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October 16, 2026

David Hochschild, Chair
California Energy Commission
715 P Street
Sacramento, CA 95814

Cc: Vice Chair Siva Gunda, Commissioner Andrew McAllister, Commissioner Noemí Gallardo, and Commissioner Nancy Skinner

Re: Opposition to Proposed Pool Heating Regulation

CEC Docket Number: 25-BSTD-03

Project Title: 2028 Energy Code Pre-Rulemaking

Subject: Public Comment on "Solar Heating for an Existing Pool and Spa" CASE Proposal and the October 12, 2026 Draft Regulatory Language (Subchapter 8, Pool and Spa, and Joint Appendix JA16)

The U.S. Swim School Association (USSSA) strongly supports California's climate and carbon reduction goals. However, we respectfully oppose the proposed regulation requiring solar and high efficiency heat pump systems for existing nonresidential pools and spas replacing a heating system, including swim schools, therapy pools, and municipal, school, and community facilities. Notably, single-family residential pools, multifamily pools, and hotel/motel pools with an existing heater are exempt from this requirement and may replace their heating system like-for-like, meaning the entire compliance burden falls on the nonresidential facilities that deliver drowning prevention swim lessons and therapy programs to the public. Drowning is a leading cause of death for California's children. National and California data show disproportionately higher drowning risk among Black children, Native American children, and children with autism. Swim lesson and therapy pools commonly maintain pool temperatures in the range of 88–94°F. Solar thermal systems may be capable of producing warm water under ideal solar conditions, but the CASE analysis does not demonstrate that they can reliably maintain 88–94°F pool temperatures year-round under the operating conditions required by learn-to-swim and therapy pools. Solar cannot sustain the needed output through cloud cover, marine layer, winter months, or continuous swimmer heat loss, and the Statewide CASE Team's own 2028 Title 24 Report confirms that solar thermal is not intended to replace all other heating sources and requires supplemental gas backup in most California climate zones. The 2028 CASE Report's own statewide impact data show that this entire measure would reduce California's annual greenhouse gas emissions by approximately 0.0036% and its natural gas use by roughly 0.01%: commercial pools are a very small part of California's overall energy footprint. Requiring solar heating for these pools would do little for the climate while putting vulnerable children at greater risk by threatening the pools that make drowning prevention lessons possible.

This letter addresses the Statewide CASE Team's 2028 Title 24, Part 6 Final CASE Report (June 2026) and the October 12, 2026 draft regulatory language for Subchapter 8 (Pool and Spa) and Joint Appendix JA16. **In summary, USSSA asks the Commission to: (1)** set the minimum thermal efficiency for the high-efficiency gas or propane heater pathway at 88% rather than 90%; **(2)** define the roof-access, landlord-control, and hardship or infeasibility exceptions clearly and objectively for commercial facilities; **(3)** establish published criteria and a defined review timeline for the Executive Director's "alternative system" approval; and **(4)** weigh the proposal against the very small energy and emissions footprint of commercial pools.

