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Opposition to Proposed Pool Heating Regulation

With all due respect the leadership of Californiaâ€™s Drowning Prevention Community is opposed to the proposed CASE pool heating regulation. The specific reasons for our opposition are laid out in the attached jointly signed letter of opposition.

In summary though, the proposed pool heating regulation:

â€¢ Does not achieve any discernible benefits to California carbon footprint reduction goals.
â€¢ Was crafted without any meaningful input from key stakeholders from Californiaâ€™s well known drowning prevention community and Californiaâ€™s large numbers of public and private swim lesson pool owners and managers.
â€¢ Would create increased inequities in Californiaâ€™s drowning public health issue by putting Californiaâ€™s Black, Native American Indian, children diagnosed with Autism, and children from underserved communities at higher risk of drowning by removing the pools needed to teach them water safety and swimming skills.
â€¢ And result in far more California children and adults with permanent brain damage.

The organizations signing this letter support Californiaâ€™s carbon footprint climate goals, but the proposed pool heating regulation is a flawed proposal harming many in our state without achieving any useful climate change. Those signing this letter of opposition are ready and happy to work with the California Energy Commission exploring other ways to help reach our stateâ€™s climate goals.

We would like to meet by Zoom with the Commission and CEC leadership to discuss the facts and points raised in the attached letter. To coordinate such a meeting CEC staff can reach out to Steve Barrow, State Program Director CCCSH and Vice Chair Drowning Prevention Foundation at scbarrow88@gmail.com

Additional submitted attachment is included below.

January 5, 2025

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

Introduction

The organizations signing this letter strongly support California's climate and carbon reduction goals. However, we must respectfully oppose the proposed pool heating regulation requiring solar and heat pump systems for public and private pools. As currently drafted, the proposal would unintentionally force the closure of a majority of California's pools used for drowning prevention swim lessons and water rehabilitation programs—without producing any meaningful climate benefits. For the real-world reasons laid out in this letter, enacting the proposed regulation will cause insurmountable economic and structural burdens on public and private pools providing swim lessons and water rehabilitation programs leading to closure of these pools without achieving any discernible benefit to California's climate carbon footprint. The consultant firm's outreach to build its own inaccurate climate benefit story was built primarily by reaching out to stakeholders with an economic benefit if the proposed regulation were enacted, ignoring the real negative burden on those who own, manage, and run public and private pools essential to address California's codified public health drowning prevention strategies.

We urge the Commission to pause advancement of this proposal into the Administrative Procedure Act (APA) process and convene a meeting with key stakeholders who were not adequately consulted.

I. Failure to Engage Critical Stakeholders

With all due respect for the CASE consulting team, the CASE report states that the 2025 Energy Code development process includes public engagement and full consideration of stakeholder views. Despite these stated goals, two essential stakeholder groups were not meaningfully consulted until November 2025:

- California's drowning prevention community
- Pool owners and operators who run the majority of public and private pools used for drowning prevention swim lessons and water rehabilitation programs.

These groups operate thousands of pools statewide and possess the real world operational knowledge necessary to evaluate whether solar and heat pumps can meet required water temperature needs. Their

exclusion resulted in a proposal built on incorrect assumptions about pool sizes, heating demands, infrastructure limitations, and equipment performance.

II. Public Health Importance of Pools in California

Drowning is one of California's most urgent and inequitable public health crises:[i]

- Leading cause of death for children ages 1–4
- Second leading cause of death for children ages 5–14
- Third leading cause of death for youth ages 15–24
- Fatal drowning rates are two times higher for Black children and even higher for Native American children[ii]
- Leading cause of death for children diagnosed with Autism[iii]
- For every fatal drowning: There are seven to ten non-fatal drowning incidents with many non-fatal drowning incidents resulting in permanent brain injury due to hypoxia[iv] [v]
- One of the leading causes of Cerebral Palsy is brain injury due to drowning.[vi] [vii]

Due to the high public health stakes in California the state Legislature and Governor 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 know how to swim. California's access to heated pools is critical and pools capable of maintaining water temperatures of 90–92°F.

