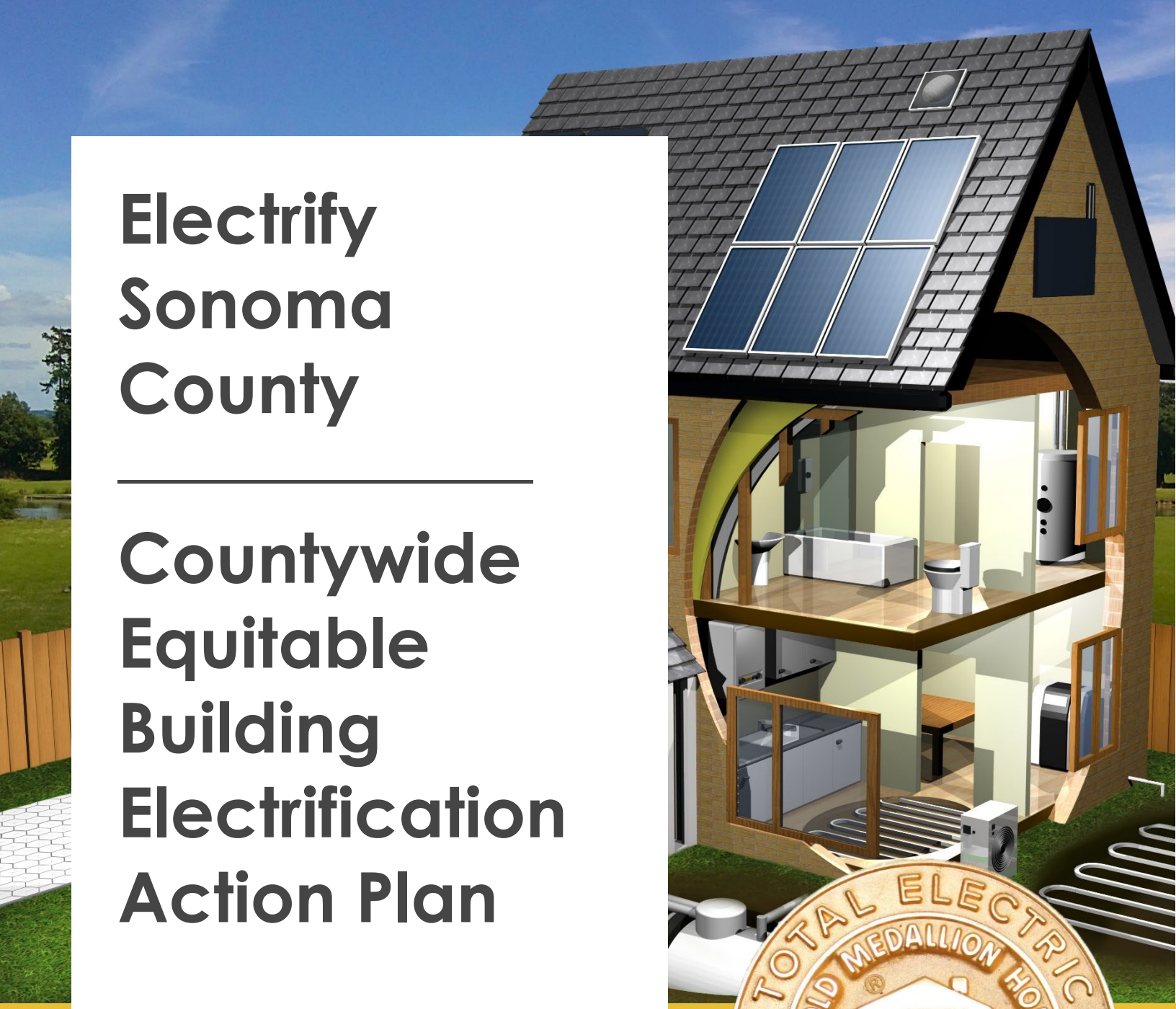
Electrify Sonoma County

Countywide Equitable Building Electrification Action Plan



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Authorities

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About the Cover: The Gold Medallion Electric Home Campaign was part of the "Live Better Electrically" (LBE) program sponsored by General Electric and Westinghouse corporations during the 1950s. In October 1957, the National Electrical Manufacturers Association launched the "Medallion Homes" campaign, which was heavily promoted through a variety of magazine and newspaper ads, TV spots, and radio jingles. The main campaign spokesman was then-actor Ronald Reagan, the host of "General Electric Theater." As part of the show, Regan took television audiences on a tour of his own Pacific Palisades home and promoted the benefits of electric appliances.[1]

[1] Live Better Electrically - The Gold Medallion Electric Home Campaign: https://dahp.wa.gov/live-better-electrically-the-gold-medallion-electric-home-campaign

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About SCTCA

The SCTCA acts as the countywide transportation and climate planning and funding agency and performs a variety of important functions such as advocacy, project management, planning, finance, grant administration, and research. Sonoma County Transportation Authority and Sonoma County Regional Climate Protection Authority are the separate legal entities of our two authorities that share the same Board and staff.

