UCLA Luskin Center for Innovation

Informing effective and equitable environmental policy

Keeping Children Safe by Cooling Homes and Schools in California

A MENU OF OPTIONS FOR THE CALIFORNIA STATE LEGISLATURE

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REPORT

UCLA Luskin Center for Innovation

Informing effective and equitable environmental policy

The Luskin Center for Innovation conducts actionable research that unites UCLA scholars with civic leaders to solve environmental challenges and improve lives. Our research priorities include the human right to water, community-driven climate action, heat equity, clean energy, and zero-emission transportation. We envision a future where everyone has healthy, affordable, and resilient places to live, work, learn, and play.

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We acknowledge the Gabrielino/Tongva peoples as the traditional land caretakers of Tovaangar (the Los Angeles basin and So. Channel Islands). As a land grant institution, we pay our respects to the Honuukvetam (Ancestors), ‘Ahiihirom (Elders), and ‘eyoohiinkem (our relatives/relations) past, present, and emerging.

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EXECUTIVE SUMMARY

Extreme heat is intensifying across California, placing children's health, safety, and learning at risk. Homes and schools—the settings where children spend most of their time—often lack adequate cooling, leaving them vulnerable to unsafe indoor temperatures. Access to indoor mechanical cooling has become a necessity—not a luxury—for children to safely live and learn.

This report provides a **menu of policy and regulatory options** to expand access to cooling systems in California homes and schools. A review of recent legislation, interviews with policymakers and staff in multiple states, and a synthesis of best practices inform this menu. It is designed to guide California leaders as they develop strategies that respond to a rapidly changing climate and policy environment.

To underscore the urgency, the report integrates new data from the 2025 UCLA Luskin California Poll, which reveals widespread gaps in access and affordability:

- An estimated 10% of homes with children present do not have working air-conditioning.
- Even where cooling is available, many families do not run systems due to high energy costs; in some inland regions of California, more than 65% reported avoiding use for this reason.
- Nearly half of parents surveyed have kept children home from school due to heat, and around 92% of Californians believe the state should prioritize cooling access in schools.

Menu of Options for California Leaders

The report presents a structured set of strategies to increase access to cooling, organized into key categories:

- **Update indoor cooling standards**—establish enforceable temperature thresholds for homes and schools, with tailored protections for children and other vulnerable groups.
- **Improve data transparency**—track access to and use of cooling systems in schools and homes, and address misconceptions about regional variations in safe indoor temperatures.
- **Build coalitions across sectors**—engage labor, education, health, climate, and housing advocates to generate broad support for cooling as essential infrastructure.
- **Adequately fund indoor cooling solutions**—integrate state funding sources with federal offerings.
- **Prioritize equity in supporting cooling system access**—prioritize high-need populations.

By adopting these and other strategies, California can protect vulnerable populations—especially children—from unsafe indoor heat, while leveraging synergies with broader goals for resilience, equity, and sustainability.

1. INTRODUCTION

When it is hot, our bodies spend more energy to maintain safe temperatures. This physiological adaptation keeps us safe in the short run, but our bodies can't keep up with prolonged exposure to excessive heat. In the most extreme instances, heat stresses on the body can cause serious illness and death (World Health Organization, 2024). But long before that, our bodies struggle to function with excessive heat. High temperatures can cause heat exhaustion and sleep interference, and even lead to an escalation in stress and anxiety (Rony & Alamgir, 2023). As climate change worsens, Californians living in every region will be exposed to increasingly hot and unsafe temperatures. Access to indoor cooling systems has become a necessity, not a luxury for Californians—especially heat-vulnerable children—to safely live, learn, and play.

The purpose of this report is to develop a "menu" of ideas to fund, install, and maintain **indoor mechanical cooling systems (cooling systems)** in California's homes and schools. The menu serves as a collection of potential state legislative and regulatory strategies drawn from an assessment of literature, legislation, and interviews with experts from across the country. It dives deeper into previously articulated actions, uncovers new strategies, and highlights best practices at the legislative and agency levels to facilitate the installation and maintenance of cooling systems. Findings are intended to have salience for a rapidly changing policy and funding environment.

We developed this menu through an inductive research approach. We began by reviewing state bills from the 2023 legislative cycle to compile a list of strategies for indoor thermal safety, focusing on those that prioritize indoor mechanical cooling. We then met with 17 legislators and agency and legislative staff in California, Oregon, Massachusetts, Minnesota, and Washington to discuss these options and uncover ways to make them applicable to a California context. Building on ideas from past efforts, insights from the interviews, and information from the literature, we developed a menu of options that California leaders can review to develop guidelines and programs supporting indoor mechanical cooling.

1.1. Why Focus on Schools and Homes Using an Exposure Setting Framework?

Drawing on the exposure setting framework used in our past heat research, we chose to focus this report on two key settings: homes and schools. We chose these settings to focus on indoor cooling solutions for two places where children spend most of their time. Children are particularly at risk for heat illness because their smaller bodies heat up more quickly than adults and are less able to regulate temperature (Early Childhood Scientific Council on Equity and the Environment, 2023). The same Harvard Study found that hot school environments lead to learning losses and lower test scores because heat can cause the brain to have slower reaction times and loss of focus. In hot homes, children are less likely to experience quality sleep, which can lead to cognitive disruption and learning difficulties in early childhood (Early Childhood Scientific Council on Equity and the Environment, 2023).

Thus, this report focuses on the two exposure settings where children spend the most time: homes and schools. Schools and homes are interconnected heat exposure settings, and adequately cooling both environments creates lasting benefits for children's health, safety, and cognitive development.

Our previous policy report—*Protecting Californians with Heat-Resilient Schools*—highlighted significant data gaps surrounding children's heat exposure in California, including a lack of data about which schools have adequate cooling systems. It is, therefore, difficult to estimate the amount of time children spend in thermally unsafe conditions or advocate for safer conditions. Though likely an underestimate, a UC Berkeley and Stanford study finds that 15%–20% of K–12 public schools lack air-conditioning, and around 10% need a replacement to run properly (Patel et al., 2025).

1.2. Defining Indoor Mechanical Cooling

We define **indoor mechanical cooling** as any method that uses energy to actively cool an indoor area (Lee, 2021). The broadest definitions of mechanical cooling also refer to refrigerators and freezers, but these are less salient to the subject of this report and not considered. The terms "indoor mechanical cooling" and "cooling systems" are used interchangeably to refer to appliances that mechanically cool indoor spaces, including, but not limited to:

- central air conditioners (circulate cool air through supply and return ducts) (U.S. Department of Energy, n.d-a),
- central heat pumps (use electricity to transfer heat from a cooler space to a hotter space, offering more efficient cooling than a traditional air conditioner) (Smarter House, 2025),
- room air conditioners for mounting in windows or through walls (cooling devices for individual rooms or zones), and
- ductless mini-split air conditioners (cooling devices for individual rooms or zones for buildings without ductwork) (Smarter House, 2025).

Indoor mechanical cooling systems are, in some instances, the only method for reducing temperatures to thermally safe levels during excessive heat. This report does not focus on fans, evaporative coolers, or passive cooling systems that do not provide sufficient reductions in temperature during periods of heat. Notably, when indoor air temperatures are hotter than 95 °F, fans may cause the body to gain heat rather than lose it, especially in humid environments (New York State Department of Public Health, 2025). In these hot environments, fans essentially act as a convection oven by circulating hot, unsafe air in an indoor environment.

1.3. Why Should California Invest in Mechanical Cooling in Schools and Homes?

1.3.1. Schools

Children's thermal comfort is directly tied to their success in schools. Our previous research quantified that without air-conditioning, test scores decline 1% for every degree Fahrenheit hotter a classroom gets (Turner et al., 2023). Yet a myriad of school facilities are outdated and do not meet current climate demands, affecting inner-city and low-income serving schools the hardest. It is estimated that around 40% of California public schools are over 50 years old, and older facilities can require more intense interventions to make them places for resilient learning (Abowd et al., 2021).

Given the millions of children who attend school for six to 10 hours daily, investing in thermally safe classrooms provides significant protection for heat-vulnerable Californians and elevates children's overall health and well-being. On the other hand, if schools are not equipped to adequately protect children from hot conditions, schools send children home. For some children, this "solution" entails spending time in equally risky hot home environments, and for all children, it disrupts routine learning patterns and can harm mental health (Patel et al., 2025).

1.3.2. Homes

A broader focus on children's learning, health, and well-being over the course of a full diurnal cycle exposes another large heat preparedness problem: California's housing stock is unprepared for rising temperatures, as explained in our 2022 *Protecting Californians with Heat-Resilient Homes* brief. Data suggest that around 24% percent of California's homes lack air-conditioning, and yet Californians spend most of their time at home and might not otherwise have a safe place to adequately cool down during periods of excessive heat (Heacock, n.d.).

It is well established that the impacts of extreme heat disproportionately affect racial and ethnic minorities, especially those in low-income areas, due to a history of discriminatory policies including redlining and environmental racism (Liu & Smith-Greenaway, 2024). Heat in homes disproportionately affects low-income Californians who cannot afford to install and/or operate cooling systems. Children in rented and mobile homes are a particularly heat-vulnerable group, due to a lack of thermal protections built into the California Civil Code.

TABLE 1

California Bills Aimed at Protecting Vulnerable Populations from Heat

State	Bill	Year	Status	Overview
CA	SB-1095	2024	failed	Bill proposes the Cozy Homes Cleanup Act, which states that the installation of plumbing, heating, or air-conditioning systems for manufactured homes, mobile homes, or multifamily manufactured homes cannot be prevented.
CA	AB-586	2023	failed	Bill adds climate change or environmental remediation devices to the list of community supports for Medi-Cal recipients, including air conditioners, electric heaters, air filters, backup sources, etc.
CA	AB-806	2025	pending	Bill voids regulations that prohibit the restriction of residents from installing a cooling system in their mobile homes.

TABLE 2

Other States Have Written Bills Aimed at Protecting Renters and Mobile Home Park Residents During Periods of Heat

State	Bill	Year	Status	Overview
AZ	HB 2778	2023	failed	Bill states the owner/manager of a mobile home park cannot prohibit tenants from installing reasonably necessary cooling mechanisms to reduce energy costs or prevent heat-illness/death (includes temporary window-mounted ventilation/air conditioner units, wall-mounted mini-split air conditioner, commercial window coverings, etc). Bill is similar to CA AB-806, passed in 2025.
GA	HB 304	2023	failed	Bill provides uniform regulation of landlord-tenant relationships and mandates that landlords must provide essential services to all tenants. Essential services include air-conditioning if required by the lease or another law, which, if not supplied to the tenant, would create a serious threat to the health, safety, or property of the tenant or immediate family member.
GA	HB 404	2023	passed	Bill relates to a landlord's duties regarding utilities and redefines utilities to cover cooling and heat.
IL	SB 2013	2023	passed	Bill states that all housing under the Illinois Affordable Housing Program must meet minimum living standards, including independent cooling and dehumidification. New construction requires permanent air-conditioning, which must run above 80 °F.
IL	HB 1541	2023	passed	Bill states gas or electric cannot be terminated for nonpayment if that is the only source of space heating or cooling when temperature is freezing or over 90 °F.
IN	HB 1541	2023	failed	Bill states that the landlord must provide and maintain heating, ventilation, and air-conditioning systems to adequately supply heat at all times in a safe, clean, and habitable condition.
MA	S 893	2023	failed	Bill states that landlords or condominium owners may not prohibit tenants from installing portable cooling devices (with few exceptions, one being if the landlord provides central air-conditioning). If the landlord limits the installation, they must make exceptions for people with disabilities.

1.4. What Opportunities Exist in California?

In recent years, California has invested more attention in extreme heat and children's health.

- The Perinatal and Infant Children Health: Extreme Heat Act AB-2420 (2022) (passed) instructs the California Department of Public Health to study the impact of heat on prenatal and infant health.
- The 2022 California Extreme Heat Action Plan (EHAP), Track C, Goal 2, R1 calls for improving access to air-conditioning and other indoor cooling strategies and exploring indoor heat exposure rules for schools.
- The California Department of Public Health offers Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat (2024).

In November 2024, California voters passed Proposition 2: The Kindergarten Through Grade 12 Schools and Local Community College Public Education Facilities Modernization, Repair, and Safety Bond Act of 2024, and Proposition 4: The Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024. Both Proposition 2 and Proposition 4 open funding for addressing heat impacts in California and expanding access to indoor mechanical cooling. Notably, before Proposition 2, California had not passed a school bond since 2016, and much of the funding for school facilities comes from voter-approved state bond measures.

CALIFORNIA PROPOSITION 2 AND 4

Expanding access to mechanical cooling in homes and schools has synergies with priorities outlined in Proposition 2 and Proposition 4 (California Legislative Analyst's Office, 2024a, 2024b).

California Proposition 2	California Proposition 4
$10 billion bond for public school and community college facilities, with $8.5 billion for public school facilities • $4 billion for renovation of existing buildings • $3.3 billion for new construction • $600 million for facilities for career technical education programs • $600 million for charter schools Increases state share of cost for certain school districts • New construction project costs increased from 50% to as much as 55% • Renovation project costs increased from 60% to as much as 65% Expands school districts that can apply for additional state funding • School districts that cannot raise at least $15 million (up from $5 million) can apply for additional state funding	$10 billion bond for natural resources and climate activities • $450 million for extreme heat category of the bond Extreme heat category priorities: • Activities focused on protecting communities from extreme heat • Adding trees and green spaces • Support for places people go during heat waves or disasters • Grants to local communities for projects with environmental benefit

1.5. Cooling Co-Benefits: Building Decarbonization

The deployment of energy-efficient cooling systems can align with California's building decarbonization goals. As demonstrated by recent and proposed state budgets, California has identified building decarbonization as a statewide priority to reduce emissions and create more climate-resilient homes (Building Decarbonization Coalition, 2025). California's roughly 15 million homes make up around 8% of the state's greenhouse gas emissions (as of 2022), largely due to fossil fuel-powered devices (California Air Resources Board, n.d.). Installing cooling systems in homes and schools that do not already have them may appear to add load to electrical systems and work against building decarbonization goals. However, equipping homes and schools with efficient heat pumps presents a lower-emission way to maintain safety

and comfort indoors compared to other cooling options (Zilliac, 2023). By passing policies that support and couple energy-efficient appliance replacement and adoption with building decarbonization programs, California decision makers can aid in the equitable and sustainable adoption of cooling systems across the state (Building Decarbonization Coalition, 2025).