III. Technical and Operational Realities of Pool Heating

Solar Limitations

Solar systems cannot reliably reach or maintain the temperatures required for swim lesson pools. They cannot provide rapid recovery heating and perform poorly during the majority of months with inconsistent sun exposure. Solar systems on these pools require and the CASE report acknowledges gas heaters to back up and most of the time be the primary water heaters even if solar panels can be installed. As you can see from the example below of similar sized pools - one with additional solar equipment and one without solar - relied on the pairing of gas heater equipment with solar without any discernible change in the use of the gas heater and the two pools' monthly heating bills. See the WaterWorks pool example below and, in the endnotes and Attachments A, B, C, and D.

Heat Pump Limitations

Heat pumps require long run times, cannot quickly raise water temperature during lessons, and require large equipment footprints and electrical capacity that many facilities cannot accommodate. Changing the electrical equipment to accommodate heat pumps alone costs tens of thousands of dollars, far outside of pool maintenance and equipment budgets. And – even if there were available space to install heat pumps which is seriously problematic for most of these pools - require pairing with gas heaters as the primary water heating equipment, especially during pool usage when the water is agitated and water heating equipment that can quickly stabilize the water temperature is required.

Infrastructure Barriers

Most swim lessons and rehab pools are located in leased buildings where operators cannot modify roofs or land. Many facilities lack the electrical capacity for heat pumps or the roof space needed for solar

arrays – do not have the electrical panel capacity for this additional heating equipment, requiring major retrofitting and upgrades to existing electrical equipment.

Equipment Lifespan

The CASE report assumes a 30-year lifespan for solar systems. In reality, due to chemical exposure in swim-lesson pools, heating equipment including solar systems lasts five to eight years.

Real-World Cost Data

A comparison of two similar WaterWorks swim-lesson facilities—Pasadena (with solar) and Carlsbad (without solar)—shows that Pasadena's gas usage is higher despite having rooftop solar. Solar provided minimal to no economic savings or environmental savings, and gas heaters remained the primary heating source year-round.[viii] (See Attachments A, B, C, D, and E)

IV. Equity Impacts

The proposed regulation would disproportionately harm Black children, Native American children, children diagnosed with autism, low-income families, and underserved communities with the highest drowning rates. These communities rely heavily on public and private swim lesson programs to bring water safety and swimming proficiency up to a level that is needed to turn California's long standing drowning inequities around. Research shows these populations and communities have only 54% level of swim skills. Again, having swim skills prevents drowning by up to 88%. Closing pools would deepen existing racial and socioeconomic inequities to a higher level of drowning risk.

V. Environmental Impact Considerations

California's pools represent a small fraction of statewide energy use compared to data centers, aviation, industrial operations, and transportation. The proposed regulation would produce minimal if any discernible climate benefit while eliminating essential public-health infrastructure.

VI. Request for Action

Given the significant unintended consequences, less than significant positive impact on California's carbon footprint, and the lack of meaningful stakeholder engagement, we respectfully request that the Commission:

1. Pause advancement of the proposed pool heating regulation into the APA process.
2. Convene a meeting with drowning prevention organizations, swim lesson operators, and pool-facility owners.
3. Reevaluate the feasibility and public health impacts of solar and heat-pump mandates for swim-lesson and rehabilitation pools.

For coordination of our drowning prevention community, please contact:

Steve Barrow
Vice Chair, Drowning Prevention Foundation
State Program Director, California Coalition for Children's Safety and Health
scbarrow88@gmail.com

Or our water safety partners at the California Pool & Spa Association through John Norwood at jnorwood@nalobby.net.

