

January 17, 2023

VIA ELECTRONIC FILING

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

Received
Records
Management
1/17/2023
State of WASH.
UTIL. AND
TRANSP.
COMMISSION

RE: U-210553, Natural Gas Decarbonization Pathways, NW Natural's Comments

Northwest Natural Gas Company, dba NW Natural ("NW Natural" or "Company"), appreciates the opportunity to provide comments in the above-captioned docket. The Washington Utilities and Transportation Commission's ("WUTC" or "Commission") December 14, 2022, Notice of Opportunity to File Written Comments on Decarbonization Pathways ("Notice") seeks comments on the Sustainability Solutions Group's two identified decarbonization pathways, and it also seeks comments on equity considerations of the two pathways. In responding to this Notice, it is important to first raise NW Natural's concern with the process and engagement in this proceeding before addressing the substantive issues raised in the Notice.

NW Natural remains concerned at the level of engagement throughout this process. To NW Natural's knowledge, no participant has seen the underlying data behind the analysis performed by the consultant, Sustainability Solutions Group ("SSG"). In fact, SSG has not disclosed the tools that it used to perform the analysis. Instead, participants have only seen summary conclusions in PowerPoint slides that are provided shortly before meetings start.

NW Natural does not believe this level of engagement is adequate or is consistent with SSG's Engagement Plan where "[i]nterested or affected parties will have opportunities to provide input and will be informed on how their feedback shapes the final report." In its September 21, 2021 comments in this docket, the Company recommended that—prior to engaging in modeling—SSG make available for review assumptions concerning: 1) space and water heating equipment efficiencies and costs, 2) transportation vehicle efficiencies and costs, 3) energy supply options, 4) transmission and distribution costs, 5) baseline energy load and supply profiles, 6) energy efficiency and demand response, and 7) fuel prices.

Participants have not received the workpapers that would allow one to see these assumptions and how they are deployed in the intervening 16 months, despite repeated requests for them. NW Natural and other participants have sought and continue to seek this information and understanding of the tools used in order to make meaningful contributions to this process. NW Natural continues to believe that this level of participant support is vital to ensure that the report aligns with the law that set this work in motion.

Relying only on conclusory findings without any understanding of how they were developed creates two fundamental problems. First, and most importantly, it is extremely difficult to evaluate the validity of SSG's conclusions without understanding the assumptions and modeling behind it. As such, when viewing these conclusions, it is impossible to ascertain whether the assumptions are deployed in the analysis in a manner that captures the key issues related to building decarbonization or whether there may be issues with the modeling that are skewing the results of a particular decarbonization scenario.

Second, there is a considerable amount of subject matter expertise in the Decarbonization Advisory Group ("DAG"), and this expertise is being underutilized in the current process. The DAG could help validate the deployment of assumptions in the modeling using their own deep experience in the energy system's needs and nuances in the state of Washington. With this level of engagement, the DAG would not necessarily perform the actual modeling, but it would lead to more insightful comments and analysis from all participants in this docket – much like what is expected and carried out by utilities in terms of stakeholder engagement and review in similar integrated resource planning work. As it currently stands, participants can only comment on conclusory findings, which may result in failing to resolve important issues that are critical for this effort. Participants, for instance, may fail to identify issues based on how conclusions are described in the PowerPoint slides. Conversely, participants may identify issues that they believe are important based on the wording of the slides but could quickly be resolved by examining the underlying modeling.

NW Natural is also disappointed in how feedback has been sought throughout this process. Participants cannot provide meaningful and complex feedback using Miro Board, which are, more or less, virtual sticky notes. Again, this issue has been raised by multiple participants throughout the process, but, to date, has been ignored. Simply insisting on using Miro Board in spite of participants' repeated requests to the contrary may inadvertently send the message that any feedback that is contrary to predetermined conclusions is unwelcome and will not be addressed.

To remedy this situation, NW Natural recommends that Miro Board no longer be used and that SSG explain the process it uses to consider feedback, including how such feedback is or is not incorporated and weighed consistent with its Engagement Plan. NW Natural believes that the integrity of this process will be better served by more

meaningful engagement with the DAG and other participants both substantively—by providing underlying assumptions and modeling, and procedurally—by providing more robust and accessible feedback tools than Miro Board and providing more time for stakeholders to review the material in advance of DAG meetings.