1.6. Cooling Co-Benefits: Improving Air Quality and Wildfire Resiliency

Mechanical cooling has an important co-benefit: improved indoor air quality, which is directly tied to increased public health and better learning outcomes for children. There is a connection between limited mechanical cooling and limited air ventilation in public K–12 schools. A 2020 study by University of California, Davis and Lawrence Berkeley National Laboratory researchers found that only 15% of classrooms met California's fresh air ventilation standards (Chan et al., 2020). Further, 30% of teachers expressed dissatisfaction about their classroom's air temperature, and around 10% said the classroom temperature affects student learning (Chan et al., 2020). But the exact number of classrooms that lack adequate cooling is not known because that data are not collected by any state entity, as detailed in our 2023 *Protecting Californians with Heat-Resilient Schools* policy brief.

The landscape of climate change effects in California is evolving. In recent years, air pollution from wildfires has been 120 times greater than pollution from traffic (Abowd et al., 2021). Installing efficient indoor mechanical cooling systems in homes and schools will make buildings more resilient and able to adapt to unsafe air conditions resulting from wildfires and other hazards.

1.7. The Hidden Cost of Heat in Homes and Schools

Funding indoor mechanical cooling can help mitigate the associated human and financial burdens of heat by creating more livable, thermally safe indoor environments, reducing costly impacts to the state. The California Department of Insurance found that extreme heat events from 2013 through 2024 had an economic impact of $7.7 billion, caused by lost wages, agricultural and manufacturing disruptions, power outages, and infrastructure damage (Industrial Economics, 2024).

2. LUSKIN CALIFORNIA POLL RESULTS

For this report, we have integrated original data that we gathered as part of a California-wide survey about indoor mechanical cooling. The following questions and responses were included in a survey facilitated by the UCLA Luskin School of Public Affairs that focused on issues of concern to Californians, including the economy, housing and homelessness, education, crime, healthcare, the environment, immigration, transportation, race and ethnic relations, employment, mental health, electoral reforms, and other matters. The survey sampled over 2,400 California adults online in English and Spanish, using demographic quotas to match the California population. The following responses to questions are weighted to represent the California population. The California Energy Commission identifies 16 climate zones in the state, and we have analyzed some responses using these climate-specific geographies to reflect California's diverse climate (California Energy Commission, n.d-f).

TABLE 3

Respondents and Maximum Daily Temperatures by California Climate Zone (CCZ)

California Climate Zone (CCZ)	Large Counties in Each CCZ by Area	Maximum Daily Temperatures During Summer by CCZ (°C)	Number of Survey Respondents
1	Humboldt County	31	4
2	Mendocino County	35	82
3	Monterey County	33	269
4	San Luis Obispo County	35	118
5	Santa Barbara County	34	8
6	Ventura County	32	178
7	San Diego County	30	140
8	Orange County	32	356
9	Los Angeles County	33	379
10	Riverside County	35	265
11	Shasta and Tehama Counties	36	31
12	Merced, Stanislaus, San Joaquin, and Sacramento Counties	36	299
13	Kern and Fresno Counties	36	126
14	San Bernardino County	46	69
15	Imperial County	42	59
16	Inyo County	44	36

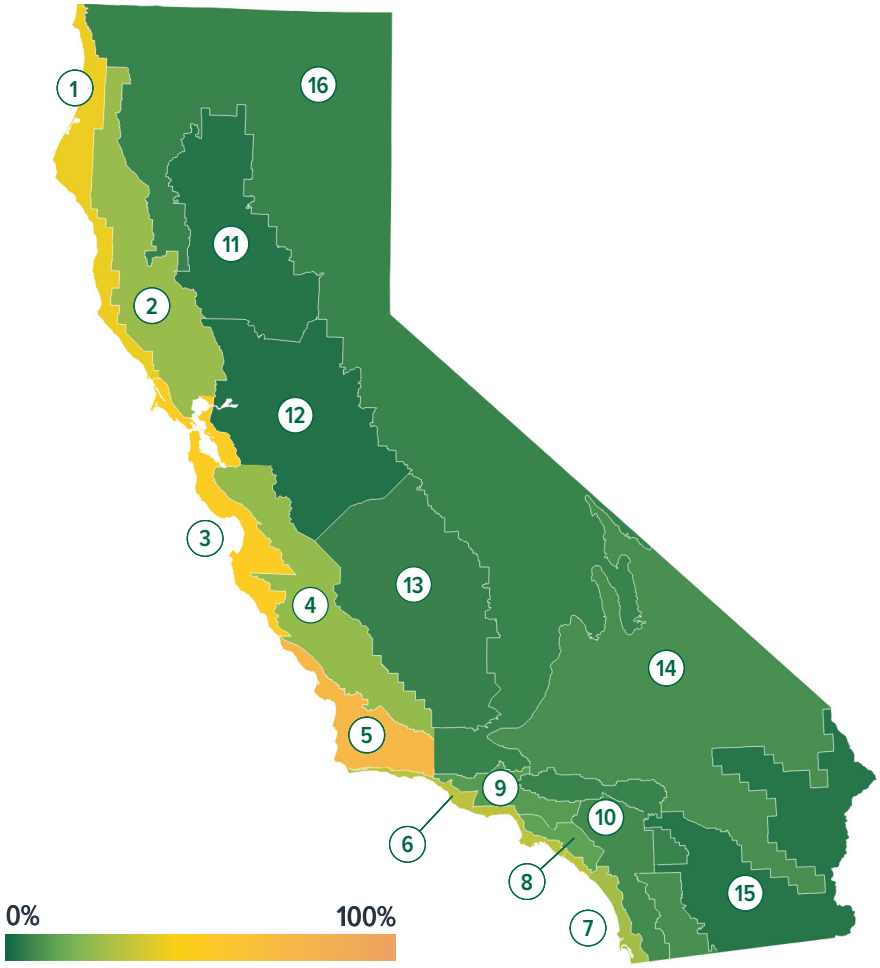
Total respondents: 2,419

2.1. Home Air-Conditioning Access

Some Californians have no air-conditioning at home. Across California, 16.3% of the population reported having no access to air-conditioning at home. Californians in California Climate Zone (CCZ) 5, a coastal region, have the least air-conditioning access at home, with nearly 73% of respondents reporting as having no air-conditioning.

FIGURE 1

Californians with no air-conditioning access at home, by California Climate Zone (CCZ)



CCZ	%
1	40.5%
2	23.5%
3	50.7%
4	22.4%
5	72.9%
6	30.4%
7	25.4%
8	12.7%
9	11.3%
10	8.0%
11	3.2%
12	2.6%
13	5.7%
14	8.7%
15	3.3%
16	6.2%

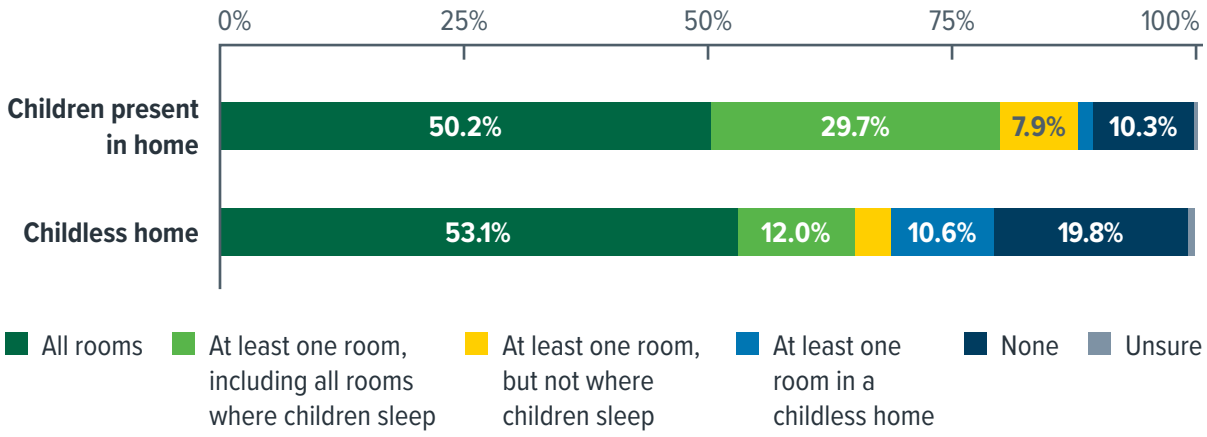
Sample size: 2,419

2.2. Home Air-Conditioning Access by Child Presence

Of the Californians who reported having no air-conditioning access, 10% were living in a home with children. These households represent a key group when considering heat vulnerability among Californians because both children—and their caretakers—are at risk. Respondents with children also appear to prioritize air-conditioning in the rooms where children sleep, if they do not have central air throughout the home.

FIGURE 2

Air-Conditioning Access in Homes with and without Children[1]



Total respondents (n=2,419), Childless (n=1,526), Children present (n=893)

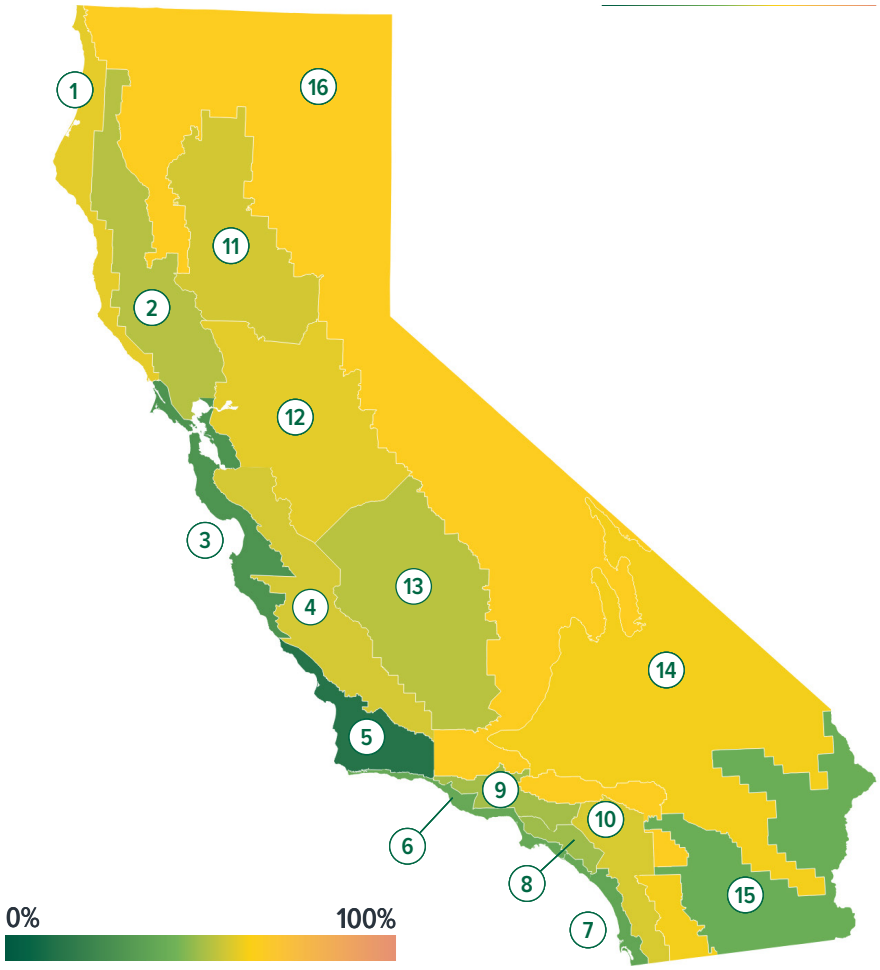
2.3. Impact of Cost on Air-Conditioning Use

High operation costs restrict air-conditioning use. Energy affordability is a substantial barrier to access to indoor cooling among the Californians surveyed. About two-thirds (65.3%) of Californians in CCZ 16, an inland and hotter region of California, have chosen not to run air-conditioning due to cost. Despite having high rates of access to air-conditioning at home (only 6.2% reported having no air-conditioning), energy affordability prevents them from running their cooling appliances.

1 Survey error note: 15.7% of respondents in a childless home answered as if they had children present. This is a survey error because people might have interpreted the question to cover children who do not live in their residence permanently.