SCTCA coordinates countywide climate protection efforts among Sonoma County's nine incorporated jurisdictions and multiple countywide agencies. SCTCA aligns the activities of local jurisdictions with regional, state, and federal entities at both policy and administrative levels. SCTCA provides a forum for local elected officials to engage in dialogue on countywide issues and enables discussions among local and regional entities on a wide range of issues related to climate mitigation and adaptation, including planning, program management, and project delivery. SCTCA coordinates efforts to secure additional funding and provides climate-related data collection, public information, and community education.

SCTCA's Sonoma Climate Mobilization Strategy outlines 13 countywide actions under local authority that have the potential to significantly reduce GHG emissions by 2030. The Strategy was adopted in March 2021 and SCTCA is coordinating with local jurisdictions, the County of Sonoma, and our agency partners to assist with policy development and implementation. The Equitable Building Electrification Action Plan is directly linked with Strategy 1. All-Electric Buildings Campaign with the goal of accelerating the electrification of existing buildings and electrifying all new buildings in Sonoma County in the pursuit of reaching carbon neutrality in the shortest time possible.

Introduction

SCTCA's Sonoma Climate Mobilization Strategy outlines 13 countywide actions under local authority that have the potential to significantly reduce GHG emissions by 2030.[2] The Strategy was adopted in March 2021 and SCTCA is coordinating with local jurisdictions, the County of Sonoma, and our agency partners to assist with policy development and implementation. The Equitable Building Electrification Action Plan (Action Plan) is directly linked with *Strategy 1: All-Electric Buildings Campaign* with the goal of accelerating the electrification of existing buildings and electrifying all new buildings in Sonoma County. The purpose of the Action Plan is to guide local electrification and decarbonization efforts within the built environment to meet Sonoma County's carbon neutrality goal. Given that many of the jurisdictions have developed climate action strategies that cover building electrification, SCTCA's primary role will be to identify and seek alignment between individual jurisdictional actions and countywide collaboration opportunities where applicable.

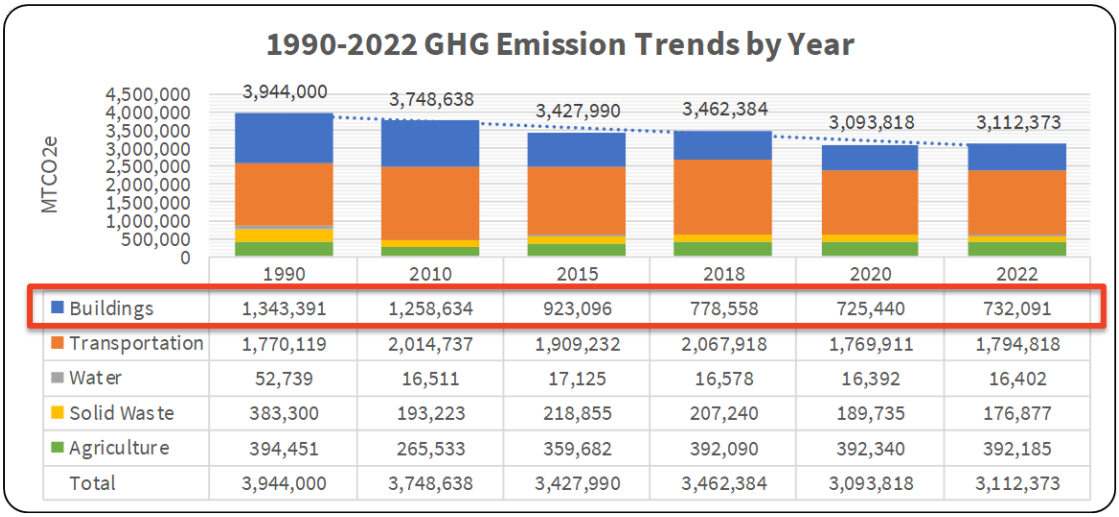
2022 Total Emissions:

