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Support for Solar Thermal Pool Heating and Comments on High-Efficiency Gas Heater Compliance Path

Additional submitted attachment is included below.

**CALIFORNIA ENERGY COMMISSION
2028 BUILDING ENERGY EFFICIENCY STANDARDS
PRE-RULEMAKING DOCKET (25-BSTD-03)**

COMMENTS OF AQUATHERM INDUSTRIES, INC.

Regarding Proposed Pool and Spa Heating Measures

Submitted by:

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I. INTRODUCTION

Aquatherm Industries, Inc. respectfully submits the following comments regarding the pool and spa heating measures under consideration for inclusion in the 2028 California Building Energy Efficiency Standards.

Aquatherm is a manufacturer of solar thermal pool heating collectors and systems with more than five decades of experience serving residential, commercial, institutional, and municipal aquatic facilities throughout North America. Our products have been installed on thousands of pools, including schools, hotels, apartment communities, health clubs, rehabilitation facilities, and public aquatic centers.

Aquatherm supports California's ongoing efforts to reduce energy consumption, lower greenhouse gas emissions, and encourage the deployment of proven renewable energy technologies. We believe solar thermal pool heating represents one of the most mature, cost-effective, and widely deployed renewable technologies available for swimming pool applications.

II. SOLAR THERMAL SYSTEMS SHOULD BE EVALUATED BASED ON FUEL REDUCTION, NOT COMPLETE FUEL ELIMINATION

Recent comments submitted to this proceeding suggest that solar thermal pool heating is ineffective because conventional pool heaters remain necessary in certain commercial applications, particularly swim schools and rehabilitation facilities.

This characterization fundamentally misunderstands the role of solar thermal pool heating.

Commercial solar thermal systems are not typically designed to eliminate fossil-fuel heating equipment (eg. natural gas, propane, and electric). Rather, they are designed to reduce the energy required from those systems. In many commercial applications, solar thermal collectors serve as a primary source of heat input while conventional heaters provide supplemental heating, recovery heating, and temperature maintenance during periods of insufficient solar availability.

The continued presence of a gas heater should not be interpreted as evidence that a solar thermal system has failed to perform its intended function.

The appropriate policy question is whether solar thermal systems can reduce annual fuel consumption and associated emissions. Over 50 years of real-world installations in California demonstrate that they can.

This distinction is particularly important when evaluating facilities that maintain elevated water temperatures year-round. Such facilities may continue to require conventional heating equipment for operational reasons while still achieving meaningful reductions in natural gas consumption through the use of solar thermal technology.

III. COMMERCIAL AQUATIC FACILITIES CAN SUCCESSFULLY UTILIZE HYBRID HEATING SYSTEMS

Aquatherm recognizes that certain commercial pools, including swim schools, therapy pools, and rehabilitation facilities, maintain water temperatures above those typically found in recreational swimming pools.

These facilities often require rapid temperature recovery capabilities and may experience operating conditions that necessitate supplemental heating equipment.

The existence of these operational requirements does not diminish the value of solar thermal heating.

Hybrid systems combining solar thermal collectors with conventional heating equipment have been successfully utilized for decades. In these applications, solar energy offsets a significant portion of annual heating demand while conventional heaters provide supplemental capacity when required.

Accordingly, the Commission should not view the need for supplemental heating as evidence that solar thermal systems are unsuitable for commercial aquatic facilities. Rather, it should recognize that hybrid system design represents a proven and practical approach to reducing energy consumption while maintaining operational reliability.

The Commission should recognize that many commercial pools already employ multiple heating technologies simultaneously. Solar thermal systems, heat pumps, and conventional gas heaters are not mutually exclusive technologies. In many applications, the most effective and economical approach is a hybrid heating strategy that leverages the strengths of each technology. The existence of a supplemental gas heater does not indicate failure of a solar thermal system; rather, it reflects the operational realities of maintaining precise water temperatures while reducing overall fuel consumption.

IV. HIGH-EFFICIENCY GAS HEATERS SHOULD SERVE AS AN ALTERNATIVE COMPLIANCE PATHWAY WHEN RENEWABLE TECHNOLOGIES ARE NOT FEASIBLE

Aquatherm appreciates the effort made by the CASE Team and stakeholders to develop additional compliance flexibility, including the incorporation of high-efficiency gas-fired pool heaters as a potential compliance pathway.

However, Aquatherm respectfully recommends that renewable heating technologies remain the preferred compliance option whenever reasonably achievable.

To preserve the intent of the proposed measure, Aquatherm recommends that facilities seeking compliance through installation of a high-efficiency gas heater be required to complete and document a site-specific feasibility assessment demonstrating that solar thermal heating, heat pump technology, or a combination of those technologies is technically infeasible, economically impracticable, or precluded by site-specific constraints.

Examples of qualifying conditions may include:

- Insufficient roof area or solar access necessary to support a properly sized solar thermal installation.
- Structural limitations that prevent installation of rooftop solar equipment.

- Insufficient electrical service capacity for heat pump deployment where utility upgrades are not reasonably achievable.
- Site limitations that prevent installation of heat pump equipment or associated infrastructure.
- Other documented conditions that make implementation of renewable heating technologies impracticable.

Aquatherm believes this approach appropriately balances flexibility with California's long-standing energy policy objectives.

High-efficiency gas heaters can provide meaningful efficiency improvements compared to conventional pool heaters. However, allowing such equipment to serve as a default compliance option without a demonstrated feasibility review may unintentionally discourage adoption of renewable technologies capable of producing greater long-term reductions in fuel consumption and greenhouse gas emissions.

Accordingly, Aquatherm recommends that high-efficiency gas heaters be treated as an alternative compliance pathway available when renewable heating technologies cannot reasonably be implemented at a given site.

V. SOLAR THERMAL SYSTEMS PROVIDE LONG-TERM SERVICE LIFE AND RELIABLE PERFORMANCE

Aquatherm also wishes to address statements suggesting that solar thermal pool heating systems in commercial applications provide only limited service life.

Based upon Aquatherm's manufacturing experience and decades of field performance data, properly designed and maintained unglazed polypropylene solar thermal pool heating systems routinely provide service lives measured in decades. Many commercial and institutional systems remain operational well beyond the average expected service life of 15 years. This is, in part, thanks to an experienced installation and service infrastructure in that has existed in California since the 1970's.

Long equipment life, relative to gas heaters, is one of the primary reasons solar thermal pool heating remains among the most cost-effective renewable energy technologies available for swimming pool applications.

The Commission should therefore exercise caution when evaluating claims that solar thermal systems require frequent replacement or are unsuitable for long-term commercial use.

VI. CONCLUSION

Aquatherm Industries supports the Commission's efforts to reduce energy consumption and greenhouse gas emissions associated with pool heating while maintaining practical compliance pathways for facility owners and operators.

Solar thermal pool heating is a mature, proven technology that has successfully reduced fuel consumption in commercial and institutional aquatic facilities for decades. The fact that supplemental heating equipment remains necessary in some applications does not diminish the substantial energy savings that solar thermal systems can provide.

Aquatherm respectfully encourages the Commission to continue recognizing solar thermal pool heating as a preferred compliance pathway and to require a documented feasibility determination before allowing compliance solely through installation of a high-efficiency gas-fired pool heater.

Thank you for the opportunity to provide these comments and for your continued work on development of the 2028 Building Energy Efficiency Standards.

Respectfully submitted,

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June 19, 2026