FIGURE 3

People Who Have Chosen Not to Run Air-Conditioning Due to Cost, by California Climate Zone (CCZ)



CCZ	%
1	59.5%
2	52.6%
3	29.2%
4	57.0%
5	14.2%
6	39.3%
7	37.6%
8	49.5%
9	50.1%
10	57.4%
11	56.7%
12	59.2%
13	53.2%
14	61.6%
15	41.4%
16	65.3%

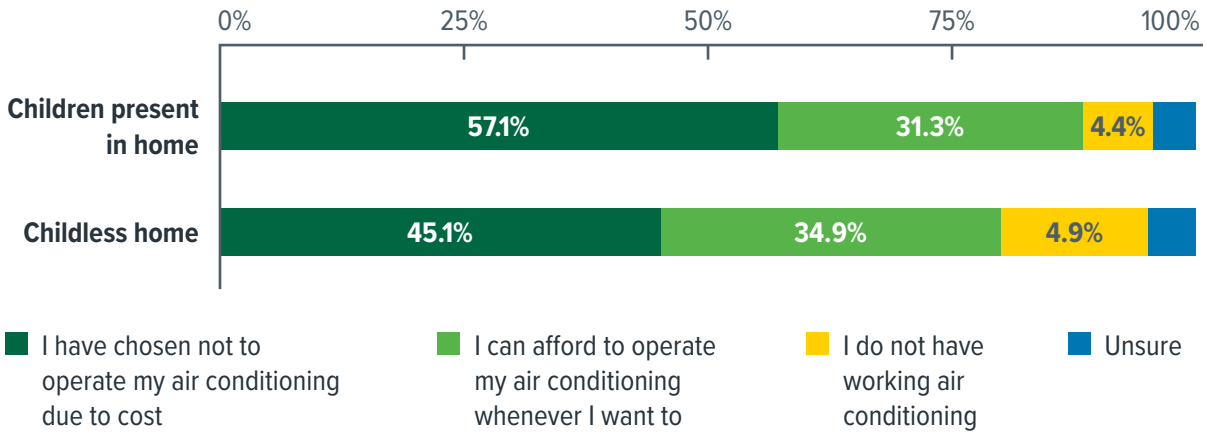
Sample size: 2,419

2.4. Restricted Air-Conditioning Use by Child Presence

The percentage of Californians with children present in the home who have chosen not to operate their air-conditioning due to cost (57.1%) is higher than that of those in a childless home (45.1%). Californians with children at home were 27% more likely to choose not to run air-conditioning due to cost, compared to their counterparts without children.

FIGURE 4

People Who Have Chosen Not to Run Air-Conditioning due to Cost in Homes with and without Children[2]



Total respondents: 2,419, Childless: 1,526, Children present: 893

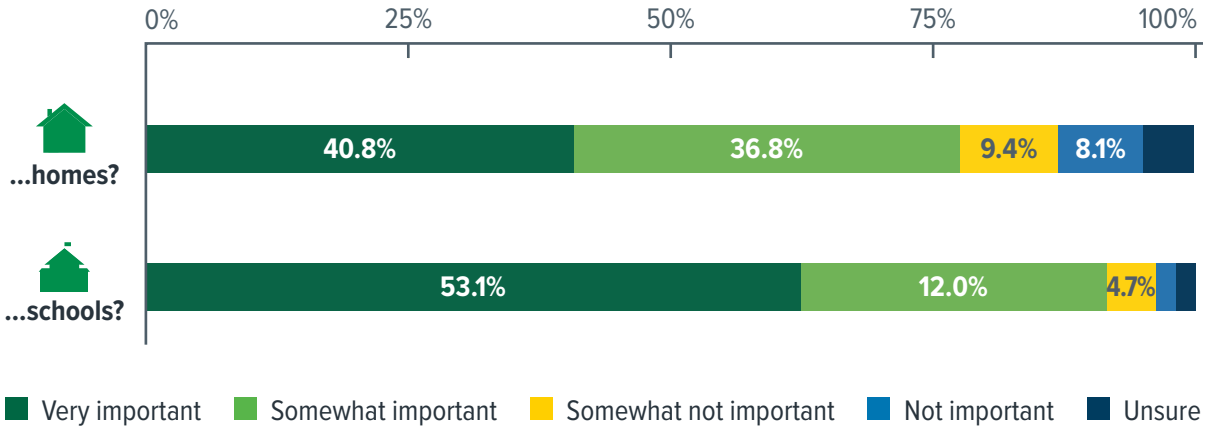
2.5. Public Opinion on Air-Conditioning Priority

Californians want the government to prioritize air-conditioning access in schools and homes. Our survey revealed a broad base of support for government intervention in supporting air-conditioning access in homes and schools. About 78% of Californians agreed it is very or somewhat important for the state government to prioritize air-conditioning access in homes, and 92% responded the same for schools. Over 60% of respondents said it was very important for the state government to prioritize access to air-conditioning in schools.

2 Survey error note: 15.7% of respondents in a childless home answered as if they had children present. This is a survey error, because people might have interpreted the question to cover children who do not live in their residence permanently.

FIGURE 5

How Important Is It for the State Government To Prioritize Access To Air Conditioning in Homes and Schools

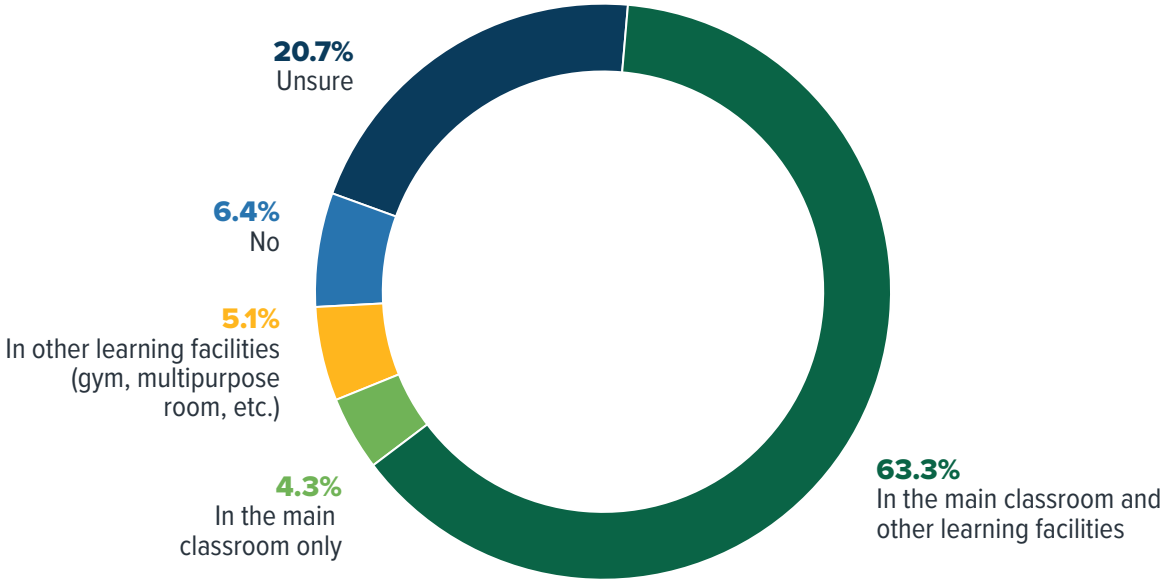


2.6. School Air-Conditioning Access

Most children have access to air-conditioning at school. According to Californians with children enrolled in public, private, or charter schools, 63.3% of children have access to air-conditioning in the main classroom and other learning facilities. 6.4% of children do not have air-conditioning at school. California Climate Zone 16, an inland and hotter region, has the highest access rate (60.4%) to air-conditioning in the main classroom and other learning facilities, while California Climate Zone 5, a coastal and cooler region, has the least access, with 10% of respondents stating children have no access to air-conditioning.

FIGURE 6

Children's Access to Air-Conditioning at School



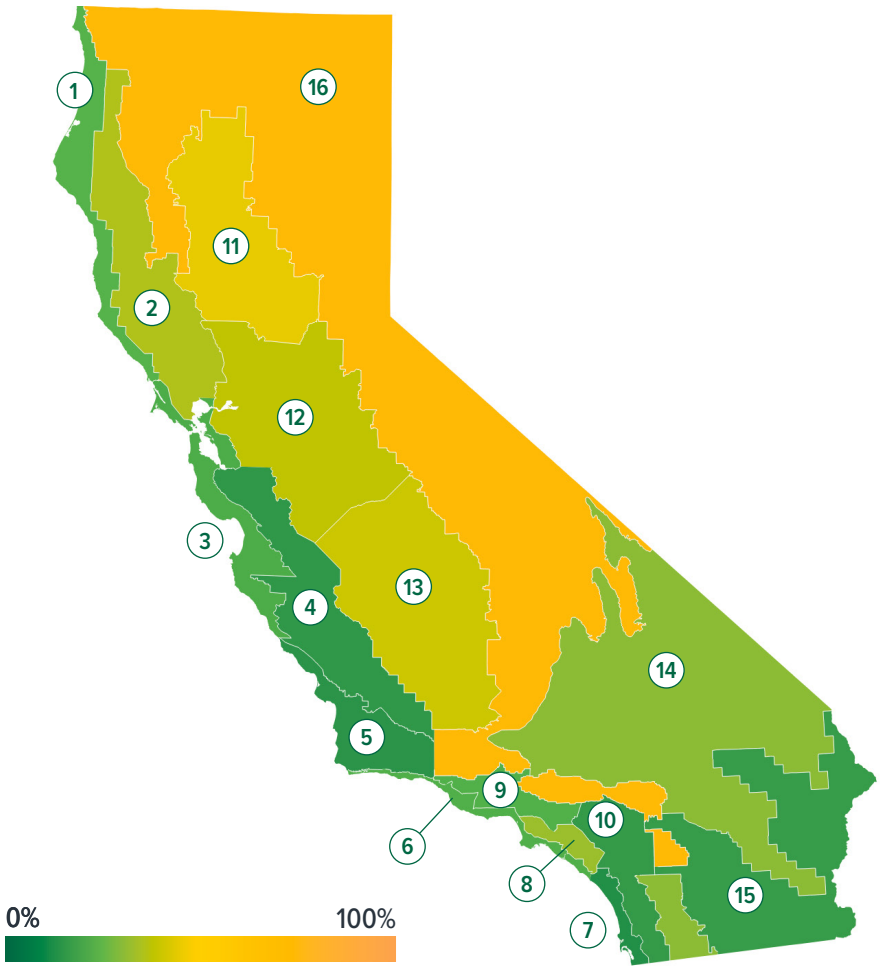
Total Respondents: 1,505 (does not include respondents who indicated they do not have a child enrolled in school)

Californians with children enrolled in public, private, or charter schools were about evenly split between those who have kept their child home from school due to indoor temperature concerns (50.2%) and those who have not (49.8%) (total respondents: 1,341).

In California Climate Zone 16, an inland region, 74% of Californians have kept their child home because they were concerned about indoor air temperature being too hot.

FIGURE 7

Californians Who Have Kept Their Child Home from School Because They Were Concerned about the Indoor Air Temperature Being Too Hot, by California Climate Zone (CCZ)



CCZ	%
1	23.6%
2	35.6%
3	21.6%
4	15.4%
5	14.2%
6	22.5%
7	12.9%
8	32.4%
9	22.8%
10	16.0%
11	44.6%
12	38.0%
13	40.0%
14	30.3%
15	16.6%
16	73.9%

Sample size: 2,419

2.7. Children with No Air-Conditioning Access

Of the California population, 1.7% of respondents recorded that their children have no access to air-conditioning at home or school. Although small, this population of children is especially at risk to acute and cumulative heat, as their primary environments are not air-conditioned. California Climate Zone 5, a coastal and typically cooler region, has the highest percentage of these respondents at 10%. This demonstrates that typically cooler areas in California do not have the necessary cooling systems to keep children safe at school in a warming climate.

3. MENU OF IDEAS BY THEME

The purpose of this report is to develop a "menu" of ideas to fund, install, and maintain **indoor mechanical cooling systems (cooling systems)** in California's homes and schools. The following menu serves as a central repository of state legislative and regulatory strategies—drawn from a comprehensive assessment of literature, legislation, and interviews with experts from across the country—as well as new strategies to address gaps. Findings are intended to have salience for a rapidly changing policy and funding environment.

3.1. Update Indoor Mechanical Cooling Standards

Exposure Setting: Homes and Schools

Despite California's efforts to increase access to indoor mechanical cooling (mentioned in the callout box below), there are still several areas of growth for the state to promote the installation and maintenance of cooling systems.

California has not set an indoor heat temperature threshold for either homes or schools. For indoor workplaces, Cal/OSHA's Heat Illness Prevention in Indoor Places of Employment regulation mandates a set of heat mitigation actions when indoor temperatures reach 82 ºF (California Code of Regulations, Title 8 Section 3396). As such, employers must take steps to protect workers from heat illness, including providing water, rest and cooldown areas, methods for cooling down the work areas, and training (Cal/OSHA, 2024). This regulation indirectly applies to schools as indoor places of employment. But the regulation stops short of placing a specific temperature limit in schools.

WORKING TOWARD A MAXIMUM TEMPERATURE THRESHOLD IN CA HOMES: AB-209

The Energy and Climate Change Act, AB-209 (Chapter 251, Statutes of 2022), Section 31 directed the Department of Housing and Community Development (HCD) to create policy recommendations for a safe indoor air temperature for residential dwelling units, building on the precedent established in the Dwelling Unit Standards: Safe Indoor Air Temperatures Act (AB-2597 2021, failed). The 2025 study required by AB-209 **recommends updating the California Building Code for new residential construction to require all new residential dwelling units to have the capacity to maintain an indoor air temperature of 82 °F or lower.** The threshold was derived from a review of existing U.S. temperature standards and codes, heat and human physiology, heat and health impacts, as well as other environmental inputs. The study also identifies building strategies, passive strategies, active strategies, and personal scale measures for maintaining indoor thermal comfort (California Department of Housing and Community Development, 2025).

While the AB-209 study notes that individuals should not be inhibited from requesting accommodations for their specific needs, it also finds that there are insufficient data to develop safe temperatures for specific considerations. Based on findings from other states, California could go further to assess and address environmental and personal factors influencing thermal comfort.

TABLE 4

The California Housing and Community Development AB-209 study includes the following factors to consider for heat risk susceptibility. The danger of heat exposure can increase with the presence of other personal or environmental conditions.