- 3,112,373 MTCO2e
- 21.1% reduction from 1990 GHG Baseline

GHG Emission Sectors

Transportation	57.7%
Buildings	23.5%
Agriculture	12.6%
Solid Waste	5.7%
Water	0.5%

According to the 2022 Greenhouse Gas Inventory, countywide emissions were just over 3.1 million metric tons of carbon dioxide equivalent (MTCO2e).[3] This is a 21.1% reduction from the 1990 baseline which is used to measure progress. Although Sonoma County has made great progress, more ambitious actions are needed to meet RCPA's reduction goal of carbon neutrality by 2030. The graph and table below show greenhouse gas emission trends from 1990 to 2022. Of this total, over 23% of local emissions are attributable to energy used within the built environment. Upgrading buildings in Sonoma County to become zero-emission is critical to lowering greenhouse gas emissions.



	1990	2010	2015	2018	2020	2022
Buildings	1,343,391	1,258,634	923,096	778,558	725,440	732,091
Transportation	1,770,119	2,014,737	1,909,232	2,067,918	1,769,911	1,794,818
Water	52,739	16,511	17,125	16,578	16,392	16,402
Solid Waste	383,300	193,223	218,855	207,240	189,735	176,877
Agriculture	394,451	265,533	359,682	392,090	392,340	392,185
Total	3,944,000	3,748,638	3,427,990	3,462,384	3,093,818	3,112,373

[2] Regional Climate Protection Authority - Sonoma Climate Mobilization Strategy (Adopted March 2021): https://rcpa.ca.gov/wp-content/uploads/2020/12/Sonoma-Climate-Mobilization-Strategy-Adopted-2021-03-08.pdf

[3] Regional Climate Protection Authority - Sonoma County Greenhouse Gas Inventory, 2022 Update (July 2024): https://rcpa.ca.gov/wp-content/uploads/2024/06/RCPA-GHG-Inventory-Update-2022-Full-Report-FINAL-2024-07-08.pdf

Countywide emissions from energy used in buildings decreased over 45 percent from 1990 to 2022. This significant reduction in emissions from electricity consumption is a key result from the 2014 inception of Sonoma Clean Power – a community choice energy provider which offers Sonoma County communities the option of purchasing lower-carbon and zero-carbon electricity delivered through PG&E power lines.

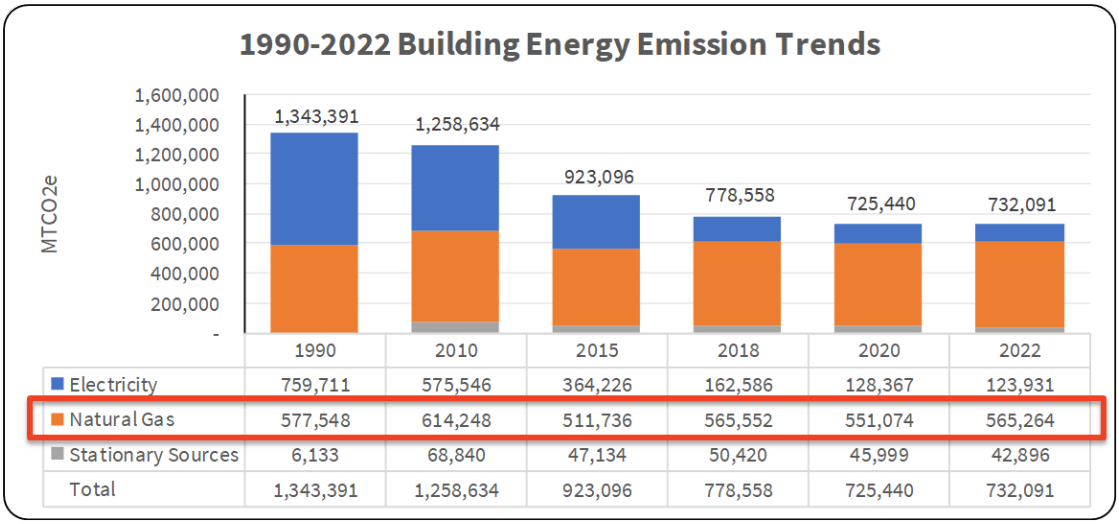
When the building energy emissions are analyzed further, emissions from natural gas use have only reduced a small amount over this same time period. As our electricity supply has grown cleaner, emissions from natural gas have become a more significant percentage of total emissions. Key areas of the current Action Plan are focused on phasing out natural gas use in the building energy sector.