Decarbonization Pathways

In the initial Notice, the Commission requested comments on two decarbonization pathways set out by SSG: electrification or alternative fuels. At the outset, this framework was problematic because it was setting up two extremes for decarbonization scenarios, without introducing more scenarios that provide a balanced mix of resources to decarbonize. Since the Notice was issued, in the January 4 and 5 DAG and Public Technical Meeting, SSG introduced a third pathway, that it describes as a hybrid pathway, though SSG recognizes there is little difference between what it is calling the alternative fuels scenario and the “hybrid” scenario.

NW Natural is concerned that all of the pathways, including the single hybrid pathway, use a rigid, all-or-nothing approach that is extremely unlikely to occur. For instance, in all scenarios, existing buildings that currently use natural gas are either: 1) 100 percent electrified, or 2) convert to natural gas heat pumps that utilize RNG and hydrogen by 2040. It is unrealistic to expect all these buildings to convert to the same heating technology in that time. Furthermore, both scenarios include assumptions that could drive outcomes that should be made more explicit. For example, the electrification scenario assumes 100 percent electrification for residential and commercial heating systems, but deploys all alternative fuels for industrial processes. Moreover, the January 5 DAG slides only address existing buildings and, as such, it is unclear what fuel source is being modeled to serve new buildings.

While NW Natural appreciates SSG clarifying that this docket is not meant to select a certain decarbonization pathway for Washington, the extreme electrification and the extreme alternative fuel pathways are likely to be far more expensive than a pathway that considers the source of costs in either scenario and finds a more moderate path that can avoid the highest costs associated with either scenario. More specifically, it is plausible that an approach that uses gas for serving peak needs may limit the need for alternative fuels – for example deployment of hybrid heating systems – is far lower cost than either bookend scenario, making it necessary to be very careful to compare the costs of the bookend scenarios to evaluate the relative value of electrification and alternative fuels.

Comments on Electrification and Alternative Fuel Pathway

The notice of comment asks interested stakeholders to explain any concerns regarding the electrification and alternative fuel pathways, as well as equity considerations. Although, as explained above, it is difficult to fully articulate the Company's concerns

without access to detailed modeling, NW Natural would appreciate clarification regarding several issues.

Electrification

After participating in the January 5, 2023, DAG meeting, NW Natural remains concerned that SSG is simply taking other entities' projections to arrive at its conclusions. This approach is more akin to a literature review than the modeling that is contemplated in Senate Bill 5092, which requires an analysis determining how electric utilities can reliably meet load in a range of future scenarios. To perform such an analysis, NW Natural continues to believe that one must start with a load forecast that is based on an understanding of the peak impact at the heating equipment level to extrapolate to an overall system need, as explained in its September 21, 2021, comments. After ascertaining this system need, the analysis should evaluate options to serve that load using a production cost model like those deployed by utilities in the region and the Northwest Power and Conservation Council, taking into account increased energy efficiency resources, as well as transmission and distribution system upgrades to alleviate system constraints.

NW Natural is also concerned that the electrification pathway does not consider distribution costs, which appears to be contrary to section 143 of Senate Bill 5092. That section requires an evaluation of: "The impact on regional electric system resource adequacy, and the transmission and **distribution infrastructure requirements** . . ." (emphasis added). At the meeting, SSG explained that it only evaluated the generation and transmission costs of this pathway. A participant at the meeting voiced his concern that distribution costs must be considered as well. NW Natural shares this sentiment. The electrification pathway contemplates adding 9 GW of rooftop solar for an in-state generation scenario.¹ To integrate that amount of rooftop solar, even if one assumes that it can make a meaningful contribution to serving winter peak (which is unclear), it appears that there would have to be a considerable amount of investment in the distribution system to make the best use of this generation. Plus, there would likely have to be increased investments to upgrade the distribution system to accommodate the increased load from building and vehicle electrification. These types of concerns are exactly why a production cost model is far preferred to the approach it appears being taken by SSG. Not including the costs of such investments likely underestimates the cost of the electrification scenario.