Considerations for Heat Exposure	Heat Risk Susceptability

Personal factors	• Higher heat-risk conditions include (but are not limited to):
	  • Cardiovascular disease
	  • Respiratory disease
	  • Kidney disease
	  • Poor thermoregulation
	  • Physical disabilities
	  • Cognitive disabilities
	  • Elderly, pregnant, infants, and young children

Temporal factors	• Short vs. long-term impacts of heat • Exposure time to heat
Human physiological factors	• Activity level and clothing
Environmental factors	• Air temperature • Air speed • Humidity • Different levels of acclimatization across California regions
Social equity factors	• Lower-quality housing • Limited access to cooling • Social isolation • Lack of healthcare access • Higher outdoor temperatures in urban areas

California is climatologically diverse, which makes a one-size-fits-all indoor temperature threshold difficult to establish. Several local jurisdictions in California have adopted policies guiding maximum recommended indoor temperatures.

- **City of Palm Springs:** Dwellings shall be provided with air-conditioning facilities at all times, capable of maintaining a maximum temperature of 80 ºF in all habitable rooms (City of Palm Springs, CA, n.d.).
- **City of Cathedral City**: Every dwelling unit requires air-conditioning facilities capable of maintaining a room temperature of 80 ºF or less in all habitable rooms (City of Cathedral City, CA, 2022).
- **Los Angeles County**: Los Angeles County Board of Supervisors approved an ordinance requiring all habitable rental units to maintain indoor temperatures of no more than 82 ºF (Ferrer, 2025).

These local examples of temperature threshold standards in homes could serve as models for a state-defined threshold, which could be a baseline, allowing local jurisdictions and specific settings to go further. The state could consider a variety of options in doing so (presented in Sections 1.1 and 1.2). Leaving the process solely up to local jurisdictions will likely mean that some heat-vulnerable communities will fall through the cracks of local regulatory action.

For schools, there are minimal regulations and guidance surrounding safe indoor air thresholds. Currently, the California Department of Education refers schools to the ANSI/ASHRAE Standard 55, which guides thermal environmental conditions for human occupancy and bases standards on environmental and personal standards (Los Angeles Unified School District, 2020). This resource is provided as a guidance document, not an enforceable standard. Some school districts, like the Los Angeles Unified School District, have developed heat illness prevention plans, but have not defined a specific indoor temperature threshold (2020).

3.2. Establish Tailored Maximum Indoor Temperature Thresholds

Exposure Setting: Homes and Schools

Maximum indoor temperature thresholds define a safe upper temperature limit, and there are several strategies to define this temperature limit.

3.2.1. Option 1: Thresholds for Children and Other Vulnerable Groups

Children are particularly vulnerable to heat impacts and a focus of legislation in California and beyond. The New Mexico Children's Bill of Rights proposed in SJR 2 (2023) found that all children have the right to stable, healthy, and safe housing with heat. While the bill failed and did not address the need for cooling, the framework of defining children's rights can be applied to access to cooling systems. New York State Assembly Bill A4592B (2023), which failed but may be introduced in the future, simultaneously acknowledges that greenhouse gas emissions from buildings are negatively impacting children's health, and that electrification is necessary to ensure all New Yorkers have a right to cool spaces where they live and work. Additionally, some international experts have defined access to cooling as a human right (Griffin, 2023).

3.2.2. Option 2: Thresholds by Exposure Setting

Children participate in different activities in their homes and schools, which warrants specific heat standards by exposure settings.

3.2.2.1. Homes

While landlords must keep homes "habitable," an adequate cooling provision is not an enforced component of habitability at the state level (California Department of Justice, n.d.). Similarly, California Civil Code Section §1941 deems buildings that lack adequate heating "substandard," but does not have a similar rule for buildings that lack adequate cooling (California Law, HSC 17920.3, 2024). Renters and mobile home residents are a particularly heat-vulnerable group, due to a lack of thermal protections built into the California Civil Code. An audit of the appropriate Civil Code lever would be necessary to fully explore this option.

3.2.2.2. Schools

State research mentions children's thermal safety while sleeping. However, there is no mention of children's experiences in hot classrooms (California Department of Housing and Community Development, 2025). A study of school-age children in the United States, Denmark, Sweden, and England found that 72 °F is a temperature for optimal concentration (Early Childhood Scientific Council on Equity and the Environment, 2023). By lowering classroom temperatures from 86 °F to 68 °F, student performance on school tasks can increase by 20% (Early Childhood Scientific Council on Equity and the Environment, 2023). Additionally, the ideal temperature range for children to learn reading and mathematics is between 68 °F and 74 °F (Penn State Center for Evaluation and Education Policy Analysis, n.d.).

Protections for workers are likely inadequate for protecting children. While Cal/OHSA defines a heat standard for schools and other workplaces, the thresholds were developed with adult bodies and activities in mind. Moreover, the standards allow workarounds for employers, which includes the nearly 1,000 California school districts, if they are unable to meet cooling requirements (Young, 2024).

TABLE 5

Laws Developed to Protect Children from Heat in Classrooms

State	Code	Year	Requirement
AZ	Ariz. Admin. Code § R7-6-213	2001	Requires schools to have working heating, ventilation, and air-conditioning or other systems capable of maintaining classroom temperatures of 68 °F to 82 °F, but no requirement to run the air conditioner.
HI	Hawaii Revised Statutes § 302A-1510	2016	Requires schools to have classrooms with temperatures acceptable for student learning without defining a temperature.
MS	Miss. Code Ann. §§ 37-7-301(c) (d) and (j), 37-11-5, 37-11-49; and 45-11	2017	Requires schools to be air-conditioned without specifying to what temperature.
NM	N.M. Admin. Code § 6.27.31.12	2012	Requires schools to have working air conditioners, but no requirement to run the air conditioners.
OR	OARs 437-002-0156 and 437-004-1131	2022	When the heat index reaches 80 °F, schools must try to cool classrooms and provide teachers with means to cool down. Rule derived from OSHA standards for indoor employees.

3.2.3. Option 3: Thresholds by California Climate Zones

The state can set a baseline indoor temperature threshold for homes and schools, thus allowing local jurisdictions to build upon these recommendations, possibly making them stricter, based on regional need. The 2025 California Recommended Maximum Safe Indoor Air Temperature study (from AB-209) was unable to recommend different indoor temperature thresholds for different regions of the state because of a lack of understanding of regional heat adaptations, although the 82 °F threshold takes regional temperature differences under consideration. A previously proposed solution to the need for California Climate Zone-specific indoor temperature recommendations was to have the state direct local entities to include a mandated heat element in local general plan updates, as directed in AB-2684.

While the state currently cannot update residential building codes under AB 130, the legislation includes an emergency health and safety exemption that allows the adoption of new residential standards when an immediate threat to public health or safety is demonstrated. Given the growing evidence linking extreme indoor heat to illness and mortality, state agencies should evaluate whether maximum indoor temperature standards meet this threshold for emergency action. In parallel, preparatory research, interagency coordination, and pilot implementation of heat-safety thresholds should proceed to ensure readiness for the 2031 code cycle. Because schools are non-residential occupancies and therefore not subject to this freeze, establishing maximum indoor temperature standards for K–12 facilities can and should proceed without delay.

TABLE 6

Bills Supporting a Local Approach to Setting Indoor Temperature Thresholds

State	Bill	Year	Status	Overview
CA	SB-655	2025	passed	Bill requires the Department of Housing and Community Development to research, develop, and propose for adoption by the Building Standards Commission a maximum safe indoor air temperature of 82 ºF for newly constructed residential dwelling units. Bill modifies how baseline rates are calculated for high-heat climate zones to support the affordability of maintaining that temperature.
CA	AB-2684	2024	passed	Bill requires the city/county to review the safety element of the general plan to address extreme heat.
CA	SB-306	2023	passed	Bill requires the Natural Resources Agency and others to update the Extreme Heat Action Plan to promote state and local government action on extreme heat.
CA	AB-585	2021	failed	Bill coordinates state efforts and supports local and regional efforts to mitigate extreme heat impacts and improve the siting and design of new buildings and the retrofitting of existing buildings with ventilation and air-conditioning.

3.3. Build Coalitions That Include Labor, Education, and Climate Sectors

Exposure Setting: Homes and Schools

The California legislature has seen an uptick in extreme heat legislation over the past several years, but these efforts have been relatively piecemeal thus far. The state has provided a framework for prioritizing efforts through the Extreme Heat Action Plan (EHAP). The EHAP could be a guidepost for advocacy, but better coordination from the right groups is needed on this issue. For instance, Track C, Goal 3 calls for the installation of heat pumps in homes through expanded use of the Low Income Home Energy Assistance Program and energy audits in schools through the California Conservation Energy Corps Program. Aligning with the California Extreme Heat Action Plan—and the revised version due in 2026—could help prioritize and coordinate efforts of multiple groups to work together with shared goals.

Specifically, initiatives that unite labor, climate, and education tend to gather a strong base of support. Teacher and industrial worker labor groups are particularly important because labor interests are valued in California policymaking (Ruga, 2023). A 2024 study of the most influential organizations in California's legislative process found that labor unions made up five of the 25 most effective groups at influencing legislation (Sabalow, 2024).

Building on models for children's nutritional support, a coalition centered on children's health could unite the momentum of both home and school initiatives, leveraging existing successes

in building decarbonization and climate-ready schools. For example, the School Meals for All Coalition (https://www.schoolmealsforall.org/) consisting of more than 130 organizations representing education, health, and agriculture, successfully placed legislation to get free meals for all California students (2025). By aligning stakeholders across education, labor, energy, and environmental sectors and including pediatricians to elevate the public health case, such a coalition could frame cooling as essential infrastructure for children's safety and learning outcomes.

3.3.1. Homes

There are existing coalitions that can be leveraged in this process by tapping into their extensive reach and inter-sector collaboration. The Building Decarbonization Coalition (BDC) aligns the interests of critical stakeholders, including building industry stakeholders, energy providers, environmental groups, and local governments, toward the goal of electrifying homes and workspaces with clean energy (Building Decarbonization Coalition, n.d.). BDC's efforts toward building decarbonization cover adding energy-efficient cooling systems to homes and include using policy, research, market development, and public engagement. For example, BDC co-sponsored SB-282 and AB-39, two building electrification bills in California that are advancing through the legislature as of May 2025 (Tung, 2025). This coalition's activity in California's building decarbonization space makes it a great option to leverage for indoor cooling priorities.

3.3.2. Schools

A successful example of a coalition that cuts across diverse sectors is the Climate Ready Schools Coalition. This organization unites education, climate, health, youth, labor, civil rights and business leaders to advocate for vulnerable student populations and resilient schools. The goal of the coalition's work is to have every student in California attend a zero-emission, climate-resilient school that supports student success and safety (Climate Ready Schools Coalition, n.d.). The School Facilities and HVAC Bill AB-2232 (CA) (2022) passed largely due to the ample state budget and the coalition of support it generated. The bill requires school facilities to have heating, ventilation, and air-conditioning systems that meet specified minimum ventilation rate requirements set forth in the California Code of Regulations. The Western States Sheet Metal Workers and the California State Pipe Trades Council sponsored the bill because of the requirement that certified professionals conduct heating, ventilation, and air-conditioning inspections. Further, the California Federation of Teachers AFL-CIO, California Teachers Association, and U.S. Green Building Council all supported the bill (Assembly Committee on Higher Education, 2022). This coalition can serve as a model for galvanizing an advocacy coalition for indoor cooling at schools.

3.4. Align Program Design with State Heat Pump Installation Targets

Exposure Setting: Homes

Decarbonizing homes is critical to meeting climate goals and can be synergistic with efforts to ensure homes have adequate indoor cooling (Berkeley Law Center for Law, Energy, and the Environment, n.d.). In California, energy use in buildings contributes around 25% of greenhouse gas emissions (Berkeley Law Center for Law, Energy & the Environment, n.d.). Governor Newsom's climate-ready homes goals—a component of the state's broader climate goals—include the installation of 6 million energy-efficient heat pumps by 2030, with 50% of investments in low-income and disadvantaged communities (Governor of California, 2022). Legislation that helps achieve California's heat pump installation targets may be more likely to garner support from the governor, as well as stakeholders and coalitions focused on climate change mitigation.

For guidance on how to align with Newsom's goal, legislators can look to the California Heat Pump Partnership (CAHPP) Blueprint (2025). Composed of leaders across the private and public sectors, CAHPP released this blueprint in 2025 to help scale California's heat pump market to meet product demand and reach the goal of 6 million heat pumps. The blueprint identifies major barriers to this goal, including costs for installation and operation, complications with permitting and available funding, low demand for heat pumps and a shortage of trained installers, and limited heat pump data availability to inform policy leaders and the public. Legislation can draw from the barriers identified in this guidebook to develop policies improving consumer economics, streamlining the heat pump sales and installation, accelerating market adoption, and increasing market visibility, as the blueprint outlines (https://heatpumppartnership.org/).

Legislators and advocates can also look to the multistate agreement led by Northeast States for Coordinated Air Use Management (NESCAUM) to accelerate the transition to zero-emission residential buildings. The collaboration is made up of 10 states (including California) and Washington, D.C., that entered into a memorandum of understanding with a goal of having heat pumps make up 65% of residential-scale heating, air-conditioning, and water heating shipments by 2030. By 2040, the goal jumps to 90% for the participating states (Northeast States for Coordinated Air Use Management, n.d.). The multistate action plan contains policy and program recommendations to advance the mission for electrifying residential buildings.

Recommendations include enhanced policy coordination and accountability, increased equity and workforce investments, improved carbon reduction obligations, updated codes and standards, and refined utility planning and regulation (Northeast States for Coordinated Air Use Management, 2025). This is a helpful source to mine for policy action.

3.5. Make Indoor Cooling Access (and Disparities) Transparent with Better Data

3.5.1. Track Indoor Cooling Systems Access and Use

Exposure Setting: Schools

California does not have data on mechanical cooling in public schools, even though similar data exist for homes.[3] It is currently estimated that 15%–20% of California's TK–12 public schools have no functioning mechanical heating, ventilation, and air-conditioning systems, and that 10% need major repair or replacement of their systems (Patel et al., 2025). However, no state agency is currently charged with maintaining this count, and it is difficult to determine a more accurate estimate, let alone reliably assess the current state of indoor cooling access in State schools.