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- **Solar can't meet the need:** Recreational pools run cooler, around 78–82°F, but many swim lesson and therapy pools are maintained at 88–94°F, consistent with the American Red Cross swim instruction recommendations, USSSA infant swim instruction standards, and Aquatic Therapy University therapy and rehabilitation guidelines. These temperatures aren't a matter of comfort or preference: young children lose body heat far faster than adults due to their higher surface-area-to-body-mass ratio, and warmer water is clinically necessary to reduce muscle guarding and support range of motion for arthritis, neurological, and pain-sensitive therapy populations. Solar thermal systems, which depend on ambient sunlight and air temperature, cannot reliably sustain this range during California's cooler months or in coastal and northern climate zones, creating a direct conflict between the proposed mandate and the water temperatures these vulnerable populations require for safe, effective drowning prevention swim lessons and therapy programs. The 2028 CASE Report cites a single facility, a Long Beach therapy pool that installed solar in 1981 and upgraded the system in 2015, as evidence that solar can meet these temperature needs. This example does not reflect what most USSSA members would face: it is one well-established nonprofit facility operating a system refined over more than four decades, not a small or leased swim school retrofitting for the first time under a compressed compliance timeline. Even this facility relies on supplemental gas heating, consistent with the CASE Report's own acknowledgment that solar thermal is not intended to replace all other heating sources.
- **Most pools can't host solar pool heating equipment:** Many swim schools do not own their building or land, in fact 84% of our California swim school members lease their facility, and even those that do often lack enough roof or land space for solar panels large enough to make a difference. For existing pools, the 2028 CASE Report reduced the required solar collector coverage from 65% to 40% of pool surface area in response to stakeholder feedback, including USSSA's own input, and USSSA appreciates this responsiveness. However, this reduction does not resolve the underlying problem for most swim schools: tenants in leased facilities cannot install rooftop solar equipment of any size without landlord approval, and many facilities still lack adequate roof or ground space even at the reduced requirement. The October 12, 2026 draft language also keeps the 65% collector requirement for nonresidential new construction (Section 800.3, compared with 60% for single-family pools), and the only roof-access relief in that section (Exception 5 to Section 800.3) is limited to permanent spa applications.
- **The costs and math don't work:** For many dedicated swim lesson facilities, converting from gas heat to solar thermal is not a simple heater replacement. It often requires a complete redesign of the pool heating system, including large collector arrays, structural engineering, extensive plumbing and controls, and continued retention of a gas backup heater. Depending on facility size and site constraints, retrofit costs can range from tens of thousands to well over $100,000, with some facilities unable to accommodate the required collector area at all. The 2028 CASE Report's own incremental cost analysis, at the reduced 40% collector size, estimates $19,640 for an average-sized pool and $113,940 for an Olympic-sized pool, figures that do not appear to include the plumbing, electrical, structural, or trenching work our members report as necessary in practice, not to mention the cost of temporary closure during installation. Multiple California swim school operators reported experiencing solar equipment component failures within five to eight years, well short of even the 2028 CASE Report's own revised 15-year equipment lifetime assumption (itself reduced from the 25-year assumption used in the prior code cycle after stakeholder pushback), and warranties don't cover the gap. Vendor-published lifespans (15-20+ years) are typically based on manufacturer specifications and light-use conditions, not the continuous, high-chemical-load, commercial swim-school environment swim lesson pools actually operate in. Even where solar has been added, gas heaters end up doing most of the work with several operators reporting that gas backup systems continued to provide most heating demand, limiting realized energy savings.
- **The impact falls hardest on vulnerable communities:** Black children, Native American children, children with autism, and low-income families already face the highest drowning rates and rely most on community pools for swim lessons and recreation. Losing pool access would only widen that gap. Our public community pool swim lesson and drowning prevention partners report that many community pools across California are already under financial stress and having to try to add solar or heat pump equipment will force them to close.