In summary the proposed pool heating regulation:

- Does not achieve any discernible benefits to California carbon footprint reduction goals.
- Was crafted without any meaningful input from key stakeholders from California's well known drowning prevention community and California's large numbers of public and private swim lesson pool owners and managers.
- Would create increased inequities in California's drowning public health issue by putting California's Black, Native American Indian, children diagnosed with Autism, and children from underserved communities at higher risk of drowning by removing the pools needed to teach them water safety and swimming skills.
- And result in far more California children and adults with permanent brain damage.

The organizations signing this letter support California's carbon footprint climate goals, but the proposed pool heating regulation is a flawed proposal harming many in our state without achieving any useful climate change. Those signing this letter of opposition are ready and happy to work with the California Energy Commission exploring other ways to help reach our state's climate goals.

Consigners:

Steve Barrow, State Policy Director, for California Coalition for Children's Safety and Health and Vice Chair Drowning Prevention Foundation (CCCSH and DPF) (scbarrow88@gmail.com)

Marcia Kerr, Chair, for Drowning Prevention Foundation, retired U.S. Consumer Product Safety Commission incident site investigator, and affected parent having lost her two-year-old son Cody to drowning.

Rose Chollewinski, President, for U.S. Swim School Association (USSSA), Owner SwimAmerica Davis CA and Lisa Zarda, Executive Director U.S. Swim School Association (USSSA)

Bobby Hazen, Executive Director, for Stop Drowning Now

Jessica Heldman, Executive Director, for Children's Advocacy Institute (CAI) University of San Diego School of Law, and **Professor Robert Fellmeth**, Founder, Children's Advocacy Institute University of San Diego School of Law

Jon Alpert, Owner WaterWorks Swim Schools, member of USSSA

CCs: Heather Riatt, Policy Development, CEC
Office of Governmental and International Affairs, CEC
Office of the Public Advisor, Energy Equity, and Tribal Affairs, CEC

Attachments – See Endnote viii: Example PG&E and SDGE actual bills with and without solar at Attachments A, B, C, D, and E.
Attachment A – WaterWorks Aquatics Carlsbad SDGE Dec 2023 Bill_WW CB
Attachment B – WaterWorks Aquatics Pasadena SoCalGas Dec 2023 Bill_WW Pas
Attachment C – WaterWorks Aquatics Pasadena SoCalGas Jun 2024 Bill_WW Pas
Attachment D – WaterWorks Carlsbad SDGE Jun 2024 Bill_WW CB
Attachment E – WaterWorks energy bill comparison with and without solar

[i] California Department of Public Health EPICenter, CDC WISQARS, and American Academy of Pediatrics.
[ii] Centers for Disease Control and Prevention, American Academy of Pediatrics, Safe Kids Worldwide.
[iii] National Autism Association citing children with autism are 160 times as likely to die from drowning as the general pediatric population, American Red Cross, and National Drowning Prevention Alliance.
[iv] Idid.
[v] Biological impact of water submersion and hypoxia leading to brain damage (Underpinning why swim skills, which through scientific research is shown to prevent drowning by up to 88% is so important.):

- During a drowning incident, the brain tissue most impacted by hypoxia (lack of oxygen) includes the hippocampus, cerebellum, and basal ganglia,
- With cortical layers also highly vulnerable, leading to cell death in these energy-demanding areas within minutes, resulting in severe neurological deficits like memory, movement, and coordination problems.
- Vulnerable Brain Regions Hippocampus:
    - Especially CA1 (Carbonic Anhydrase 1) pyramidal neurons, critical for memory.
    - Cerebellum: Particularly its deep folia (folds and valleys of the brain) and Purkinje cells, affecting balance and motor control.
    - Basal Ganglia: Including the striatum and thalamic reticular nucleus, influencing movement, and aiding in the choice of behaviors to execute Cerebral Cortex: Layers 3, 5, and 6 of the neocortex are extremely sensitive.