The Master Plan for Healthy, Sustainable, and Climate-Resilient Schools proposed in SB-394 (2023, failed) introduced child-centered solutions to make schools heat-resilient learning centers. The bill called for assessments of a representative sample of California's school facilities to increase data collection informing the plan's goals, including a count of indoor cooling systems in public elementary and secondary school buildings and the last time these systems were modernized. The Master Plan also called for data collection of the energy and water expenditures in the three most recent school years, which can help track changes in energy use from cooling systems. Further, the Master Plan ordered a set of priorities, benchmarks, and milestones for health, resilience, and decarbonization that would guide the legislature and the governor in developing school infrastructure-related programs. In the absence of this data, it is difficult to accurately determine schools in need of cooling system installation and maintenance and to determine an action plan for deploying much-needed indoor mechanical cooling. Neglecting to collect and report data on school indoor cooling enables inequalities in access to persist.

Data collected from School Facility Program (SFP) applications that meet this requirement can help launch a broader effort for collecting facilities data for schools, but the state must also inventory facilities at schools that are not applying to the SFP. Although the Master Plan failed, elements were included in CA Proposition 2: Authorizing Bonds for Public School and Community College Facilities. The bond measure requires each school applying for SFP funds to submit a five-year school facilities master plan, including an inventory of existing facilities, with its application (California Office of Public School Construction, 2025). While collecting this data via the SFP application is a stopgap approach to data collection, it is ultimately piecemeal and a missed opportunity to comprehensively inventory school facilities to allocate funds based on cooling needs.

3 The 2019 California Energy Commission Residential Appliance Saturation Study (RASS) report summarizes cooling systems access and use by CEC Forecasting Climate Zones to provide a regional study of electricity consumption, broken down by base use, space conditioning, and water heating. The 2019 RASS records specific data for the type of utility, including heat pump space heating, central air-conditioning, room air-conditioning, and evaporative cooling in each Forecasting Climate Zone and dwelling type (Palmgren et al., 2021).

TABLE 7

CA and MA Bills Aimed at Tracking Cooling Systems in Schools and Homes

State	Bill	Year	Status	Overview
CA	AB-384	2023	failed	Bill directs the CA Department of Education (CDE) to conduct a research study on recommended indoor air temperature ranges and temperature control standards for public schools serving kindergarten and grades 1 to 12 and an inventory of heating and cooling systems. From the findings, the CDE is tasked with developing policy recommendations for safe indoor air temperature standards for public school facilities.
CA	SB-795	2023	failed	Bill requires the State Energy Resources Conservation and Development Commission to develop and implement an electronic statewide heating, ventilation, and air-conditioning equipment sales registry and compliance tracking system.
MA	S-223	2023	failed	Bill orders that within nine months, the Department of Labor standards establish school ventilation regulations and conduct a study on public school ventilation, including Massachusetts' funding and bidding processes for heat and air-conditioning upgrades.
CA	AB-2531	2020	failed	Bill establishes the Heating, Ventilating, and Air Conditioning (HVAC) Fire Damper, Smoke Damper, and Smoke Control System Inspection Verification Program, requiring the owner of a building with any of the above-listed appliances to have them inspected and tested once after the first year of installation and every four years thereafter. This bill connects fire safety, air quality, and cooling systems for buildings with HVAC fire dampers, including public schools.

3.6. Formalize Interagency Collaboration on Heat Exposure Setting Management

3.6.1. Appoint a State-Level Advisory Committee

Exposure Setting: Homes and Schools

Many state agencies play a role in cooling for homes and schools. Creating more formal coordination and collaboration across these agencies, structured through the lens of this framework, can help streamline the processes and programs necessary to add cooling systems.

The heat exposure setting framework used in this report highlights the crosscutting nature of indoor mechanical cooling, both at the state and community levels. This framework centers the experience of groups, like children, who would otherwise not be a part of the policymaking discussion of heat. By applying this exposure setting approach to installing and maintaining cooling systems in California, the state can better address indoor cooling from a holistic perspective.

According to interviewees for this report, there is an existing informal system of interagency collaboration through which staff connect to share general resources and information related to policy issues like heat. In some cases, this interagency coordination stems from long-standing relationships between staff members in each agency. More formalized interagency collaboration is frequently used for discrete tasks or timelines. Some examples are included below:

- (Schools) Proposition 2 requires the California Department of Education and the Office of Public School Construction to jointly develop guidelines for school districts to use when developing school facilities master plan funds.
- (Schools) The California Clean Energy Jobs Act K–12 Program implementation required the California Energy Commission to consult with the California Public Utilities Commission to establish guidelines for Proposition 39 implementation (California Energy Commission, n.d.-d).

Formalizing interagency collaboration through a long-standing, state-recognized working group or committee for homes and schools (separately) can help accelerate the installation and maintenance of cooling systems. Specifically, this can help with:

- serving as a source for information on children's thermal health in homes and schools,
- bridging the crosscutting authority state agencies have for heat and facilities issues,
- ensuring the state best captures available federal funds,
- streamlining permitting and application processes, and
- facilitating information sharing among agencies and with the public.

Formalizing and building upon existing interagency collaboration within the state can help ensure agencies have adequate staff support and funding. Formal interagency groups can appoint a point of contact to serve as a resource hub for inquiring homeowners, landlords, renters, and county and school district leaders for listing federal and state funding opportunities for cooling systems in schools and homes, indexing state progress related to indoor mechanical cooling, and listing relevant extreme heat planning tools. Furthermore, adding academic and subject-matter experts to the committee will help integrate scientific and evidence-based solutions.

The Equitable Clean Energy Supply Chains and Industrial Policy in California Bill (SB-787, 2025) proposes creating a designated role in the State Energy Resources Conservation and Development Commission to convene working groups for specific issues, including building integrated industrial bases in California to support building decarbonization and heat pump industries.

TABLE 8

Relevant California Agencies for an Indoor Mechanical Cooling Committee

Agency	Authority/Contribution	Exposure setting
Energy Commission	• Develops and maintains building energy-efficiency standards (Energy Code) (Singh, 2022)	Homes and Schools
Air Resources Board	• Develops regulations related to refrigerants used in cooling systems (California Air Resources Board, 2020)	Homes and Schools
Contractors State License Board	• Authority to administer licenses to contractors installing or maintaining cooling systems, according to the board's website (https://www.cslb.ca.gov/).	Homes
Division of the State Architect	• Provides design and construction oversight for K–12 schools, community colleges, and other facilities to comply with structural, accessibility, and fire and life safety codes • Administers certification programs for project inspectors and certified access specialists (California Division of the State Architect, n.d.-a)	Schools
Legislative Analyst's Office (LAO)	• Provides fiscal and policy advice to the legislature • Energy and Natural Resources policy area at the LAO analyzes the comprehensive framework of the state's energy incentive programs to lead the state toward more coordination on issues including indoor mechanical cooling (California Legislative Analyst's Office, 2012)	Homes and Schools
Dept. of Public Health	• Climate Change and Health Equity Branch implements California's climate change laws and executive orders (California Department of Public Health, 2025) • Provides guidance for caring for children in homes and schools during heat (California Department of Public Health, 2024) • Records heat-related injuries and deaths	Homes and Schools
Dept. of Housing & Community Development	• Implements standards for housing construction and maintenance • Creates specialized standards for CALGreen • Led research on the Policy Recommendations: Recommended Maximum Safe Indoor Air Temperature report (2025) (https://www.hcd.ca.gov/)	Homes
Dept. of Education	• Provides guidance, grants, training, and resources for local educational agencies for natural disasters and emergency hazards management • Facilitates broader and more effective communication among the home, school, district, county, and state (https://www.cde.ca.gov/)	Schools
Dept. of General Services — Office of Public School Construction	• Implements and administers a $54.5 billion voter-approved school facilities construction program • Processes and funds school facility construction grant applications • Assists school districts throughout the life cycle of a school facility construction project (California Office of Public School Construction, n.d.)	Schools
Public Utilities Commission	• Oversees and approves energy-efficiency programs funded by ratepayer charges and works with utility providers to implement these programs (California Public Utilities Commission, n.d.-a.)	Homes
Governor's Office of Land Use & Climate Innovation	• Provides technical assistance to local governments updating their safety elements to address climate adaptation and resiliency (https://lci.ca.gov/)	Homes and Schools
Governor's Office of Emergency Services	• Manages state emergencies and disasters, including extreme heat (https://www.caloes.ca.gov)	Homes and Schools
Division of Occupational Safety & Health	• Protects and improves the health and safety of working men and women in California through setting and enforcing standards and other oversight responsibilities (https://www.dir.ca.gov/dosh/)	Schools
Dept. of Health Care Services	• Oversees health-related programs and services, including MediCal and children's healthcare benefits (California Department of Health Care Services, n.d.)	Homes and Schools

3.6.1.1. Homes

The installation and maintenance of cooling systems in California homes are regulated by a variety of state agencies and local actors. Local building departments are required to enforce state laws and the California Building Standards Code (Title 24), which includes issuing permits, conducting inspections, and ensuring compliance for the installation and replacement of cooling systems (California Building Standards Coalition, 2022). A centralized committee can help streamline these processes for indoor cooling.

3.6.1.2. Schools

As previously mentioned, there is currently no state agency tasked with maintaining an inventory of school facilities and systems, and authority for upgrading buildings is distributed across various agencies (Patel et al., 2025).

Authority and responsibility to regulate cooling systems in schools are spread across several state agencies, sometimes with overlap between agencies, which can make action around cooling systems operation and maintenance difficult. For example, the Division of the State Architect (DSA) has authority over sustainability regulations in CalGreen 5.2 for nonresidential construction. DSA requires schools to have appropriately located shade trees to reduce load on the heating, ventilation, and air-conditioning, green roofs in schools, and other CalGreen requirements (2022 California Green Building Standards Code, 2023). However, DSA does not have the authority to propose requirements for cooling systems in schools because energy policy is within the domain of the California Energy Commission. This example highlights the need for close, formalized interagency collaboration on indoor cooling issues.

3.7. Refine Communications and Messaging about Cooling Systems

3.7.1. Establish a Public Resource Hub to Centralize Information and Counter Dis- and Misinformation

Exposure Setting: Homes and Schools

Centralizing resources and information for people seeking cooling system assistance is essential to promote equitable access to state and federal funds. Additionally, a comprehensive state resource on indoor heat safety, particularly cooling systems, can counter mis- and disinformation around energy-efficient technologies like heat pumps. For example, in June 2025, South Coast Air Quality Management District Board (SCAQMD) regulators voted on rules to encourage zero-emission heat pumps and electric water heaters. The proposals failed, which Legal Planet suggests was largely due to industry disinformation and claims that the rules “mandate forced electrification” (George, 2025).

Part of creating this resource would involve consolidating existing state-published information and bringing in new information from other sources. Existing heat resource pages, like HeatReadyCA.com, can add information identifying resources for cooling systems installation

and maintenance, as well as tenants' rights around habitability, to aid in people's heat planning. Additionally, the California Heat Pump Partnership (CAHPP) is a public-private collaboration that provides resources to expand Californians' knowledge of and strategies for adopting heat pumps, targeting homeowners, renters, and contractors through strategic marketing (https://heatpumppartnership.org/). To increase awareness and adoption of heat pump technology, CAHPP is launching a communications campaign to simplify the process for heat pump installation and rapidly scale California's heat pump market (https://heatpumppartnership.org/). Integrating progress from the CAHPP into a more visible state resource can build on previous momentum for cooling systems advocacy.

3.7.1.1. Homes

The California Energy Commission hosts a Building and Home Energy Resource Hub, where homeowners, renters, contractors, and local government representatives can access resources for improving energy efficiency (California Energy Commission, n.d.-a). Increasing this page's visibility by directly connecting it to state heat resources, like HeatReadyCA.com, can help reach people seeking assistance in cooling their homes. Additionally, separating funding and resources specific to cooling systems can help consumers more quickly access needed materials.

3.7.1.2. Schools

By streamlining resources available to schools, the state could help county and school district leaders align their climate planning language with state goals. A central resource that consolidates information about heat preparedness for indoor school environments could be available to school administrators, parents, and students (Patel et al., 2025). Leveraging tools like UndauntedK12's Schools and Elective Pay information sheet can help schools more easily access funds (UndauntedK12, n.d.). Additionally, featuring successful case studies of schools using available state and local funds to install or upgrade cooling systems can help inspire change and build trust in existing programs. Currently, the California Department of Education (2024) lists excessive heat safety resources on the School Disaster and Emergency Management section of the website, while the California Department of Public Health provides Health Guidance for Schools on Sports and Strenuous Activities During Extreme Heat, as facilitated by their Emergency Preparedness Office (2024). By centralizing information around cooling systems access for schools, relevant stakeholders can more easily access resources.

3.7.2. Dispel Misunderstandings about Regional Variations in Indoor Temperature Safety to Bolster Existing Networks and Programs

Exposure Setting: Homes and Schools

Most states set minimum indoor temperature requirements to protect health, but there are no analog upper temperature standards. A common misconception is that safe maximum thresholds are too variable to define, since children and adults may acclimatize differently

across climates and regions. In reality, physiological research shows that risks for children and other vulnerable populations emerge once indoor conditions rise above roughly 80 ºF, regardless of regional climate, and survivability is threatened beyond 86 ºF (lower for vulnerable groups) (Vecellio et al., 2023). Beyond health risks, other concerns such as cognitive functioning and thermal comfort, are moderated by indoor temperature. The World Health Organization and ASHRAE recommend that temperature ranges in the 70 ºFs are ideal. Many jurisdictions have defined indoor temperature thresholds of 80 ºF – 82 ºF, which reflects a political compromise between the survivability threshold in the upper 80 ºFs and the well-being targets in the 70 ºFs.