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- **The climate trade-off isn't worth it:** Based on Table 21 of the Statewide CASE Team's 2028 Title 24, Part 6 Final CASE Report (June 2026), the current governing analysis for this proposal, the statewide first-year GHG reduction projected from this measure totals 12,806 metric tons CO2e. Against California's total 2023 statewide emissions of 360.4 million metric tons CO2e (Next 10, 2025 California Green Innovation Index), the full first-year climate benefit of this measure would be a reduction of approximately 0.0036% of the state's total annual greenhouse gas emissions. A regulation with this negligible a climate impact should not come at the cost of putting children's access to drowning-prevention swim lessons at risk.
- **Commercial pools are a very small part of California's energy footprint:** The CASE Report estimates that only 666 existing nonresidential pools statewide would be affected in the first year, and that the measure would save 2.46 million therms of natural gas that year (Table 20), a figure that already reflects solar as the primary heat source with supplemental gas heating retained. At roughly 1,037 Btu per cubic foot, 2.46 million therms is about 237 million cubic feet of natural gas. The U.S. Energy Information Administration reports that about 1.89 trillion cubic feet of natural gas was delivered to California consumers in 2024, including about 286 billion cubic feet delivered to commercial customers (EIA, Natural Gas Consumption by End Use, Table S05). The measure's entire first-year gas savings therefore equal approximately 0.01% of all natural gas delivered in California and less than one-tenth of one percent (about 0.08%) of commercial-sector deliveries. A measure of this size cannot meaningfully advance California's energy or climate goals, yet its cost and access consequences would fall on the facilities that deliver drowning prevention to the public.
- **The High-Efficiency Gas Heater Threshold: 88%, Not 90%**: USSSA is grateful that CASE listened to the concerns raised by the drowning prevention and swim lesson community and added the option of a high efficiency gas heater as an alternative compliance pathway to solar heating, and we appreciate that the October 12, 2026 draft language lowers the required thermal efficiency from the 94% in the Final CASE Report to 90%, with an input capacity-weighted average allowed for multiple-unit systems. That is a meaningful step. However, **we respectfully request that the minimum thermal efficiency for the high-efficiency gas or propane heater pathway be set at 88% rather than 90%**, and that the pathway also be offered among the compliance options for nonresidential new construction in Section 800.3, not only for alterations. This matters because the CASE Report itself describes the typical minimally compliant gas heater as 82–84% efficient and condensing heaters as "often exceeding 90 percent" (Section 2.3.6), so a 90% threshold sits at the edge of the condensing class. The high-efficiency commercial heaters our members priced were condensing units, moving from the **traditional non-condensing platform (82–84%)** to the **condensing platform (94–96%)**. That is not simply a slightly more efficient version of the same heater; it is a different technology with different installation requirements. The CASE Report characterizes the installation and maintenance differences as "minor," but our members' experience, summarized below, is otherwise. Condensing heaters carry a significant cost increase that most swim schools, community pools, and non-profit aquatic programs cannot absorb. They often require a larger physical footprint, which many facilities, particularly those that lease their space or operate on limited land, do not have room to accommodate, and additional infrastructure beyond replacing the existing unit, including condensate drainage and neutralization systems, revised venting, and, depending on the existing mechanical room configuration, modifications to plumbing and equipment layouts. Because the condensate is acidic, these systems also require ongoing maintenance of drainage and neutralization equipment over the life of the heater. These combined costs of equipment, footprint, plumbing, and chemical adjustments will fall hardest on the swim schools and community pools that serve at-risk and underserved communities, who already operate on thin margins and rely on affordable pool access to deliver drowning prevention swim lessons, and on government-funded community swim lesson pools, many of which are already stretched thin. An 88% threshold would still require a substantial improvement over the 82% federal minimum and the typical 82–84% heater, while giving facilities a wider range of listed commercial heaters to choose from. We also ask the Commission to publish the cost-effectiveness analysis supporting whichever threshold it adopts, since the CASE Report evaluated the gas

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pathway as a 94 percent efficient condensing option. For these reasons, we urge the Commission to set the high-efficiency gas heater threshold at 88% rather than 90%.

- **Commercial facilities need clearly defined exceptions – roof access and landlord control:** The only roof-access relief in the draft (Exception 5 to Section 800.3 and Exception 4 to the alterations heating-source provision, printed as Section 801.65.2.1.1) applies solely to permanent spa applications with inadequate Solar Access Roof Area (SARA). Pools used for swim instruction and therapy face the same physical limits, and 84% of our California members lease their facilities. We ask that these exceptions apply to any nonresidential pool or spa where (a) SARA is inadequate for the required collector area, or (b) the operator does not control the roof or site and the property owner has declined in writing to permit the installation.
- **Hardship and infeasibility need objective definitions:** Exception 6 to the alterations provision is the most important safeguard for existing swim schools, but as drafted it leaves key terms open and places the entire burden on the applicant. We ask the Commission to: define the "total cost of the project" used in the 20 percent infrastructure test; list the documentation that is sufficient to show infeasibility (for example, a licensed contractor's or engineer's written statement, a landlord's written denial, or a utility letter on electrical service capacity); state that a lease that prohibits the work satisfies the infeasibility standard; define "reasonable alternative" so that it cannot be read to require a pathway whose own cost the applicant has already shown to be prohibitive; and require the enforcement agency to issue a written decision within a stated period (we suggest 15 days from a complete request). A swim school replacing a failed heater cannot wait for an open-ended review.
- **The same relief must reach new commercial construction:** The hardship, infeasibility, and roof-access exceptions are written for alterations, but swim schools are often built into leased or existing commercial space with fixed roof area and electrical service. One member reports that the current solar requirement for new pools has already halted a swim lesson pool project. We ask that equivalent exceptions be added to Section 800.3.
- **The Executive Director's "alternative system" approval needs published criteria and a defined timeline:** Section 800.3 and the alterations provision each allow a pool heating system that the Executive Director determines will "use no more energy" than the other listed options, but neither says how to apply, what must be shown, or how long a decision will take. As written, this is not a practical path for a small operator. We ask the Commission to: (1) publish objective approval criteria, including the calculation method and documentation required (for example, a licensed engineer's annual energy comparison against the 88% gas heater pathway); (2) set a defined review timeline with a written decision within a stated period (we suggest 30 days from a complete application) and an expedited track for emergency replacement of a failed heater; (3) require a written explanation of any denial and provide a path to resubmit or appeal; and (4) publish approved alternatives and allow class approvals, so that one determination can serve similar facilities rather than each swim school applying separately. Without these, the pathway offers little practical relief.
- **Numbering and cross-references:** Several section numbers and cross-references in the draft appear inconsistent or to refer to superseded text (for example, the alterations section is printed as 801.65.2 while its exceptions refer to Sections 801.6.1 and 801.6.1.1, and the SARA exceptions cite both Section 702.3.1 and Section 701.3.1.1). Small operators and enforcement agencies will need unambiguous references to apply these exceptions consistently.

