

NATURAL GAS DIRECT, LLC

Mobile phone: (703) 674-8499
Alt. desk phone: (571) 733-9350

1101 South Forest Drive,
Arlington, VA 22204

ngdllc@outlook.com

October 14, 2022

Members of the Washington State Building Code Council

sbcc@des.wa.gov

P. O. Box 41449

Olympia, WA 98504-1449

Subject: Submission of Public Comments on Proposals to the Washington State Energy Code (WSEC) 2021 Edition Residential Building Coverage, Public Comments on Final Draft Proposals 052, 065, 066, 073, and 080.

Dear Sir/Madam:

Natural Gas Direct, LLC is pleased to submit the following comments on the subject energy efficiency code proposals on behalf of OmegaFlex Corporation. Since 1975, OmegaFlex has led the gas piping industry with its high-quality construction and commitment to exceed the industry's product and safety standards. With over 200 patents and counting, the Company's philosophy is not to wait for mandates, but to lead the industry by introducing the best products. Currently, 6 million U. S. homes have corrugated stainless steel tubing (CSST) systems from OmegaFlex and other manufacturers installed for delivering natural gas and propane to end use appliances, reducing fitting joints and fugitive gas emissions resulting from threaded pipe and tubing joints, increasing residential consumer energy resilience by providing fuel gases during periods of electrical grid outage, and supporting replacement of older hard steel piping systems with higher delivery pressures for high efficiency appliances.

OmegaFlex supports the "minority report" comments and proposed solutions of the Washington State Energy Residential Technical Advisory Group. Each of these proposals from the minority report are discussed here. With respect to **Proposal 065** requiring heat pump space heaters, OmegaFlex strongly recommends its disapproval since the existing space heating options table in Section R406 has adequate options for a home builder or owner to choose high efficiency heat pumps. There is no need to mandate heat pump installation and eliminate legitimate, efficient, and cost-effective gas space heating options. OmegaFlex agrees with the minority report observations that this proposal would eliminate federally approved gas equipment to be used as the primary space heating source and relies totally on electric heat pumps, severely reducing redundancy, resiliency, and reliability by depending on only one energy source for space heating. The State of Washington can meet the stated goal of 70% reduction in energy consumption by 2030 without eliminating customer choice for their space heating equipment. Although electric heat pumps will certainly play a key role in achieving this goal, prohibiting the use of gas heating equipment during this code cycle is not necessary and are premature.

Furthermore, OmegaFlex recognizes that the proposal will add consumer installed equipment costs while simultaneously allowing exceptions to use electric resistance heating or back-up during cold weather and during peak demand when the marginal electric generation resources will most certainly be fossil fuel. This outcome will effectively increase rather than decrease carbon air emissions emissions. After all, heat pumps are not “emissions-free.” This will be especially true during cold weather when combustion generated, emissions-intensive back-up electric resistance heating is required. Leaking refrigerant is a likely outcome with currently available refrigerants posing a global warming potential (GWP) of over 2,200 times that of carbon dioxide. Finally, the proposal would preclude the future use of innovative gas technologies that could provide energy savings and emissions reductions equal to or better than electric technologies.

Proposal 066 requiring electric heat pump water heaters would similarly eliminate federally approved gas equipment to be used as the primary water heating source and relies on electric heat pumps. OmegaFlex strongly recommends disapproval of this proposal from inclusion in the code. The existing options table in Section R406 has adequate options for a home builder or owner to choose high efficiency heat pump water heating systems. As with the heat pump space heating mandate, there is no need to mandate their use and eliminate legitimate, efficient, and cost-effective gas water heating options. The proposal would severely reduce redundancy, resiliency, and reliability by depending on only one energy source for water heating.

OmegaFlex’s information on Technical Advisory Group’s consideration of this proposal identified that multiple Advisory Group members and members of the public refuted the findings of the proponent’s economic analysis that showed lower installed and lifecycle costs for a heat pump water heater compared to a gas water heating system. For example, the proponent’s analysis included a cost to bring gas service to a home of \$600 to \$2,000 when there is often no direct up-front cost to the builder or the end-use consumer. Additionally, multiple mechanical contractors reportedly commented during Advisory Group meetings that labor hours and rates to install heat pump water heating equipment were too low and unrealistic for the Washington State market.