Recentering the debate about thresholds on implementation challenges would help advance the conversation to data needs that will support effective and equitable implementation of programs. For instance, a better understanding of structural issues inhibiting the installation of indoor cooling systems, or the cost to operate them, could help the state understand the true cost of implementing an upper temperature standard.

3.7.2.1. Homes

The California Department of Housing and Community Development (HUD) policy recommendations for a maximum safe indoor temperature suggest that the state consider a general maximum safe indoor air temperature of 82 ºF for residential dwelling units. The following strategies for achieving these thresholds are based on unit type (California Department of Housing and Community Development, 2025).

TABLE 9

AB-209 Strategies to Achieve Indoor Temperature Thresholds

Unit Type	Strategies
Newly constructed residential units	• Plan for the 2031 Building Standards Code update cycle to include design requirements ensuring residential units can maintain safe indoor air temperatures (e.g., 82 °F), in alignment with health-based evidence and emerging federal standards. In the interim, the Legislature and relevant state agencies should evaluate whether these standards meet the threshold for adoption as an emergency health and safety measure under AB 130's emergency exemption, given increasing risks of heat-related illness and death. Where immediate code action is not feasible, the state should support pilot programs and voluntary guidelines for vulnerable populations. • State considers incentive programs for passive and low-energy cooling strategies
Existing residential dwelling units and manufactured homes/mobile homes (MH)	• State considers incentive programs for adoption and use of whole house ventilation systems • State considers incentive programs for evaporative cooling where possible • State considers incentive programs to encourage use of air conditioners and heat pumps • State increase heatwave resilience through weatherization and passive and low-energy retrofit strategies
Newly constructed MH	• State considers submitting a petition to the U.S. Department of Housing and Urban Development's Manufactured Housing Consensus Committee to consider additional heat standard rules for newly constructed MHs • Note: The U.S. Department of Housing and Urban Development's Model Manufactured Home Installation Standards 2003 edition refers to the 1997 ASHRAE Handbook of Fundamentals for heat loss, heat gain, and cooling load calculations (24 CFR § 3280.508, 2024).

Note: Assembly Bill 130 (2025) establishes a temporary moratorium on adopting or amending residential building standards until June 1, 2031, except for emergency health and safety standards. Therefore, this recommendation is actionable in the next code cycle or through an emergency pathway.

The Equitable Building Decarbonization Direct Install Program (created by AB-209) administers funds separately in Northern, Central, and Southern California to ensure broad distribution of state funds. The program administers partnerships with community-based organizations to ensure culturally appropriate outreach to community participants (California Energy

Commission, n.d.-a.). Programs like this one could become more granularly administered to meet individual regions' needs, depending on local infrastructure and resources for indoor cooling.

3.7.2.2. Schools

For schools, regional networks of support, which are subdivided by county, provide pre-existing collaborative networks that can be leveraged for data collection, mobilization, and regulation setting. The California Regional Environmental Education Community (CREEC) Network is a California Department of Education (CDE) program that facilitates regional partnerships to promote environmental education and environmental literacy (California Regional Environmental Education Community Network, n.d.). CREEC fosters regional network partnerships for 11 California regions that align with the California County Superintendents Regions. The regional administration of statewide programs helps maintain statewide consistency while respecting different cooling needs based on existing infrastructure and resources.

The application interest survey for the CDE Green Ribbon Schools Award Program provides salient data points that can inform regional adaptation to climate change impacts, including hot classrooms and school facilities. The Program awards California Green Ribbon Schools recognition to K–12 schools, school districts, and County Offices of Education that lead in resource efficiency, health and wellness, and environmental and sustainability education (California Department of Education, n.d.). This program ties together resource conservation and environmental literacy to create a holistic approach to climate-resilient schools.

3.8. Track Non-Energy Benefits from Cooling and Include in Policy and Program Evaluation

Exposure Setting: Homes and Schools

While the heat-focused programs and policies discussed so far are more tangible and accessible opportunities to advance cooling, efforts in other areas, like narrative framing, can also offer opportunities. For example, energy-oriented building decarbonization policies present a specific avenue to advance heat management goals. However, these efforts tend to use energy-focused metrics to measure success, including energy savings and resulting emissions reductions. Incorporating more non-energy outcomes (i.e., building decarbonization impacts beyond energy savings, such as improved thermal comfort and safety) can provide a more comprehensive assessment of energy-efficient cooling systems.

According to the California Energy Commission (CEC), building decarbonization refers to any activity or program that reduces greenhouse gas emissions from buildings. A primary metric for measuring building decarbonization progress in California is energy savings (California Energy Commission, 2021). An example of a documentable energy saving would be replacing an inefficient heating, ventilation, and air-conditioning system with a more energy-efficient one so less energy is consumed to run the appliance. But other metrics are necessary to fully understand the effects of electrification. For example, emphasizing energy savings as the only

metric for electrification progress does not account for households that do not have cooling systems or cannot afford to use cooling systems.

The state has previously highlighted the need to recognize non-energy benefits in evaluating policy and program successes. The Clean Energy and Pollution Reduction Act of 2015 (SB-350) initiated the formation of a Disadvantaged Communities Advisory Group (DACAG) made up of CEC and California Public Utilities Commission (CPUC) advisors to assess the development, implementation, and impacts of proposed programs to clean energy programs and policies (California Public Utilities Commission, 2024). DACAG included non-energy benefits as one of the factors to include in assessing clean energy programs and policies in California:

- Non-energy benefits
- Affordability
- Access, outreach, and education
- Community engagement
- Health and safety
- Financial benefits and economic development
- Workforce development
- Consumer protection
- Metrics, evaluation, and accountability

Installing and upgrading cooling systems complements a range of other adaptation and mitigation strategies protecting public health and other non-energy benefits (Mann & Schuetz, 2022). As California becomes a hotter state, heat waves, wildfire risk, and air pollution pose an increased threat to residents (Pottinger, 2020). Thus, the compounded environmental risks that children face necessitate cooling systems as a means to create healthy, livable indoor environments.

Installing efficient cooling systems in schools is an integral part of California's decarbonization goals. California cannot achieve or maintain carbon neutrality without schools being central sites of climate mitigation and energy efficiency (Patel et al., 2025). Further, with school facilities that adequately adapt indoor areas to heat, schools will be able to remain open for more days out of the year. This results in better learning environments for children and protects children who do not have access to cool spaces in their homes.

3.9. Fund Indoor Mechanical Cooling

3.9.1. Fund Ongoing State and Local Programs for Cooling Systems

Exposure Setting: Homes and Schools

California offers several programs to financially support indoor mechanical cooling for homes and schools, funded by state and federal sources. Notably, federal funding for the mechanical cooling installation can be volatile, especially if it is tied to presidential and dominant congressional party priorities. It is, therefore, important that the state develops and sustains long-standing programs for cooling systems to maintain trust in government-administered funding for cooling systems. In addition, making short-term funding sources long-standing and recurring can build trust and access to cooling systems in California. Table 10 provides a non-exhaustive list of these state-funded programs.

INDOOR COOLING AND THE CALIFORNIA EXTREME HEAT COMMUNITY RESILIENCE (EHCR) BLOCK GRANTS

Direct investments in indoor cooling from EHCR grants are a source of innovation and provide scalable models for supporting indoor cooling. The following is a (non-exhaustive) list of programs that address cooling systems (CA Governor's Office of Land Use and Climate Innovation, n.d.-a).

1. **SolarCHHILL: Cooling and Heating Homes with Innovative, Low-Impact Living**
    i. Project overview: Install solar-powered mini-splits in homes of senior residents and those with chronic conditions.
    ➔ This program model could be applied to homes with children.
2. **Solar Power, Shaded Solar Parking Structures, Battery, & Natural Native Trees/Plants**
    i. Project overview: Install a microgrid system with solar panels, battery storage, and backup generation at the Torres Martinez Reservation's community gym to provide reliable cooling during periods of heat and lost power.
    ➔ This program model could be applied to school gyms.
3. **San Joaquin Valley Collaborative to Protect Vulnerable Workers and Families from Extreme Heat Events**
    i. Project overview: Develop a cooling center and resilience hub at a Tulare County school for safety during extreme heat events.
    ➔ This program model could be applied to cover a central room in schools throughout California.
4. **ABC2 (A Battery-driven Clean Cooler): Low-Cost Solution to Reduce Impacts of Extreme Heat and Improve Air Quality in Low-Income Communities**
    i. Project overview: Provide in-home cooling technology to heat-vulnerable community members in the San Joaquin Valley.
    ➔ This program model could be applied to homes with children.
5. **Extreme Heat Resiliency in a Zero-Emissions Neighborhood**
    i. Project overview: Develop and deliver a minimum of 100 home-cooling and resiliency toolkits. Install heat pump heating, ventilation, and air-conditioning systems in at least 20 residential units.
    ➔ This program model could be applied to homes with children.

TABLE 10

State Programs for Indoor Mechanical Cooling

Name	Exposure Setting	Purpose	Status
Extreme Heat Community Resilience Block Grants	Homes and Schools	• Allocates funding for local, regional, and tribal initiatives to reduce the effects of extreme heat through planning and implementation projects (California Climate Investments, n.d.) • Funding for low-energy cooling strategies (CA Governor's Office of Land Use and Climate Innovation, n.d.-b, n.d.-c)	Active
School Facilities Program	Schools	• Funding for new construction or modernizing existing school facilities since 1998 (California Office of Public School Construction, 2019)	Active
Energy Conservation Assistance Act	Schools	• Funding for heating, ventilation, and air-conditioning and renewable and combined-heat-and-power projects eligible • Zero-interest rate loans for eligible energy projects at public school facilities (California Energy Commission, n.d.-g) • Applications now waitlisted from oversubscription	Waitlist due to over subscription
Bright Schools Program	Schools	• Up to $20,000 for technical assistance, including energy audits, performance specifications, and more • Funding from Proposition 39 (American Council for an Energy-Efficient Economy, 2022)	Inactive
California Clean Energy Jobs Act (Prop 39 K - 12 Program)	Homes	• Funding for energy-efficiency retrofits and clean energy generation at school buildings within a local educational agency to promote energy use and cost savings (California Energy Commission, n.d.-d)	Program ended
CalSHAPE Ventilation Program	Homes	• Funding to local educational agencies for heating, ventilation, and air-conditioning assessment, general maintenance and adjustment, and filter replacement including certain repairs, replacements and other improvements to heating, ventilation, and air-conditioning systems (California Energy Commission, n.d.-c)	No longer accepting applications
Equitable Building Decarbonization Program	Homes	• Direct-install program provides decarbonization retrofits to low- and moderate-income households • Statewide incentive program to reduce the cost of loans for home energy retrofits that improve efficiency and reduce greenhouse gas emissions (California Energy Commission, n.d.-h)	Active
California Electric Homes Program	Homes	• Provide incentives for construction of all-electric market-rate residential buildings and the installation of energy storage systems to encourage the deployment of near-zero-emission building technologies (California Energy Commission, n.d.-e)	Launched
Building Initiative for Low-Emissions Development Program	Homes	• Residential building decarbonization program that provides incentives and technical assistance to support the adoption of advanced building design and all-electric technologies in new, low-income, all-electric homes and multifamily buildings (California Energy Commission, n.d.-b)	Active

TABLE 11

California Bills and Resolutions for Funding Indoor Mechanical Cooling

State	Bill	Year	Status	Overview
CA	SB-282	2025	pending	Bill introduces the Heat Pump Access Act, requiring the State Energy Resources Conservation and Development Commission to establish a statewide certification program for licensed contractors of residential heat pump water heaters and heat pump heating, ventilation, and air-conditioning systems to obtain a heat pump installation certification.
CA	ACR-109	2023	passed	Resolution identifies extreme heat as a serious and urgent threat, calling on state agencies and departments to invest resources in extreme heat resilience. The resolution notes that many homes in California lack air-conditioning and that schools, especially in urban areas, are made with heat-retaining materials, which increases children's risk of heat illness. The resolution suggests the strategy of aligning funding needs with federal opportunities, including the Infrastructure Investment and Jobs Act and the Inflation Reduction Act.
CA	SB-852	2022	passed	Mechanical cooling is an allowable expense in the law authorizing a city, county, or special district to form a climate resilience district to raise and allocate funds for eligible projects.
CA	AB-137	2021	passed	The law requires the California Energy Commission to implement and administer a new statewide program to incentivize the construction of new multifamily and single-family market-rate residential buildings as all-electric buildings or with energy storage systems. All-electric buildings include energy-efficient mechanical cooling.
CA	AB-1087	2021	failed	Bill created funding for the Environmental Justice Community Resilience Hubs Program, which would fund competitive grants by electrical corporations for owners of critical community institutions for building upgrade projects, including cooling and air filtration equipment.

3.9.2. Leverage Federal Funding for Cooling Systems

Exposure Setting: Homes and Schools

3.9.2.1. Homes

State funding should be designed to complement federal funding if it is available because state funds for cooling systems can be maximized when designed to bolster federal offerings. California has a variety of programs intended to expand access to cooling systems, primarily through rebates, tax credits, and loans. These funding mechanisms span multiple jurisdictions including federal incentives from the Inflation Reduction Act, statewide incentives from the TECH Clean California program, and local utility-level programs facilitated by around 20 utility programs across California. Funding incentives for mechanical cooling, particularly heat pumps,

can usually be “stacked” to maximize value, meaning that incentives are often not exclusive (McCabe, 2024). Incentives are open to various dwelling and tenure types, though this report does not differentiate eligibility for the programs (The Switch Is On, 2025).

Federal funding is contingent on administration priorities, so building state programs to capture these funds can be effective but risky if federal priorities shift in ways that eliminate the programs targeted. A list of federal funding opportunities related to indoor mechanical cooling are listed in the appendix of this report, including the Inflation Reduction Act provisions noted below.