Building Energy Sectors:

- Electricity 16.9%
- Natural Gas 77.2%
- Stationary Sources (Propane, Kerosene, Wood) 5.9%

Continued Area of Focus:

Reduction of Fossil Fuel Use in Buildings and Increase in 100% Renewable Electricity Production



	1990	2010	2015	2018	2020	2022
Electricity	759,711	575,546	364,226	162,586	128,367	123,931
Natural Gas	577,548	614,248	511,736	565,552	551,074	565,264
Stationary Sources	6,133	68,840	47,134	50,420	45,999	42,896
Total	1,343,391	1,258,634	923,096	778,558	725,440	732,091

To reduce natural gas use from the buildings – and subsequently lower emissions – two efforts need to take place for each building: energy efficiency improvements and decarbonization upgrades. While these two phases can be accomplished in either order, we will discuss efficiency first.

The ideal first step is to evaluate building energy use and implement measures to improve building energy efficiency. These measures include air sealing, attic and wall insulation, duct repair, high-efficiency windows and doors, and reflective roofs to reduce overall energy use.

After improving energy efficiency, the next step is to transition from fossil fuels to clean electricity for cooking, space heating and cooling, and water heating. Examples of this work include upgrading:

- Furnaces to heat pump HVAC systems
- Hot water heating to heat pump water heaters (HPWH)
- Kitchen equipment to induction cooktops and electric ovens
- Pool and spa heating to heat pump pool heaters

In some cases, electric panels may not have sufficient capacity to allow for increased use of electricity and must be upgraded. Actions such as installing "Watt Diet" measures or choosing more efficient appliances can help manage electric load so that panel upgrades are not required.

Lastly, a number of potential upgrades may not directly reduce emissions but would allow for increased resiliency during electric outages or natural disasters. Some resilience upgrades include:

- Installing wildfire hardening and seismic safety resiliency measures at the same time as other upgrades to reduce construction costs while upgrading other building systems
- Installing solar photovoltaic (PV) systems with integrated battery storage for demand response during higher time-of-use periods and for continued electric use during grid outages
- Installation of European-style plug-in balcony solar systems (after national safety certifications)
- Purchasing electric vehicles with bi-directional charging (as they becomes readily available)

Taken together, the complete list above will be very expensive for the average homeowner – and often completely unattainable for low-income households. There will be an ongoing need to provide rebates and incentives, offer technical assistance and turnkey installation programs, and develop innovative financing options to make this an attainable reality for many building owners across Sonoma County.

Another major aspect of the scale of work needed is the sheer number of structures throughout the county that may need upgrades. Analysis conducted by the Bay Area Regional Energy Network gives a building count of just under 230,000 across all jurisdictions in Sonoma County, with approximately 100,000 buildings located in unincorporated areas and approximately 128,000 spread across the nine incorporated jurisdictions.[4]

Building Count	Count (#)	Share (%)
Incorporated	**128,833**	**56.09%**
Santa Rosa	61,448	26.75%
Petaluma	22,339	9.73%
Rohnert Park	13,642	5.94%
Windsor	9,791	4.26%
Healdsburg	5,620	2.45%
Sonoma	5,613	2.44%
Cloverdale	3,704	1.61%
Sebastopol	3,520	1.53%
Cotati	3,156	1.37%
Unincorporated	**100,845**	**43.91%**
County	100,845	43.91%
Grand Total	**229,678**	**100.00%**

These building totals can be further broken down in any number of different ways, including by ownership type, building vintage, and energy use. It is worth pointing out that over 90% of these buildings are residential structures, which include both single family and multifamily properties. When analyzed by square footage, residential buildings account for 67.5% of the total building footprint, with commercial buildings covering 32.5%. Given these relative proportions, the scale of the residential effort will be much larger than that needed for commercial building upgrades. While energy use and greenhouse gas emissions per building are higher for commercial structures, the scale of the problem and the strategies needed will call for a different fundamental approach to these upgrades as opposed to residential structures.

Building Count	Count (#)	Share (%)
Residential	**210,706**	**91.74%**
Incorporated	117,889	51.33%
Unincorporated	92,817	40.41%
Commercial	**18,972**	**8.26%**
Incorporated	10,944	4.76%
Unincorporated	8,028	3.5%
Grand Total	**229,678**	**100.00%**

[4] Bay Area Regional Energy Network (BayREN) - Existing Buildings Study (2025): https://www.bayren.org/existing-buildings-study

Community and Stakeholder Engagement

Throughout the development of this Action Plan, a consistent effort has been made to solicit and include feedback from a wide range of stakeholders. This initial process began by gathering input from the SCTCA Board of Directors upon launch of the project. Material collected during the Climate Protection Initiative in 2023 was also reviewed. Specifically, the work of the Buildings Committee and notes from the Social Equity listening sessions proved to be of great value and have been incorporated.