USSSA appreciates that the 2028 CASE Report explicitly credits USSSA, WaterWorks Swim Schools, and our fellow drowning prevention stakeholders for input that led to a reduced collector-size requirement, a new high-efficiency gas heater compliance pathway, and a more conservative equipment-lifetime assumption. We remain committed to this dialogue and offer the following outstanding concerns for the Commission's consideration. This is not a hypothetical concern. USSSA recently surveyed its California member swim schools, and the results confirm every one of the operational and financial concerns raised above:

- **Most member schools lease their facilities:** 84% of our California members rent or lease the buildings that house their pools. Tenants often cannot independently install solar systems, upgrade electrical service, or make

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structural changes without landlord approval, and even the owner-operators who responded noted that a required upgrade could involve significant site work well beyond simply swapping out a heater.

- **Learn-to-swim pools have unique, continuous heating demands:** Unlike recreational pools, swim schools maintain water temperatures of 88-94°F year-round for infants, toddlers, beginners, and therapeutic instruction, with lessons running continuously throughout the day with limited downtime.
- **Solar is not a practical workaround:** Multiple member schools that already have solar heating reported it cannot maintain the temperatures required for swim lessons. Coastal California's marine layer and cloudy weather significantly reduce solar effectiveness, and solar produces no heat overnight or in winter, when heating demand is constant. Full gas heating capacity is still required as backup, meaning solar becomes an additional capital expense rather than a substitute for gas heating. One member noted that the recently issued requirement of solar on new pool construction in California has brought his new swim lesson pool build to a halt because it is impossible to meet the guidelines.
- **A forced upgrade would require far more than replacing a heater:** Members identified gas lines, venting systems, plumbing, electrical service and panels, pumps, and equipment rooms without sufficient space for larger condensing units as likely needing modification, along with potential excavation around gas service. Several respondents noted these costs are especially problematic in leased facilities, where such improvements may not even be permitted by the landlord. For publicly operated pools, including many municipal and school district facilities that host swim lesson programs, these costs must clear competitive bidding requirements and compete for limited capital improvement budgets set years in advance, leaving little room to absorb an unplanned mandate outside the normal funding cycle.
- **The cost difference between standard and high-efficiency heaters is substantial:** Members reported standard commercial heaters costing approximately $3,600 to $4,000, compared to approximately $9,000 to $25,000 for a 94% efficient commercial heater before installation. Total project estimates – heater plus infrastructure – ranged from $15,000 to $30,000 or more. Several respondents estimated the higher-efficiency option costs more than double a conventional replacement.
- **The added efficiency may not justify the cost:** Several members noted that moving from approximately 82–88% efficiency to 94% efficiency provides only a modest efficiency improvement, and because swim school pools require continuous heating, the incremental energy savings would take many years to recover the substantially higher installation cost. Even one respondent who already operates a 96% efficient heater acknowledged that lifetime savings may offset the investment only for facilities that own their building, an assumption that does not hold for the many schools that lease.
- **Nearly every respondent indicated the requirement would create financial hardship:** Nearly every respondent indicated the requirement would create financial hardship, often framing it as a direct trade-off against their public safety mission. Unplanned capital costs of this scale would divert funds that small, family-owned swim schools and community pools currently spend on instructor wages, staff training, and drowning prevention programming. Because the requirement is only triggered when an existing heater already needs replacement, several respondents noted that what would otherwise be a straightforward like-for-like swap instead becomes a far more expensive project, requiring a different technology and additional infrastructure work at the exact moment a facility is least able to plan or budget for it.