California received a total of $590 million from the Inflation Reduction Act for home energy-efficiency offerings, and this money can help install necessary cooling systems to adapt to heat. California leveraged the existing TECH Clean California initiative to expedite Inflation Reduction Act fund supply to Californians and reserved funds by Northern, Central, and Southern California (California Energy Commission, n.d.-i). Federal rebates for efficiency upgrades often fall short of the total cost for the upgrade, as fixed allocations for energy-efficient appliances do not cover the full cost of purchase and installation (Amann, 2024). Efficient state and utility alignment with federal offerings results in effective program delivery, robust utility program portfolios, alignment with state efficiency goals, and support for the market transformation needed to meet energy-efficient appliance demand (American Council for an Energy-Efficient Economy, 2024).

Combining state and federal offerings can create:

- expanded coverage of electrification needs,
- greater savings for energy-efficiency upgrade projects, and
- more participants in retrofit projects (American Council for an Energy-Efficient Economy, 2024).

TABLE 12

Inflation Reduction Act Home Energy Funding for Homeowners in California Relevant to Indoor Mechanical Cooling*

Program	Program type	Purpose	Offerings
Home Efficiency Rebates (HOMES)	Rebate	Provides rebates for whole home energy upgrades	• Funding split between Equitable Building Decarbonization Program (60%) and Pay for Performance (40%)

Home Electrification and Appliance Rebates (HEEHRA) Program	Rebate	Helps reduce the costs of replacing aging, broken or inefficient energy equipment in homes and decrease the cost of energy bills; available only for income-eligible households	• Single-family: $4,000 or $8,000 per household, depending on household income
			  • Heat pump for space heating and cooling
			  • $200 installer incentive for installation in a single-family, low-income household
			• Multifamily: up to $14,000 per unit
			  • Heat pump for space heating and cooling

Residential Clean Energy Credit	Tax credit	Provides tax savings for energy product purchases (Bosch Home Comfort, 2025)	• 30% money back on the cost of new clean energy systems, including geothermal systems that produce heating and the labor required for installation, with no limit on the total amount spent
Energy Efficient Home Improvement Credit	Tax credit	Inflation Reduction Act funding expands and extends the 25C tax credit, which was previously limited to 10% of project costs (U.S. Congressman Mike Levin, 2024)	• 30% money back, up to $1,200 per year, for energy-efficient renovations • Incentivises the purchase of energy-efficient appliances, including air-conditioning units, and establishes an annual credit cap of $2,000 for heat pump air conditioners (Lindwall, 2025)

*California Energy Commission, n.d.-i

3.9.2.2. Schools

Developing a master plan for school climate resilience can help with federal fund capture. The Master Plan for Healthy, Sustainable, and Climate-Resilient Schools in SB-394 (2023, failed) proposed that the State Energy Resources Conservation and Development Commission develop a Master Plan for Healthy, Sustainable, and Climate-Resilient Schools. A climate-ready schools master plan would assist local school district leaders seeking guidance and support to secure

federal funding, especially funds provided through the Inflation Reduction Act and Infrastructure Investment and Jobs Act that provide for geothermal heat pump installation (Master Plan for Healthy, Sustainable, and Climate-Resilient Schools, 2023). Specifically, a master plan could help with:

- identifying cooling needs of schools,
- streamlining the federal grant application process for school districts, and
- aligning state efforts with existing federal programs.

Overall, a master plan for schools would provide a path to equitably installing cooling systems in public schools. A master planning process can help anticipate and make "shovel-ready" projects should federal funding become available.

While a more comprehensive climate resilience master plan did not pass, the California legislature did allocate funds toward a more limited set of climate resilience goals for schools. The Clean Energy Job Creation Program Act SB-110 (2017, passed) established the Clean Energy Job Creation Fund for specified projects in public schools and community colleges to create jobs in California that improve energy efficiency and expand clean energy generation.

The state and school districts share facilities costs in California. Typically, the state covers 50% of new construction projects and 60% of renovation projects through the School Facilities Fund. School districts use local funds for the remainder of the costs. For the past 20 years, a majority of state school facilities funds have come from voter-approved bonds (California Legislative Analyst's Office, 2024a).

This process creates two issues. First, once approved by voters, it can be difficult to reallocate funds to emerging expense needs. Second, new funds are contingent on voter approval. In California, prior to the passage of Proposition 2 (2024), Proposition 51 (2016) was the most recent statewide school bond that supported the School Facilities Fund (Ballotpedia, n.d.). This gap in new funding allocation created a backlog of unfunded projects in schools across the state. So, while Proposition 2 allocated $10 billion for public school facilities (with $4 billion dedicated to existing buildings), much of that funding will be spent filling in the backlog of schools that have applied for state funding for facilities but not yet received it.

Schools often defer major capital improvements due to budget shortages. It is estimated that capital and operating needs for California public schools exceed their available funding by around $10.8 billion each year (Patel et al., 2025). One-time federal and state programs can fill funding gaps for school facilities. The Inflation Reduction Act has component parts that could increase the affordability of heating, ventilation, and air-conditioning system upgrades for schools. At the state level, the California Schools Healthy Air, Plumbing, and Efficiency Program (CalSHAPE) program provides funding for schools to upgrade HVAC systems (Patel et al., 2025). Previously, the Clean Energy Jobs Act (Proposition 39) (2012) provided $1.7 billion over five years to help schools plan and install energy-efficiency upgrades and clean energy generation measures, which included replacing inefficient air-conditioning and heating units.

3.9.3. Modify Existing Program Structures to Support Equitable Fund Distribution

Exposure Settings: Homes and Schools

3.9.3.1. Homes

While California offers a range of financing options, there are several best practices to incorporate into program implementation that support equitable, market-friendly, accessible, and durable programs. Simplifying programs, making programs market friendly, and creating long-standing programs are three primary methods for increasing equity. For example, providing up-front or direct discounts increases the likelihood that contractors and customers will access energy-efficiency programs because they do not have to carry costs while waiting for rebates or credits (Teener et al., 2025).

Efficiency Maine is a particularly successful example of a heat pump financing program, where reimbursements are issued in an average of four to six weeks (Teener et al., 2025). Further, creating long-standing, trustworthy sources of funding increases the likelihood of consumer and contractor access to offered programs. By prioritizing program stability and avoiding abrupt changes to incentives, customers and contractors are better able to plan for and adjust to home energy upgrades (Teener et al., 2025). Supporting existing state programs for this purpose can help California withstand the uncertainty of federal funding.

3.9.3.2. Schools

The structure of programs used to fund school modernization and construction can have large implications for where funding streams flow. Historically, wealthier school districts (based on property values per student) have received significantly greater state modernization funding than less wealthy districts, per student (Hinkley, 2024). This is because the current use of voter-approved bonds to fund facility modernization ties funding to the wealth of a school's district (Chatterjee & Affeldt, 2024). Proposition 2 increases the state share of costs for certain school districts in an effort to increase equity. For new construction, the state share can be as much as 55% (formerly 50%) and for modernization, the state share can be as much as 65% (formerly 60%). Further, Proposition 2 introduced a higher cap-bonding capacity for districts that qualify for financial hardship grants (California Legislative Analyst's Office, 2024a).

Despite these equity measures from Proposition 2, the structure of School Facility Program (SFP) funding remains the same, advantaging districts with higher-value commercial and residential property because they are able to raise more money per student than lower-wealth districts (Hinkley, 2024). Contrastingly, state general education funding is based on local need. A renovated funding structure, or significantly expanded hardship program, can mitigate these funding inequities. Better data on school facilities infrastructure are needed to make an informed change to SFP structure. By directly confronting the inequities built into the SFP model and assessing the effectiveness of potential changes, school facilities funding can be more equitable (Hinkley, 2024). The UC Berkeley Center for Cities+Schools provides an in-depth guide on how the SFP can be restructured to enhance program equity, including converting

state matches to a progressive scale based on property wealth per student and addressing the inequities inherent in a first-come-first-served model, among other recommendations.

3.9.4. Provide Technical Support and Streamlined Application Processes for Financially Disadvantaged School Districts

Exposure Setting: Schools

Schools tend to secure facilities funding through two primary channels: bond measures and local property taxes (Hinkley, 2024). The absence of stable state funding specifically dedicated to school facilities and maintenance creates inequities. A reliance on local-level funding mechanisms leads districts in wealthier communities to raise more funds for maintaining and upgrading school facilities, including cooling systems (Callahan et al., 2023).

3.9.4.1. Option 1: Equipping School Staff with Technical Knowledge of Cooling Systems

School staff can be equipped with updated technical knowledge through state-supported training programs on energy-efficient facilities infrastructure. Smaller school districts also struggle to track and manage facilities needs, especially because maintenance and operations staff are deprioritized during budget shortfalls. Further, as the technology used for building facilities becomes more advanced, staff who manage such systems need additional technical training (Patel et al., 2025). Effective guidance from the state would include recommended staffing capacity, job descriptions, technical expertise, and experience needed to maintain adequate school facilities.

3.9.4.2. Option 2: Assisting Schools with Funding Applications

The state can help with funding application processes by streamlining and clarifying applications and eligibility for programs. For schools, lack of school staff capacity can affect ability to identify and determine eligibility for school facilities funds. Less-resourced schools can miss important opportunities to install, maintain, or operate cooling systems.

3.9.4.3. Option 3: Increasing School Facilities Program Funds for Hardship Cases

Increasing funding for hardship cases can promote equity among School Facilities Program (SFP) funds distribution.[4] While the SFP has several programs, three major programs are the new construction, modernization, and hardship funds (California Office of Public School Construction, 2016). Disparities in SFP funds distribution have caused higher-wealth and lower-need school districts to receive more funding for modernization, a category of SFP funding that drives disparities between districts (Lafortune & Gao, 2022). The SFP hardship program provides funding based on financial and facility-based hardship, partially addressing SFP funding disparities by serving higher-need and lower-wealth students (Lafortune & Gao, 2022).

4 The California Office of Public School Construction provides financial hardship assistance to school districts that cannot provide all or part of their funding share when receiving School Facility Program funds (California Office of Public School Construction, 2018).

The 2024 Schools Bond (Proposition 2) amends the SFP to provide increased support for lower-wealth and smaller school districts. Amendments include a sliding scale for determining how school districts with low property values can receive increased funding for construction and modernization (California School Board Association, n.d.).

3.9.4.4. Option 4: Cohort-Based Learning Models

Cohort-based learning models can provide general technical support that less-resourced school districts can access in lieu of direct assistance. The Division of the State Architect Getting to Zero Over Time cohort presents a scalable information-sharing and collaborative resource. Facilitated by the New Buildings Institute and the Division of the State Architect's Sustainability Education & Outreach program, the program supports K–12 public school districts in developing roadmaps to net-zero energy and zero carbon (California Division of the State Architect, n.d.-b). While this program spans 57 districts in 29 counties, this model of peer-to-peer exchange could be a helpful regional learning collaborative for school districts.

TABLE 13

California State Bill for Assisting Schools with Funding Applications

State	Bill	Year	Status	Overview
CA	SB-499	2023	failed	Bill proposed the School Extreme Heat Action Plan Act of 2023, requiring that the State Department of Education and State Department of Social Services develop a template for an extreme heat action plan for school sites, and to make a model program guidebook available to school sites and establish a process for systematically updating the guidebook and supporting documentation. Bill requires schools to implement an extreme heat action plan by January 1, 2027.

3.10. Implement, Upgrade, and Maintain Cooling Systems Equitably

3.10.1. Collaborate with Regional Bodies Promoting Indoor Cooling Solutions for Shared Learning

Exposure Setting: Homes

3.10.1.1. Option 1: Building State Programs around Regional Needs and Policies

Flexible incentive programs that can be adjusted to meet region-specific needs can expand energy-efficient cooling system adoption (Teener et al., 2025). Different regions of California have varying needs for cooling systems based on their unique climates and existing infrastructure. It is imperative to understand local contexts to best supply appropriate cooling systems. The state can learn from local regulations for cooling systems to inform region-specific recommendations. For example, evaporative coolers work best in drier areas where humidity

is low and temperatures are high (Water Science School, 2019). Conversely, in hot, humid climates, active cooling is needed to lower air temperature and humidity (U.S. Department of Energy, n.d.-b).

In addition to different equipment needs, various regions have established a policy precedent that can be followed for indoor cooling. The Bay Area Air District strengthened building appliance rules in 2023, calling for a phaseout of NOx-emitting building appliances, including natural gas furnaces and water heaters (Air District Communications Office, 2023). Building cooling systems installation around regional rules can reinforce an appropriate deployment of necessary equipment.

3.10.1.2. Option 2: Funding Community-Based Organizations for Cooling Systems Community Engagement

Funding partnerships and engagement with community-based organizations can help ensure that state efforts around cooling systems' installation and maintenance are appropriately applied and maximized. Further, community-based organizations can help ensure that lower-income communities are equitably served by state energy-efficiency programs (Teener et al., 2025). The California Public Utilities Commission Business and Community Outreach program can build on local relationships to ensure reliable, updated information about available incentives for cooling systems is provided to interested local stakeholders.

NEW YORK STATE'S REGIONAL CLEAN ENERGY HUBS

With New York's transition to an inclusive clean energy economy, the state organized Regional Clean Energy Hubs to help New Yorkers navigate opportunities for energy-efficiency upgrades by providing information to assist with informed energy choices (The New York State Energy Research and Development Authority, n.d.). The function of the Regional Clean Energy Hub varies by local need. Some options include:

- Defining "clean energy economy" for different communities
- Assisting with job training and employment in the clean energy sector
- Providing technical assistance for clean energy-related applications
- Sharing information
- Gathering community-based organizations involved in clean energy, energy efficiency, health, and other relevant sectors of society

3.10.1.3. Option 3: Leverage Work of Regional Energy Networks

Similar to New York's program described in the callout box above, the California Public Utilities Commission (CPUC) facilitates Regional Energy Networks (RENs) that, in addition to investor-owned utilities and local government agencies, are authorized to implement CPUC-directed energy-efficiency programs (California Public Utilities Commission, n.d.-b). The state can learn from these networks' facilitation of existing programs and knowledge of regional needs to develop regionally targeted programs for indoor mechanical cooling. An additional benefit of leveraging the work of regional networks is consistent evaluation systems. The California Energy Commission (CEC) has additionally selected three regional implementers for the Direct Install Program, which is part of the CEC's Equitable Building Decarbonization Program. RENs collectively serve 94% of California's residents, positioning them as trusted, long-standing networks that connect state initiatives to Californians.