Following this, a jurisdictional Staff Advisory Group of approximately 15 members was assembled and met on several occasions to guide development of the report and develop the list of recommended actions. The proposed report and the recommended actions were also reviewed multiple times by SCTCA's Climate Action Advisory Committee[5] which is composed of appointed community members from all the incorporated jurisdictions and from unincorporated areas of Sonoma County.

To round out the community engagement and input, three additional efforts were undertaken. First, a short online survey was created in both English and Spanish to gather input from the larger community. An outreach postcard was created and distributed at multiple public events for individuals to complete the survey at their convenience. Next, former members of the Climate Protection Initiative Building Committee and other individuals were sent an invitation to provide technical review of the draft recommended actions and guide final development of the written report before finalization.

Finally, invitations were sent to community-based organizations with a focus on social equity, community resilience, and health services. Multiple online feedback sessions were held to review the Action Plan and seek guidance. These engagements proved to be especially useful and clearly demonstrated the overlap between climate protection and community wellbeing.

SCTCA is deeply indebted to all those who have provided input through the process. A short list of key topics from the feedback sessions is included in the sections on "Constraints and Barriers" and "Next Steps for Implementation." Not surprisingly, the majority of concerns are related to increasing utility rates, building upgrade costs, and long-term affordability. A more complete compilation of input and feedback received is included as Appendix C at the end of this report.

[5] SCTCA Climate Action Advisory Committee (CAAC): https://rcpa.ca.gov/about-rcpa/advisory-committee/v

Overview of Priority Areas and Actions

Priority Areas	Strategic Vision
1: Policy Support	All local, regional, and state policies either directly support or are compatible with building decarbonization and electrification efforts.
2: Community Education	Local residents are fully informed about the financial and environmental benefits of building electrification and have access to the resources needed.
3: Energy Equity	Equity guardrails are in place to protect Sonoma County's equity priority and low-income communities from unexpected cost increases or displacement.
4: Contractor Workforce	All local building contractors, their current employees, and future recruits have access to and take advantage of workforce development training.
5: Building Upgrades	All existing buildings are upgraded to reduce emissions, increase energy efficiency, and become more resilient in the shortest time possible.

Rationale for Recommended Actions

Based on a review of local climate action plans and priorities, a preliminary analysis of Sonoma County's building stock, and input from local jurisdiction staff and community stakeholders, SCTCA has identified five Priority Areas for action. Each is described below, with more details later in the report.

1) Policy Support – Vision: All local, regional, and state policies either directly support or are compatible with building decarbonization and electrification efforts.
    - SCTCA's initial focus will be on supporting local government policy efforts that encourage electrification and on developing funding resources for expanded implementation through collaborative multi-jurisdictional grant applications. Specific grants have not yet been determined, but this work to identify shared projects and potential funding options will be accomplished through a series of Climate Grant Planning and Coordination Meetings.
2) Community Education - Vision: Local residents are fully informed about the financial and environmental benefits of building electrification and have access to the resources needed.
    - SCTCA's initial focus will be on developing local partnerships to coordinate outreach, integrate program offerings, and share educational materials to make the process of upgrading building systems and identifying rebates less time-consuming and confusing.
3) Energy Equity - Vision: Equity guardrails are in place to protect Sonoma County's equity priority and low-income communities from unexpected cost increases or displacement.
    - SCTCA's initial focus will be on developing community-based partnerships to provide additional support for outreach efforts and technical assistance within equity priority areas.
4) Contractor Workforce - Vision: All local building contractors, their current employees, and future recruits have access to and take advantage of workforce development training.
    - SCTCA's initial focus will be to identify the appropriate lead(s) to better support local building contractors and expand workforce training options. This work will also include building the "business case" for contractor investments in decarbonization training.
5) Building Upgrades - Vision: All existing buildings are upgraded to reduce emissions, increase energy efficiency, and become more resilient in the shortest time possible.
    - SCTCA's initial focus will be on promoting existing resources, as well as to identify and evaluate innovative approaches that require additional funding resources prior to implementation. Multiple existing upgrade programs are available for local building owners, but rebates alone are not enough to remove the multitude of barriers facing residents.

