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ENERGY STAR
Climate Protection Partnerships Division
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, D.C. 20460

Comments of National Propane Gas Association (NPGA) on “ENERGY STAR® Program Requirements: Product Specification for Residential Water Heaters, Eligibility Criteria, Final Draft Version 5.0”

This comment provides the response of the National Propane Gas Association (NPGA) to the proposed product specification for residential water heaters and eligibility criteria by the Environmental Protection Agency (EPA). Membership companies of NPGA include manufacturers and distributors of decorative appliances described in the proposal as well as propane marketers that provide the fuel used by these products.

NPGA is the national trade association of the propane industry with a membership of about 2,500 companies, and 36 state and regional associations representing members in all 50 states. NPGA’s membership includes retail marketers of propane gas who deliver the fuel to the end user, propane producers, transporters and wholesalers, and manufacturers and distributors of equipment, containers, and appliances. Propane, or liquefied petroleum gas, is used in millions of installations nationwide for home and commercial heating and cooking, in agriculture, in industrial processing, and as a clean air alternative engine fuel for both over-the-road vehicles and industrial lift trucks.

ENERGY STAR appears to have adopted the objective of some of its stakeholder comments calling for sunsetting gas water heater qualification for ENERGY STAR. Such action is not justified in the Final Draft. The document reports that ENERGY STAR received public comments that higher efficiency requirements “and/or sunsetting” based upon an interpretation that the Biden administration’s “commitment to decarbonization” will be served by such action, but the document itself cites no justifying analysis by ENERGY STAR that doing so would serve this objective. No evidence that specifically sunsetting gas water heaters in the ENERGY STAR program will provide any significant impact toward any such commitment.

Part and parcel to any such justification for sunsetting gas water heaters needs to be an analysis of the full fuel cycle carbon emissions implications of limiting consumer choices among ENERGY STAR certified water heaters to electric water heaters, but no such analysis is provided or cited. In contrast to ENERGY STAR’s lack of explicit carbon emissions implications of its proposal, NPGA is going forward with comments and methodology proposals to the Federal Trade Commission (FTC) on its solicitation of comments on modifications to its EnergyGuide label¹ that would inform consumers regarding water

¹ Federal Register, Wednesday, May 25, 2011, pp. 31754-31783.

heater purchase with information going beyond what ENERGY STAR provides: source energy consumption associated with water heater use associated with U. S. Department of Energy test method and energy descriptor information for energy consumed at the site with calculations of associated primary energy consumption over the fuel cycle (i.e., “source energy consumption”) using current DOE calculation approaches used for federal minimum efficiency standards and statutorily required calculations for review of model energy codes. From primary energy consumption for listed consumer products, estimation of carbon emissions on a national average basis is straight-forward and provides consumers with information not addressed by ENERGY STAR. NPGA’s approach suggested here would provide consumers with actionable information for purchase decisions regard carbon emissions implications of purchase decisions. NPGA’s efforts in this regard if fully consistent with the National Research Council final report, ‘Review of Site (Point-of-Use) and Full-Fuel-Cycle Measurement Approaches to DOE/EERE Building Appliance Energy-Efficiency Standards² for appliance efficiency measures recommended for consumer products and consumer information.

Indeed, if ENERGY STAR were to take on the pathway toward decarbonization of sunsetting gas water heaters), it has proposed Eligibility Criteria with logical flaws:

- Firstly, the “sunsetting” language is an illogical tactic to curtail appliance manufacturers from producing specific gas-powered products. It is beyond the scope of the ENERGY STAR program to manipulate manufacturers to push the market in a direction favored by the policy objectives of the administration. In other words, ENERGY STAR should have proposed the Final Draft with no mention of gas storage water heaters, and the effective date would ensure “sunsetting.” That would be the logical approach to eliminate gas storage water heaters since manufacturers would still produce these products but just not carry the ENERGY STAR mark. ENERGY STAR could publish the Final Draft with no mention of gas storage water heaters, and the effective date would ensure “sunsetting.” That would be the logical approach since manufacturers would still make models but just not carry the ENERGY STAR mark.
- Instead, it appears that ENERGY STAR is attempting to mollify gas-fired products interests by promulgating requirements for these products, but these requirements cannot be met by currently available storage water heater products for propane as a fuel. It is effectively orchestrating “kabuki theater” by presenting infeasible requirements for currently available products.
- Lastly, if sunsetting gas products is an objective, the Eligibility Requirements are inconsistent across residential gas storage water heaters and instantaneous water heaters, the latter being attainable by existing products and not at all “sunsetting.”

ENERGY STAR has wrongly argued consumer cost effectiveness as analyzed by the U. S. Department of Energy’s preliminary technical support document (pTSD),³ which shows that only design options meeting Category I requirements (i.e., non-condensing combustion and non-positive venting pressure performance) on average show positive consumer life cycle cost performance and reasonable consumer paybacks. The pTSD argues against that ENERGY STAR’s performance criteria for gas water heaters requiring condensing combustion “significantly improves consumer payback over current levels in all markets.” However, no efficiency levels in the pTSD for condensing storage water heaters show positive average life cycle cost savings to consumers.

² National Research Council, National Academies of Science, Engineering, and Medicine, May 15, 2009.