TABLE 14

California State Bill for Assisting Schools with Funding Applications

State	Bill	Year	Status	Overview
CA	SB-647	2025	pending	Bill provides support for a network of community-based organizations, requiring the California Public Utilities Commission to ensure that all eligible low- to moderate income electricity and gas customers can participate in energy-efficiency programs. The commission ensures that programs prioritize advanced upgrades including heat pumps, efficient heating, ventilation, and air-conditioning systems, and weatherization measures to decrease energy costs per household.

3.10.2. Prioritize Cooling System Investments in High-Need Areas

Exposure Setting: Homes and Schools

Heat exposure and impacts vary across socioeconomic groups. Additionally, the effects of factors like unhealthy air quality that compound heat harms vary across California regions. For example, the Bay Area and the Central Valley are most affected by severe and frequent unhealthy air quality (Abowd et al., 2021). Lower-income communities and communities of color are more frequently exposed to unhealthy air, which can further exacerbate socioeconomic disparities and negative impacts of heat exposure (Abowd et al., 2021).

3.10.2.1. Schools

Schools in high-poverty communities face disproportionate risk from environmental hazards and effects of the climate crisis. A 2021 Public Policy Institute of California study found that the highest-poverty school districts experienced around 15% higher concentrations of unhealthy particles in the air when compared to the lowest-poverty school districts (Abowd et al., 2021).

With the development of a master plan guiding schools toward climate resilience, the state will have more detailed knowledge of school facilities infrastructure and will be able to make informed decisions for targeting investments.

3.10.2.2. Homes

A 2020 study demonstrates that, in general, home air conditioners are less prevalent in poorer areas of Southern California, and future climate predictions identify these areas to be most vulnerable to future warming (Chen et al., 2020). Targeting outreach, engagement, and resources to these areas can help bridge access gaps to cooling systems across the state (Pottinger, 2020).

Regional energy networks and other community-serving organizations have strong data about local populations that can guide state investment. For example, a report from BayREN (2024) outlines estimates of people most vulnerable to heat within the nine counties it serves.

3.10.3. Support Workforce Development to Meet Demand for Energy-Efficient Cooling Systems

Exposure Settings: Homes and Schools

For both homes and schools, an expansion in the installation, use, and maintenance of energy-efficient cooling systems necessitates an adequately trained workforce to meet market demand.

Workforce education and training programs can be facilitated through California's Regional Energy Networks (RENs), which were developed to deliver energy retrofit solutions and offer educational resources about incentives, financing, and workforce training in regions across the state (CalREN, 2025). Notably, REN programs contribute to utility affordability, statewide economic growth, job creation, improved public health, and GHG emissions reduction, making them a critical resource as cooling systems are updated to be more energy efficient (CalREN, 2025).

Including green workforce development components in building decarbonization legislation can ensure that benefits are maximized for workers while pollution in the building sector is reduced (Building Decarbonization Coalition, 2025). It is estimated that building electrification jobs in California could generate, on average, between 64,000 and 104,000 jobs annually (Jones et al., 2019). AB-593 (2024) (failed) proposed a strategy to cut building emissions while maximizing workforce development (Carbon Emission Reduction Strategy: Building Sector, 2023).

FEDERAL FUNDING FOR ENERGY-EFFICIENCY WORKFORCE DEVELOPMENT

The Training for Residential Energy Contractors Program (TREC) from the Inflation Reduction Act provides $10 million in federal funding to be allocated to training and education to support contractors involved in the installation of electrification improvements to support HOMES, HEEHRA, and EBD Program (California Energy Commission, n.d.-i).

TABLE 15

California State Bills Related to Supporting Workforce Development around Cooling Systems

State	Bill	Year	Status	Overview
CA	SB 282	2023	pending	Bill requires the State Energy Resources Conservation and Development Commission to establish a statewide certification program for licensed contractors of residential heat pump water heaters and heat pump heating, ventilation, and air-conditioning systems to obtain a heat pump installation certification.

4. CONCLUSION

A hotter California climate has caused indoor mechanical cooling to become a necessity for many Californians. Focusing cooling interventions on homes and schools protects children, a particularly heat-vulnerable group, and cools a large portion of the population for many hours of the day. In addition to increasing thermal safety, cooling systems in homes and schools can elevate public health by creating cooler, more resilient communities. Mechanical cooling also offers important co-benefits: improved indoor air quality by reducing exposure to outdoor pollutants and wildfire smoke, and the potential to support California's building decarbonization goals. As extreme heat events become more frequent and intense, cooling systems are sometimes the only viable option for maintaining safe indoor conditions, underscoring their role as critical infrastructure in a changing climate.

APPENDIX A. FEDERAL FUNDING

Appendix A.1. Low Income Home Energy Assistance Program

The Low Income Home Energy Assistance Program (LIHEAP) is a federal program through the Department of Health and Human Services that assists families with energy costs, helping keep families safe and healthy. LIHEAP funds can reduce costs associated with home energy bills, energy crises, weatherization, and minor energy-related home repairs (Office of Community Services, 2025).

TABLE 16

Low Income Home Energy Assistance Program Services

Type of Assistance	Description
Energy Bill Assistance	Helps with paying for home energy bills, including electricity, natural gas, propane, fuel oil, or wood
Weatherization Support	Makes houses more energy efficient to reduce costs
Crisis Assistance	Provides priority assistance for households without (or in danger of being without) heating or cooling
Equipment Repair and Replacement	Assists with fixing heating and cooling systems
Energy Education	Provides resources and strategies to assist in managing home energy usage and bills
Disaster Assistance	Gives support during or after a natural disaster

Appendix A.2. The Inflation Reduction Act

The Inflation Reduction Act created the Environmental and Climate Justice Program (ECJ Program), which includes grants for financial and technical assistance for environmental and climate justice work in underserved and overburdened communities (U.S. Environmental Protection Agency, 2023).

There are two programs within the ECJ Program that are relevant to state work promoting cooling systems: **the Environmental Justice Thriving Communities Grantmaking (EJ TCGM) program and the Environmental Justice Government-to-Government (EJG2G) program.**

- EJ TCGM provides funding to address environmental justice and public health issues in underserved communities by reducing barriers to the federal application process that some communities face (U.S. Environmental Protection Agency, n.d.). Environmental issues subgrantees can address include “healthy homes that are energy/water use efficient and not subject to indoor air pollution” (U.S. Environmental Protection Agency, 2025b).

- EJ EJG2G provides funding at the state, local, territorial, and tribal level for improving public health in disproportionately affected communities. This includes partnership building between state and local governments and community-based nonprofits (U.S. Environmental Protection Agency, 2025a).

IRA established programs that allocate funds to achieving greater energy efficiency in homes, and these programs provide a unique opportunity for establishing indoor mechanical cooling. One prediction estimated that the Inflation Reduction Act will cut household energy costs by up to $112 per household by 2030 (J. Larsen et al., 2022). The act's programs include three main categories:

- tax credit programs for homeowners,
- rebate programs for homeowners, and
- tax credit programs for commercial customers (Bosch Home Comfort, 2025).

Appendix A.2.1. Tax Credit Programs for Homeowners

The Inflation Reduction Act offers a partial tax credit for homeowners who conduct an energy-efficiency audit (Lindwall, 2025). Once homeowners decide to upgrade their energy systems, the **Residential Clean Energy Credit** offers 30% back on the cost of new clean energy systems, including geothermal systems that produce heating, and the labor required for installation, with no limit on the total amount spent. The credit has no income or location restrictions and applies to projects completed between 2022 and 2032 (Lindwall, 2025).

The **Energy Efficient Home Improvement Credit** received a renewal of funds through the Inflation Reduction Act and has larger tax credit amounts than its first iteration. People who use the credit can now receive 30% money back, up to $1,200 per year for energy-efficient renovations (Lindwall, 2025). The credit incentivizes the purchase of energy-efficient appliances, including air-conditioning units, and establishes an annual credit cap of $2,000 for heat pump air-conditioners (Lindwall, 2025). The credit applies to projects completed between January 2023 and 2032 and covers modifications to a noncommercial home and renters living in a multifamily building (Lindwall, 2025).

Appendix A.2.2. Rebate Programs for Homeowners

While states have flexibility in designing Home Efficiency Rebates (HOMES) and Home Electrification and Appliance Rebates (HEEHRA) programs, the U.S. Department of Energy requires states to match the percentage of rebate funding to the percentage of low-income households in the state. Additionally, at least 10% of rebate funding must be allocated for low-income multifamily buildings (American Council for an Energy-Efficient Economy, 2024). Rebates for homeowners can be either point-of-sale discounts or partial refunds to customers (Lindwall, 2025). In October 2024, HEEHRA Phase I program rebate applications opened for owners and operators of multifamily properties with income-eligible tenants in California. In November 2024, the applications opened for single-family retrofits, and homeowners began

receiving rebates (*California Energy Commission*, n.d.-i). As of September 2025, HEEHRA single-family rebates have been fully allocated. The maximum rebate amount for heat pump installation is $800 (American Council for an Energy-Efficient Economy, 2024). HEEHRA rebates are exclusively available through HEEHRA-trained, TECH Clean California-certified contractors, who guide homeowners through the rebate process and can identify other available funds to reduce project costs (American Council for an Energy-Efficient Economy, 2024). California administrators of HEERA funds have divided the state into three regions to ensure geographic fairness in fund distribution (American Council for an Energy-Efficient Economy, 2024).

HOMES establishes funding to assist homeowners with decarbonization and increasing energy efficiency. The California Energy Commission applied to the U.S. Department of Energy for two programs: the Equitable Building Decarbonization Direct Install (launch in 2025) and Pay for Performance (expected launch in 2025–2026) (California Energy Commission, n.d.-i). The Direct Install Program provides funding for decarbonization retrofits and energy-efficiency upgrades to low- and moderate-income households, while the Statewide Incentive Program incentivizes adoption of low-carbon technologies. “Pay for Performance” indicates that the size of the rebate is based on measured energy savings of the efficiency projects. Both programs encourage resilience to extreme heat, improve energy efficiency and affordability, and achieve other statewide goals (California Energy Commission, n.d.-i). Further, contractors receive a $200 bonus for completing projects in disadvantaged communities (American Council for an Energy-Efficient Economy, 2024). Sixty percent of HOMES funding was earmarked to the statewide direct install program and equitable decarbonization, while around $154 million is braided into the Equitable Building Decarbonization Program, which took a reduction in state funds as the budget was cut.

While elective pay has previously been only available to the private sector in the form of energy tax credits, the IRA Section 6417 makes elective pay available to schools for infrastructure improvement projects (UndauntedK12, n.d.). These clean energy tax credits help schools pay the cost of clean energy efficiency. The tax credits are noncompetitive, provide cash reimbursement for schools, make unlimited funding available in a single year or over multiple years, and are available until at least 2032 (UndauntedK12, n.d.). Ground-source heat pumps are an eligible technology under the IRA tax credits for schools.

APPENDIX B. FEDERAL DATA

TABLE 17

National Data Sources with Information Adjacent to Cooling Systems Access in Homes

Data source	Data tracked	Data Gaps
American Community Survey (ACS) (U.S. Census Bureau, n.d.-b)	• ACS includes questions about housing characteristics, costs, and conditions including heating.	• ACS lacks a specific question on air-conditioning access. • Previous questions on the "Island Areas Census" that asked about air-conditioning access did not specify whether the air-conditioning unit was working (L. Larsen, 2024).
Community Resilience Estimates (CRE) for Heat (U.S. Census Bureau, 2025)	• CRE for Heat are derived from information on individuals and households from the American Community Survey and the Census Bureau's Population Estimates Program. • CRE for heat measures social vulnerability in the context of extreme heat exposure.	• CRE for heat lacks a specific indicator for air-conditioning access.
American Housing Survey (AHS) (U.S. Census Bureau, n.d.-a)	• AHS contains questions regarding heating, air- conditioning, and appliances that include primary and secondary air-conditioning questions.	• Due to the sampling process, AHS overestimates air-conditioning presence in lower-income households. • The air-conditioning systems recorded in lower-income households may be inoperable and in need of repair or replacement. • The data do not record how many low-income households do not run air-conditioning due to high electricity costs (L. Larsen, 2024).

Appendix B.1. Other States around the Nation

A funding analysis was completed on introduced legislation in the 2023 calendar year regarding indoor cooling in homes and schools. The purpose of this analysis is to understand policy ideas circulating in other legislatures in order to expand the possible framework in California. It should be noted that this analysis contains all bills regarding cooling and heating, since other states have different climatological needs, but can provide parallel examples for indoor cooling.

For legislation where funding is necessary and applicable—therefore excluding regulatory changes—funding sources can be broken down into six main categories:

Direct Allocation
Bill language specifically calls for an amount of money (in U.S. dollars) to be allocated toward a goal, purpose, or program.

Federal Funding
Bill language refers to an existing federal program with funding that the state will model after, supplement, or expand on.

State-Led Program
Bill language creates or amends a state government program that acts as an administrative entity where funding can be attached to or a regulatory action can apply.

Reimbursement
Bill language refers to retroactive funding.

Tax Incentives
Bill language includes any type of tax benefit or alteration.

Public Financing
Bill language refers to government involvement in free-market activities that either ease funding pathways or create alternative sources of funding for a specified purpose.

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