Why These Areas of the brain?
High Metabolic Demand:

- These regions require a continuous, high supply of oxygen and glucose to function, making them extremely sensitive to deprivation.
- Selective Vulnerability: Different neurons have varying levels of susceptibility, with these specific areas being the first to suffer irreversible damage.
- Impact Irreversible damage and neuronal death can occur within 4-10 minutes of severe hypoxia, causing profound deficits in cognition, motor function, and coordination.
- Brain Resuscitation in the Drowning Victim - PMC the greatest permanent harm in drowning accidents is to the brain, which has negligible metabolic substrate reserves to subsist on.

Timeline of Damage:

- Seconds: Functional failure begins.
- Minutes (4-10): Irreversible injury develops in these vulnerable regions, potentially causing memory/coordination issues if resuscitated.
- 10+ minutes: Tissue death.

[vi] National Institutes of Health, Children's Hospital of Orange County (Now Rady Children's Hospital of Orange County) "Oxygen Deprivation from Near-Drowning Can Lead to Brain Damage."
[vii] Cerebral Palsy Guidance – "Acquired Brain Injuries and Cerebral Palsy" and National Library of Medicine Functional integrity in children with anoxic brain injury from drowning.
[viii] To explain the pool heating real life situation for swim lessons one of the drowning prevention community pool owners is sharing a real heating bill comparison of similar sized swim lesson pools with one having solar and the other not having solar. Below is a real-life heating costs associated taken from swim lesson pools that have tried solar as compared with swim lesson pools without solar. Demonstrating the minimum to none cost and energy use saving when solar is attempted in a swim lesson pool setting. Again, most public, and private pools that are not residential associated pools are used for drowning prevention swim lessons and/or water rehab programs.

When pool owners tried solar to heat their pools the high efficiency gas heater systems always became – even when their gas heating system was meant to be the back-up system – the primary source of heating the water. Below is an example of the pool heating real life costs and comparisons regarding similar sized swim lesson pool in Pasadena vs. Carlsbad, with one having solar addition to the pools heating equipment and the other without solar.

Exhibit: Attached is a comparison of gas usage and costs for the "WaterWorks" swim lesson pool in Pasadena and one of its other pools located at its Carlsbad facilities for the December 2023 and June 2024 billing periods. The corresponding gas invoices are also included at Attachments A, B, C, and D to this letter for your reference.

The Pasadena facility has rooftop pool solar equipment, which was installed as part of the original building construction. Despite this, Pasadena's gas usage remains higher than that of the Carlsbad facility, which does not have pool solar. The rooftop solar system is providing minimal to no savings due to the required pool operating temperatures, as reflected in the utility bills from both summer and winter seasonal periods.

Below are the current pool specifications for each facility:
Carlsbad

- Pool 1: 43,270 gallons
- Pool 2: 79,000 gallons
- **Total:** 122,270 gallons

Pasadena

- Pool 1: 41,869 gallons
- Pool 2: 96,650 gallons
- **Total:** 138,519 gallons

Pasadena Solar has 1950 Sq Ft of panels on the roof. "Suntrek Solar" quoted the following if we installed this system today:

1950 Sq Ft System: $37,250
Plumbing: $3000 (estimate)
Controller: $1200
Pump: $3800
Plans permit/engineering: $2500 (estimate)

Total: $47,750

Overall, Pasadena's pools have approximately 13% more total pool volume than Carlsbad's pools. We heat each of our swimming pools to 90 degrees, a required level of temperature for conducting swim lessons with children, and the other pool at 93 degrees.
The gas heater fires on as the pool solar system is unable to heat the water up when it falls one degree. The peak summer months may help but the amount of time needed to bring the temperature up is much longer than with a gas heater. And when the water temperature drops during swim lessons when the water is agitated the gas heater becomes the primary since the solar cannot elevate the pool's temperature or maintain the required temperature during the swim lesson day. Solar pool heating takes far too long to address the several heating requirements during a swim lesson program day.

See the example PG&E and SDGE actual bills at Attachments A, B, C, D, and E.
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