

August 9, 2018

Duane Jonlin, Chairman  
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**RE: Energy Code Proposal EW101-2018 – Service Water Heating**

Chairman Jonlin and Members of the Energy Code Technical Advisory Group:

The Northwest Gas Association (NWGA) represents the distribution companies that serve 3.5 million residential and commercial natural gas consumers across the Pacific Northwest (including 1.3 million in Washington State), and the three transmission pipelines that deliver natural gas to and through our region from production areas in Alberta, British Columbia and the Western U.S. Rocky Mountain states. Our Washington State natural gas utilities include Avista Utilities, Cascade Natural Gas Corp, NW Natural and Puget Sound Energy.

Natural gas is a vital energy resource for Washington State. In 2016, Washington residents and businesses used the equivalent of 70 million megawatt hours of energy from natural gas to heat their homes and businesses and to power industrial processes (compared to 89 million MWh of electricity). Natural gas also provided the fuel to generate 11 million MWh of electricity.

The NWGA appreciates the opportunity to comment on the Energy Code Proposal EW101-2018, relating to service water heaters in commercial buildings with an input rating of 1,000,000/hour (293 kW) or greater. This proposal would require minimum efficiencies of either 125% of stated values in table C404.2 or 95%  $E_t$  for high input capacity service water heating systems or, in the case of R-1 and R-2 occupancies, that at least 25% of the energy come from renewable energy sources or heat recovery.

These larger systems are very often supplied by natural gas hot water supply boilers. The federal minimum standard for boilers 300,000-12,500,000 Btu is 80%  $E_t$ . The existing Washington State Energy Code requires a minimum 90%  $E_t$  for these high input systems. In addition, C406.7 provides an option to reduce the energy use in service water heating systems through the use of either on-site renewable energy or heat recovery.

State statute requires conservation measures to be cost effective. In the Life Cycle Cost Analysis included with the proposal, the study period implies an appliance life of 50 years. According to ASHRAE, the average life cycle of a hot water boiler is 25 years. A commercial hot water heater may be expected to have a shorter service life than a boiler. Furthermore, the proposal to require at least a 95%  $E_t$  for natural gas water heating systems pushes the upper limits of equipment capabilities. They are not cost-effective today, nor are heat recovery technologies.

Electric resistance water heaters with very good insulation would be allowed under this proposal, even though they cost the customer 2.5 times more for fuel (electricity) than a condensing natural gas water heater. Moreover, they are considerably less energy efficient source-to-site than condensing natural gas systems. Electric resistance water heaters would

actually work against a key objective of energy codes: energy conservation and efficiency. The installation of electric resistance water heaters as a compliance pathway should be explicitly precluded in this code revision.

In addition, this proposal uses the State Policy on Conservation as its rationale for making the suggested changes to the code. However, renewable energy in and of itself does not constitute energy conservation. Therefore, including a 25% renewable energy threshold for exemption from the more stringent equipment efficiency requirement runs afoul of state statute.

Finally, the State Building Code Council is now required to follow the more rigorous requirements of RCW 34.05.328, the significant legislative rule making requirements under the state administrative procedures act. These requirements explicitly require a thorough cost-benefit analysis as well as several other substantive requirements before adoption of a proposed rule. The NWGA believes that the rule making requirements of RCW 34.05.328 have not been met thus far, and this proposal is therefore not compliant with the law.

In conclusion, we oppose adopting EW101-2018 relating to service water heaters in commercial buildings for the reasons noted. While the proposal may be appropriate as a stretch code or as an option to be included in C406, they are not appropriate as a minimum efficiency requirement. We support the existing language in C402.1 as shown in the 2018 Integrated Draft which requires a minimum of 90%  $E_t$  for these high input systems.

Respectfully yours,



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Tom Lienhard, Chief Energy Efficiency Engineer  
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