Another concern is the calibration of electric supply and demand that SSG described in its January 5 slides. It is unclear what exactly was calibrated or validated, how this was done, or what tools were used. However, it appears that demand and supply modeling projections were verified using actual Seattle City Light data. It is not clear to NW Natural whether Seattle City Light serves as a reasonable proxy for the rest of the state

¹ See slide 50 of Jan. 5 DAG meeting materials.

in determining supply and demand. Utilities across the state operate in different climates with different resources and loads and have different amount of direct use gas serving their customers. Simply because SSG's modeling appears to fairly accurately replicate Seattle City Light's 2019 data does not necessarily mean that its modeling reflects that of other utilities across the state. Also, the modeling must take into account that the hour with the highest energy use will also have higher energy use throughout that day. Using both the amount and shape of the load on that peak day can then be extrapolated out to determine resource adequacy. Again these concerns could have been addressed by providing actual modeling data earlier in the process.

With hydroelectric power, it appears that the analysis considers 2019 as a base year from which future hydroelectric generation is calculated. If that is correct, this is an unreliable approach. Hydroelectric generation on the Columbia River and its tributaries varies considerably from year-to-year. To ensure that there is adequate capacity, the study, if it does not already, should assume hydroelectric production based on the driest or worst water years on record, consistent with Bonneville Power Administration ("BPA") practice.²

Finally, NW Natural has been disappointed that there has been little to no discussion of costs or equity concerning the electrification pathway or any other pathway to date. The Company understands that these discussions are scheduled to come later in the process, but both are crucial pieces that must be discussed and understood in detail prior to the submission of a final report.

Alternative Fuel

The methodology of this docket appears to put different pathways in conflict with each other (electrification v. alternative fuels), but it is important to understand that both electrification and alternative fuels can complement each other, lowering costs to all consumers. Hydrogen, for instance, can provide significant benefits to the electric grid. It enables significantly lower costs of wind and solar investments through power-to-gas-to-power ("PGP"), which works through generating hydrogen with electrolyzers with curtailed power, and storing that power in the gas system. This energy can be used for power generation months in the future or delivered to natural gas customers using the gas grid. PGP is orders of magnitude less expensive than batteries and pumped hydrogen for long-term storage. Coupling the electric and gas grids through hydrogen increases reliability and resilience for energy in the region, and helps decarbonize both grids much more quickly, and at a much lower cost.

Similarly a "dual fuel" or "hybrid" heating system should be encouraged. In such a system, a natural gas furnace serves as the backup to an electric heat pump. In most cases, a dual fuel system has lower annual operating costs and is more efficient than

² This is summarized at: <https://www.bpa.gov/-/media/Aep/about/publications/fact-sheets/fs-202011-Hydropower-planning-and-power-supply.pdf>

using a standard heat pump backed up by electric resistance heating, and can reduce gas usage within a home in our climate by 80 percent. Hybrid heating helps address resource adequacy issues on the regional power grid by allowing gas utilities to continue to serve more than half of Washington's peak energy needs driven by space heating while electricity provides space heating during moderate weather. In its September 21, 2021, comments at the beginning of this process, NW Natural proposed a way to evaluate this issue that it maintains would be highly beneficial to providing the information requested by section 143 of Senate Bill 5092.

Determining how the existing electric and gas systems can complement each other to lower emissions is key to ensuring affordability, reliability, and resiliency in the future. Reliance on a single system to the exclusion of the other may lead to large, unneeded investments in generation, transmission, and distribution that could have been avoided by pursuing a more balanced strategy.

Equity

Cost and siting of new infrastructure need to be carefully considered. On one hand, we must move quickly to decarbonize. On the other hand, these actions should not make energy unaffordable, nor should it result in under-represented communities being disproportionately impacted by new energy infrastructure, such as new or expanded high voltage transmission lines or generation facilities. To manage these impacts, NW Natural continues to believe that energy efficiency should be prioritized, especially for low-income customers, and to leverage the existing energy system, such as developing hydrogen and hybrid heating systems as explained above, to avoid costly new infrastructure whenever possible.

Thank you for this opportunity to comment. If more detailed modeling information is provided in line with the first section of our comments, NW Natural respectfully requests that participants be given the opportunity to supplement these comments in response to the new information.

Sincerely,

/s/ Zachary Kravitz

Zachary Kravitz
NW Natural
Vice President, Rates and Regulatory Affairs
250 SW Taylor Street
Portland, Oregon 97204
(503) 610-7617
zachary.kravitz@nwnatural.com