According to OmegaFlex information from other sources, the proposal would add both installation and operating cost with life cycle cost increases on the order of \$2.43 per square foot of living space. Installation of electric heat pump water heaters requires considerably more space since the equipment is much larger. These higher capital and operating costs will disproportionately affect small businesses using residential service water heating equipment and low-income housing, bringing into questions issues of social equity. At the same time, the proposal allows exceptions to use electric resistance water heating for back-up in certain circumstances, some during cold weather when the marginal electric generation resources will most certainly be fossil fuel, effectively increasing rather than decreasing emissions.

With respect to water heater installation location requirements in **Proposal 080**, OmegaFlex recommends allowing an exception for gas heat pump water heaters with an efficiency of not less than 1.15 COP as recommended in the minority report. Without such an exception, the proposal will prohibit installation of a water heater in a garage which is common practice today. Also, any leaks or pressure relief discharge would now be within the dwelling unit. Furthermore, some federally approved gas fired water heaters may be prohibited due to combustion air requirements. Finally, gas heat pump water

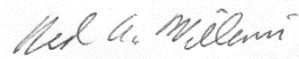
heaters in development for single family dwellings, expected to be available in 2023, will have efficiencies of at least 1.15 COP and would meet the requirements of the proposed exception.

OmegaFlex disputes the justification of the carbon emissions factor for electricity implemented in **Proposal 052**. In concurrence with the minority report analysis, OmegaFlex finds that the current carbon emissions rate for electricity in the integrated draft (Table R405.3) was changed from 0.7 lbs/kWh in the 2018 code to 0.44 lbs/kWh for the 2021 code. This factor is from an NREL analysis for a Long Run Marginal Emissions Rate (LRMER) over the next 20 years. The NREL analysis modeled 10 different scenarios with results ranging from -0.2 lbs/kwh to 1.7 lbs/kwh. This wide range of possible future marginal emissions rates is evidence of the highly speculative nature of trying to predict what will happen in the future. The non-baseload (avoided) emissions rate from the eGRID 2020 database for the Northwest Power Pool (NWPP) was 1.66 lbs/kWh. This is a factor of 4 higher than the proposed rate of 0.44 lbs/kwh. It is difficult to imagine that the marginal rate will come down that far in that period of time. Consistent with the minority report recommendation, OmegaFlex recommends either the disapprove the proposal from inclusion in the 2021 code and use a more realistic factor of 0.8 lbs/kwh which is fairly representative of a gas combustion turbine or elimination of carbon emissions as a metric in the code and instead reverting to using energy use, which is not nearly as subjective. With respect to a more realistic emission factor, gas combustion turbines will become the dominant marginal resource in the NWPP for the reasonably foreseeable future as coal fired generation is retired, bolstering use of the more realistic 0.8 lbs/kwh emission rate.

Finally, OmegaFlex agrees with the minority report recommendation to strike the “Fuel Normalization Table” (Table R406.) in its entirety from **Proposal 073**. This will encourage builders to select more measures that will reduce energy consumption and in turn reduce carbon emissions from both electric and gas consumption in the dwelling. Table R406.2 is based on an inaccurately low emissions rate for electricity and provides the home builder with 3 credits just for using a code-minimum heat pump system. As the minority report points out, this clearly introduces a “free-ridership” issue. Also, the table entices builders to adopt a minimum efficiency heat pump without having to do much more. This puts building envelope measures, that have a much longer life span, at a disadvantage. Such measures include more insulation, better windows, less air leakage, and onsite renewables.

This concludes the comments of OmegaFlex on the subject draft proposals. On behalf of OmegaFlex, Natural Gas Direct is prepared to answer questions regarding these comments.

Sincerely,



Ted A. Williams,
Principal, Natural Gas Direct, LLC

cc: R. Torbin, OmegaFlex