³ U. S. Department of Energy, “Preliminary Analysis Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment, Consumer Water Heaters,” March 2022.

ENERGY STAR claims of satisfying decarbonization objectives unjustifiably presumes a decarbonized electric grid and lower carbon emissions from electric products relative to propane fueled appliances. Current full fuel cycle efficiency of grid electricity and generation, transmission, and distribution losses has improved in recent years, but a presumption that this trend is fully attainable in the immediate future is hopeful speculation, at best, lacking evidence to demonstrate the bandwidth and capabilities to support stable, reliable energy for the entire American public. The following underlying characteristics of the U. S. grid electricity system are important and unlikely to change in any significance in the intermediate term:

- Current energy losses for grid electricity nationally are estimated to be 1.63 kilawatt hour (kWh) times the energy delivered to residential consumers or 163% while energy losses in delivery of propane to consumers is 0.15 or 15%.⁴
- Grid electricity losses and associated carbon emissions from the grid have declined in recent years due primarily to increased generation efficiency and introduction of least-cost renewable electricity sources, but this trend cannot be sustained as the need for reliable dispatch generation provided by newer, less carbon emissions-intensive fossil fuel generation (specifically natural gas) displaces older coal-fired generation units.
- While ENERGY STAR's presumption of decarbonization focuses only on onsite carbon emissions, where electricity usage in residential water heaters has essentially no carbon emissions, it ignores the upstream losses and associated carbon emissions.
- Even with the high efficiencies of heat pump electric water heaters called for in ENERGY STAR performance criteria, supplemental heating needs from "hybrid" operation and upstream losses make these electric technologies and high-efficiency propane storage water heaters roughly equivalent in terms of carbon footprint when full fuel cycle considerations are taken into account.
- It remains that ENERGY STAR has not presented data and analysis that supports its claims for meeting decarbonization objectives.

Data from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) online data base⁵ of listed products shows that no models of currently-available residential propane storage water heaters or residential-duty commercial storage water heaters would meet the proposed ENERGY STAR uniform energy factor (UEF) minimum performance requirements, regardless of storage tank size or draw pattern. This finding is in stark contrast to the Final Draft suggestion of available models of gas-fired residential storage water heaters made in conjunction with residential duty commercial storage water heaters employing condensing combustion (i.e., Category IV performance). These products cannot be installed as replacements to Category I storage water heaters, the baseline technology for almost all residential storage water heaters, due to venting system incompatibilities and requirements for condensate disposal.

ENERGY STAR makes no concession for replacement of Category I propane storage water heaters with ENERGY STAR certified products, effectively shutting out consumers who cannot make the necessary installation modifications to accommodate Category IV models. Most often, low- and moderate-income families cannot afford these building modifications, and efficiency incentive programs run by states and other jurisdictions for purchase of ENERGY STAR products do not cover these installation costs. As a

⁴ GTI, Energy Planning Analysis Tool, GTI, <http://epat.gastechnology.org/>

⁵ AHRI Directory of Certified Product Performance,
<https://www.ahridirectory.org/Search/SearchHome?ReturnUrl=%2f>

result, ENERGY STAR would no longer be a program to benefit low- and moderate-income families when purchasing a replacement storage water heater. This undermines the economic and environmental justice called for by the Biden Administration.⁶ The ENERGY STAR program appears to entirely overlook the practical results of the proposal, specifically to a key segment of the American population that the administration is attempting to support in expanding its decarbonization policies.

Replacement of a storage propane water heater with an ENERGY STAR certified instantaneous propane residential water heater is often infeasible due to prohibitive installed costs for such a replacement and building feature that cannot accommodate an instantaneous gas water heater without significant renovation work. As a result, ENERGY STAR certified instantaneous propane water heaters are, for all practical purposes, not an option to these consumers and their water heater replacement options under the current limitations of the ENERGY STAR program that do not offset or include related installation or renovation costs.

More broadly to the issue of available residential propane storage water heaters and the ENERGY STAR minimum UEF specified in the performance criteria, other organizations have commented on procedural issues of ENERGY STAR doing so in the public review of the Initial Draft of Version 5.0.⁷ NPGA concurs with objections raised by these commenters and encourages ENERGY STAR to take yet another look at alternatives to the Final Draft UEF performance thresholds and associated barriers.

NPGA is disappointed that ENERGY STAR would forego opportunities to promulgate performance criteria that would facilitate and support higher efficiency product choice by consumers for propane water heaters that would save them money on a life cycle cost basis (and as documented by DOE in the residential water heater pTSD) and reduce carbon emissions.

Unless some resolution is offered by ENERGY STAR, NPGA would work with other fuel gas entities and associations to explore other approaches outside of ENERGY STAR to increasing consumer water heater efficiency and reduce emissions. However, NPGA would look forward to further discussion of the options and alternatives to the subject Final Draft.

Thank you for the opportunity to comment. Please feel free to contact us with any additional questions.

Sincerely,



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⁶ <https://www.whitehouse.gov/omb/briefing-room/2021/07/20/the-path-to-achieving-justice40/>

⁷ “Comments of ONE Gas, Inc. on ENERGY STAR® Program Requirements: Product Specification for Residential Water Heaters, Eligibility Criteria, Draft 1, Version,” Teri Green, Manager, Energy Efficiency Program, ONE Gas, Inc., June 20, 2022