The remainder of this report includes information that is important to understand the need for building electrification and the constraints that must be overcome. These sections include:

- Policy Context for Global, Federal, State, Regional, Utility, Countywide, and Local scales
- Role of Building Electrification Efforts, including the sources of climate pollution, the benefits of building decarbonization, and an initial analysis of our countywide building stock

The final section provides more information on the twenty recommended actions summarized in the diagram on the preceding page. Given limited short-term resources, a subset of these have been identified for initial implementation – with additional funding needed for full implementation.

Policy Context

SCTCA's local work on building electrification and decarbonization sits within a much larger policy landscape. The policy overview below highlights key efforts that stretch from global efforts to regional and local initiatives, including a section on electric utility providers located within Sonoma County.

Global Climate Imperative

UN Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change[6] (UNFCCC) is the primary international framework for cooperation on climate change, bringing nearly all countries together to address this global challenge. The decision-making body of the UNFCCC is the Conference of the Parties (COP), where all member states ("Parties") meet annually to review the Convention's implementation and to negotiate and adopt new agreements. The next UN Climate Change Conference, also known as COP30, will be held in Brazil in November 2025, with a focus on coordinating global climate action.

Kyoto Protocol

The Kyoto Protocol[7] was a landmark international treaty adopted in December 1997 during the third Conference of the Parties (COP3) to the UNFCCC. It was a significant step in global climate action because it was the first legally binding agreement to set legally binding greenhouse gas emission reduction targets for 37 industrialized countries and the European Community.

Paris Climate Agreement

The Paris Agreement[8] was adopted at COP21 in Paris, France, in December 2015 and entered into force in November 2016. This legally binding international treaty sets an overarching goal to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels."

Intergovernmental Panel on Climate Change

The Intergovernmental Panel on Climate Change (IPCC)[9] is the leading international body for assessing climate change. Its primary role is to provide governments at all levels with comprehensive and authoritative scientific information on climate change. This information covers the causes of climate change, its potential impacts, and viable response strategies, serving as a crucial basis for policy-making and international climate negotiations. While the IPCC itself does not set climate goals or dictate policy, its reports are instrumental in informing the global community about the necessary actions to address climate change. A key message consistently highlighted in IPCC reports, particularly in relation to the Paris Agreement, is the urgent need to limit global warming to well below 2°C above pre-industrial levels, and to pursue efforts to limit it to 1.5°C.

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[6] UN Framework Convention on Climate Change: https://unfccc.int/
[7] United Nations Climate Change – What is the Kyoto Protocol? https://unfccc.int/kyoto_protocol
[8] United Nations – The Paris Agreement: https://www.un.org/en/climatechange/paris-agreement
[9] Intergovernmental Panel on Climate Change: https://www.ipcc.ch/

Federal Climate Context

U.S. Department of Energy

The U.S. Department of Energy (USDOE)[10] plays a central and multifaceted role in advancing energy efficiency across the United States. Its efforts are geared towards reducing energy consumption, lowering costs for consumers and businesses, strengthening energy security, and mitigating climate change. The DOE primarily achieves this through a combination of research and development, setting standards, providing financial incentives, and offering technical assistance. Historically, the U.S. Department of Energy's energy efficiency efforts have been a critical component of the nation's clean energy strategy, fostering innovation, setting standards, and providing support to ensure a more efficient, affordable, and sustainable energy future. USDOE's energy efficiency efforts have had a substantial long-term impact on national energy patterns, including through energy cost savings, reduced emissions, increased job creation, innovative market transformation, and enhanced energy security via development of renewable technologies. Given the current Federal administration, the long-term role of USDOE's energy efficiency and decarbonization efforts are unknown at this point.

Energy Policy and Conservation Act

The Energy Policy and Conservation Act (EPCA)[11] of 1975 is a noteworthy piece of U.S. federal legislation that fundamentally shaped the nation's energy policy. Enacted in response to the 1973 oil crisis and the subsequent energy shortages and price hikes, EPCA aimed to address American energy demands while simultaneously promoting conservation and enhancing energy security.

Unfortunately, in recent years, EPCA has been used as the basis for legal challenges to local building energy reach codes, particularly those that effectively ban natural gas hookups in new construction to accelerate building electrification. The Federal Ninth Circuit court has reasoned that by preventing the use of natural gas, the ordinance effectively regulated the energy use of appliances (like gas stoves and water heaters) that are "covered products" under EPCA, thereby falling under federal preemption. This ruling currently impacts only jurisdictions in California, Alaska, Arizona, Hawaii, Idaho, Montana, Nevada, Oregon, and Washington, but has created uncertainty and caused some municipalities to pause or modify their all-electric reach code efforts even if not legally challenged.

