquoise hydrogen and methane pyrolysis, Böck (2024) makes the points that:

- 1) "Methane upstream emissions are already reason enough to doubt that turquoise hydrogen is automatically climate-neutral or clean."
- 2) The methane pyrolysis process requires substantial energy.
- 3) Then there is the carbon produced, which accumulates at the rate of three tons per ton of hydrogen. Indeed, methane pyrolysis is not a hydrogen production scheme with carbon as a by-product but a carbon production scheme with hydrogen as a by-product. If the carbon produced is used in steel or aluminum production, then carbon dioxide emissions result.

Item 1 implies that turquoise hydrogen is no better than natural gas in terms of emissions while item 2 means that manufacturing turquoise hydrogen is only carbon free if this energy is derived from renewable resources.

In a study of the greenhouse gas emissions from a similar protocol producing so-called blue hydrogen Howarth and Jacobson (2021) concluded that even if the carbon captured is stored

forever and not used in any other process, blue hydrogen is actually 20% worse than just burning natural gas alone.

Several times during their opposing presentations, individuals argued that the research suggesting hydrogen incorporated in their natural gas will not cause deterioration of their pipelines because they have 'state of the art' pipes which are resistant to this process. This remained an unsubstantiated assertion. Additionally, of course, this argument seems to be premised on the assumption that NWNatural is the only gas utility in Oregon. It is not! In their opposing arguments, these individuals made no claims about the pipes through which Avista or Cascadia Natural Gas transmit their product which might include hydrogen.

The representative from the Renewable Hydrogen Association asserted that clean and renewable hydrogen is essential if Oregon is to meet its emissions reduction goals. However, no supporting evidence was offered. Additionally, he very naïvely argued that we don't need state rules because this is all covered by federal rules. Apparently, this representative doesn't live in the real political world where any federal regulation dealing with environmental or health protection is under threat.

As Senator Golden pointed out, none of the proponents of SB685 cast any aspersions on the professionalism of the union workers employed by the gas companies. However, the representatives of unions seemed to convey the impression that they are somehow affronted by such suggestions. More critically, it seems that these representatives have bought into the fundamental disinformation campaign promoted by the gas utilities that their product is a clean energy source. As I argued in my previous submission, this is absolutely not the case. Rather, because of the fugitive emissions of methane, natural gas is as bad as, or worse than, coal. Unfortunately, defending the use of natural gas is to argue in favor of global suicide by climate change induced by greenhouse gas emissions. It is beyond time that we all accepted science and started to address the problem rather than promote false solutions.

There were repeated claims that SB551 would somehow slow the rate at which hydrogen technology could advance in Oregon. However, when pressed to explain how or why, those making this assertion were completely unable to offer a single justification or explanation for that claim. The persistent fighter against environmental protection from Oregon Business and Industry, without defending the actions that led to SB685, simply argued, as always, that regulations should not be imposed.

The one concern that was expressed by several proponents of SB685 was that hydrogen should not be inserted into pipelines to serve residential and commercial buildings. The first point to note (Energy Innovation, undated) is that even at that maximum concentration of 20%, "b[B]ecause hydrogen produces less energy than methane when burned, the current upper limit of a 20 percent blend only achieves six to seven percent GHG emissions reductions." Rather, given our need to electrify as rapidly as possible, this fuel should be reserved for the hard-to-electrify functions. Meanwhile Davis et al. (2023) concluded that "Economy-wide

hydrogen-natural gas blending eliminates 1–2% of GHG emissions.” The message is that Hydrogen blended into natural gas can contribute very little to achieving meaningful emissions reductions.

Potentially of greater significance, however, is our recognition that in the drive to reduce emissions by electrifying, we know that there are some industrial processes and fuel-driven activities that are very difficult to electrify, given our current technology. Irena (2024) points out that: “Sectors that are particularly hard-to-abate include heavy-duty trucking, shipping, aviation, iron and steel, and chemicals and petrochemicals.” These activities account for 25% of global energy consumption and 20% of total carbon emissions (curiously, other greenhouse gas emissions are not mentioned). Harvard (2022) suggests that hydrogen could be a valuable fuel for such activities. The implication is that rather than essentially wasting hydrogen (assuming, no doubt, that it is produced with minimal emissions) by inserting it into general gas distribution pipelines, the utilities should be directing this energy source where it can most valuably contribute to addressing our emissions problem, i.e. hard to abate activities.

Again, the observer is forced to conclude that the gas utilities are not genuinely seeking to reduce their contribution to the problem but are resisting all efforts to encourage them to behave as responsible members of the community, and, especially, are committed to retaining their goal of expanding the use of their product.

Respectfully Submitted

A handwritten signature in black ink that reads "Alan Journet". The signature is written in a cursive, flowing style.

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