The California Governor and Legislature have elevated its attention to the drowning public health issue (Governor's annual drowning prevention Proclamation and ACR 77 Chapter 142 of 2025). Due to the high public health stakes in California the state Legislature and Governor have recently placed swim lessons in statute as an essential component of California's drowning prevention strategies (CA Health and Safety Code 116036). These programs require access to pools, including pools capable of staying open year-round to address the reality that half of California's children do not have water safety swimming competency. California's access to heated pools is critical and pools capable of maintaining water temperatures of 88–94°F is critical.

In summary: The submissions to CASE and to the California Energy Commission, together with USSSA's own survey of its California member schools, lay out the realities:

California's pools used for drowning prevention swim lessons, water rehabilitation programs, and community recreation – commonly the same pools – are a very small part of California's energy and greenhouse gas footprint. The 2028 CASE Report's own statewide impact data show that the entire measure would reduce statewide greenhouse gas emissions by approximately 0.0036% and natural gas use by roughly 0.01%, far too little to warrant the proposed solar heating regulation that would be so devastating to the state's drowning prevention swim lesson strategies.

Solar pool heating on its own cannot achieve the temperatures needed for drowning prevention swim lessons and rehabilitation programs. Survey respondents reported that gas backup systems continued to provide most heating demand, reducing the practical energy savings they experienced.

CASE's decision to formally incorporate a high-efficiency gas heater compliance pathway in the 2028 Report is a constructive step that reflects stakeholders' input, but it still fails to address the financial realities of the communities and swim lesson programs that make up the majority of pools needed for drowning prevention swim lessons. Nor does this addition to the conversation account for the reality that most of the community and swim lesson private pools do not own their own buildings or land or have sufficient roof space or land, if they do own their building and land, to accommodate the solar system's sun exposure requirements. The October 12, 2026 draft language moves in the right direction by lowering the threshold from 94% to 90%, but 90% still sits at the edge of the condensing class, and we urge 88%.

The draft's exceptions and its Executive Director "alternative system" pathway are the safety valves for facilities that cannot comply, but they are undefined where it matters most. Commercial swim and therapy facilities need clearly defined roof-access, landlord-control, and hardship or infeasibility criteria, and an objective, time-limited review process for alternative systems. Without them, these provisions will offer little practical relief.

The solar equipment – solar panels, pipes, electrical, and control systems – have a short life span in the real world of these pools of five to eight years, and not the long life spans showcased in the CASE modeling, making the financial burden not only of the initial retrofit costs but the constant upgrade and replacement costs too expensive for most of California's pools used for drowning prevention swim lessons. To exasperate this situation the solar companies' warrantees time spans are far too short to help with the financial replacement burden.

The solar pool heating regulation proposed would exacerbate California's drowning and access to recreation inequities. California's most underserved communities and most at-risk childhood populations of minority communities would be put at the most risk both for increased drownings due to the loss of swim lesson pools, but also these communities would lose these pools for important community recreation programs.

For these reasons we respectfully oppose moving forward with the proposed solar pool heating regulation at this time. We also request that, should a high efficiency gas heater compliance pathway move forward, the minimum thermal efficiency be set at 88% rather than 90% for the cost, footprint, plumbing, and water chemistry reasons described above; that the roof-access, landlord-control, and hardship or infeasibility exceptions be defined clearly and objectively for commercial facilities; and that the Executive Director's alternative-system approval have published criteria and a defined review timeline. We would like to be involved in additional exploration of pool heating and environmental impact discussion. As technologies advance there are likely to be other opportunities to address this issue in a way that does not put so much of California's underserved communities and at-risk populations at further risk of drowning and not having pools as an important part of the community's recreational programs.

Respectfully submitted,

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