The ruling has reinforced the importance of crafting reach codes that are performance-based rather than prescriptive bans on specific fuel types or appliances. Performance-based codes set an overall energy budget or greenhouse gas emissions target for a building, allowing builders to choose the most cost-effective path to meet that target. This approach is generally considered more robust against EPCA preemption challenges, as it doesn't directly regulate the efficiency of individual appliances but rather the overall energy performance of the building. Jurisdictions are also exploring "fuel-neutral" approaches that heavily incentivize electrification without outright banning natural gas. This might involve setting a very stringent energy performance standard that is much easier and cheaper to meet with all-electric systems (like heat pumps), thus effectively pushing builders towards electrification.

[10] U.S. Department of Energy – Office of Energy Efficiency and Renewable Energy: https://www.energy.gov/eere/office-energy-efficiency-and-renewable-energy
[11] Wikipedia.org - Energy Policy and Conservation Act: https://en.wikipedia.org/wiki/Energy_Policy_and_Conservation_Act

State Climate Context

Assembly Bill 32: Global Warming Solutions Act of 2006

The Global Warming Solutions Act[12] of 2006 (AB 32) is a landmark piece of legislation in California, often cited as one of the most ambitious and comprehensive state-level climate laws in the United States. Signed into law in 2006, the central objective of AB 32 was to reduce California's greenhouse gas emissions to 1990 levels by 2020. This represented an approximate 15% reduction below projected "business as usual" emissions for that year. To achieve this goal, AB 32 assigned the primary responsibility for implementation to the California Air Resources Board (CARB), granting it broad authority to develop and enforce regulations.

AB 32 mandated CARB to develop a "Scoping Plan[13]" to outline the state's strategy to achieve the GHG reduction target. This plan includes a suite of measures across various sectors (energy, transportation, industry, agriculture, waste, etc.) and is designed to achieve the maximum technologically feasible and cost-effective reductions. The Scoping Plan is updated every five years, with the most recent completed in 2022. AB 32 has also laid the groundwork for even more ambitious climate targets in California. Following its success, Senate Bill 32 (SB 32) was passed in 2016, setting a new legally binding target to reduce GHG emissions to 40% below 1990 levels by 2030. This was further bolstered by executive orders aiming for carbon neutrality by 2045[14].

California Air Resources Board

Established in 1967, the California Air Resources Board[15] (CARB) is a powerful and influential state agency within the California Environmental Protection Agency (CalEPA). CARB's mission is to promote and protect public health, welfare, and ecological resources through the effective and efficient reduction of air pollutants. Its climate-related responsibilities are wide-ranging and include setting air quality standards, controlling mobile source emissions, regulating stationary source emissions, administering the Cap-and-Trade Program, implementing the Low Carbon Fuel Standard (LCFS), and developing and updating the AB 32 Scoping Plan. As part of this process, CARB is developing zero-emission standards for new space and water heaters[16] in alignment with the Scoping Plan for Achieving Carbon Neutrality to reduce building-related greenhouse gas (GHG) emissions.

CARB also oversees the 35 local Air Districts throughout California. These “regional air boards” have primary authority over local stationary sources (factories, power plants, refineries, smaller businesses) and certain "area sources" (e.g., consumer products, residential burning). The regional boards also develop and implement local air quality attainment plans (which are components of the State Implementation Plan), as well as operate air monitoring networks and enforce local air quality rules.

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[12] Wikipedia.org – Global Warming Solutions Act of 2006: https://en.wikipedia.org/wiki/Global_Warming_Solutions_Act_of_2006
[13] California Air Resources Board – AB 32 Climate Change Scoping Plan: https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan
[14] State of California – Executive Department: https://archive.gov.ca.gov/archive/gov39/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf
[15] California Air Resources Board: https://ww2.arb.ca.gov/v
[16] California Air Resources Board – Zero-Emission Space and Water Heating Standards: https://ww2.arb.ca.gov/our-work/programs/zero-emission-space-and-water-heater-standards

California Energy Commission

The California Energy Commission[17] (CEC) is California's primary energy policy and planning agency, established in 1974, it was created in response to the energy crisis of the early 1970s and California's rapidly growing energy demand, with a mandate to address the state's energy challenges through a comprehensive approach that prioritizes conservation, efficiency, and the development of diverse energy sources. The CEC plays a crucial role in shaping California's energy future, particularly as the state strives for ambitious clean energy and carbon neutrality goals.

Among its many responsibilities, CEC oversees the following building decarbonization efforts:

- Building Energy Efficiency Standards (Title 24): These standards set minimum energy performance requirements for newly constructed buildings and additions/alterations to existing buildings, aiming to reduce energy consumption, greenhouse gas emissions, and utility bills.
- Programs and Incentives: The CEC supports various programs and provides funding for energy efficiency initiatives in residential, commercial, and industrial sectors, including building decarbonization programs (like BUILD and CalEHP) and programs for existing buildings.
- Renewables Portfolio Standard (RPS): The CEC certifies renewable power plants and verifies utilities' compliance with state mandates that a certain percentage of electricity sold in the state come from eligible renewable energy sources.
- Equitable Building Decarbonization Program[18] (EBDP): The goals of the program are to reduce GHG emissions in homes and to advance energy equity. The Direct Install Program provides decarbonization retrofits to low- and moderate-income households, while the Statewide Incentive Program promotes the increased adoption of low-carbon technologies. EBDP also aims to encourage resiliency to extreme heat, improve indoor air quality, improve energy affordability, and increase payment of prevailing wage to the workforce. CEC is currently soliciting contractors for EBDP Direct Install services to be offered throughout the state.

California Public Utilities Commission

The California Public Utilities Commission[19] (CPUC) is a crucial state agency whose primary role is to regulate privately owned public utility companies that provide essential services to Californians. The CPUC has broad authority across several sectors, including electric power, natural gas, telecommunications, water, and transportation. To support energy efficiency goals, the CPUC manages the statewide Public Goods Charge (PGC) on electricity and natural gas bills that funds a variety of state-mandated programs. Additionally, CPUC administers several assistance programs to ensure that essential energy services remain affordable for low-income households. These services include the California Alternate Rates for Energy (CARE) Program, the Energy Savings Assistance (ESA) Program, and the Family Electric Rate Assistance (FERA) Program.

[17] California Energy Commission: https://www.energy.ca.gov/
[18] California Energy Commission - Equitable Building Decarbonization Program: https://www.energy.ca.gov/programs-and-topics/programs/equitable-building-decarbonization-program
[19] California Public Utilities Commission – Energy Efficiency: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/energy-efficiency

Regional Climate Context

Bay Area Air District

The Bay Area Air Quality Management District, now officially known as the Bay Area Air District[20] (BAAD), is the regional government agency responsible for protecting air quality in the nine counties that surround the San Francisco Bay: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma counties. The district was established in 1955, making it the first regional air pollution control agency in the United States. BAAD is currently working on two major initiatives related to building decarbonization:

- The Bay Area Regional Climate Action Planning Initiative[21] (BARCAP) is an effort to develop a comprehensive regional climate action plan for the San Francisco-Oakland-Berkeley Metropolitan Statistical Area. BARCAP involves two primary phases: an initial Priority Climate Action Plan (PCAP) focused on identifying near-term, implementation-ready climate measures in high-priority sectors that could provide significant GHG reductions and directly benefit frontline communities, and the forthcoming Comprehensive Climate Action Plan (CCAP) which will propose additional and new measures across all sectors of the economy to further reduce emissions. The draft CCAP features a series of proposed actions to support transitioning buildings from fossil fuels to clean electricity for heating, cooling, and cooking.
- Building Appliances Rule Implementation[22]: Over the past several years, Air District staff have developed amendments to Rule 9-4 and Rule 9-6 that apply to residential and commercial furnaces and water heaters, and no other natural gas appliances. Under these rules, water heaters and gas furnaces would have to meet zero-emission standards for oxides of nitrogen, or NOx. The only commercially available appliances that currently meet those standards are electric, but if a natural gas appliance demonstrates that it meets the standards, it would be allowed under the current amendments. These zero NOx rules will be phased in over several years, starting first in 2027 for typical residential water heaters, next in 2029 for typical residential and commercial furnaces, and finally in 2031 for typical commercial and multi-family water heaters. An Implementation Working Group met throughout 2024 to provide information, recommendations, and solutions to support a smooth and equitable transition.

Bay Area Regional Energy Network

The Bay Area Regional Energy Network[23] (BayREN) is a collaboration of local governments within the nine San Francisco Bay Area counties. BayREN's overarching mission is to support communities in equitably achieving California's climate and energy goals and provides outreach, training, technical assistance, funding and resources. BayREN is funded by utility ratepayer funds through the California Public Utilities Commission (CPUC), as well as from other sources, and provides services for customers

[20] Bay Area Air District: https://www.baaqmd.gov/
[21] Bay Area Air District – Bay Area Regional Climate Action Planning Initiative: https://www.baaqmd.gov/en/plans-and-climate/climate-planning/bay-area-regional-climate-action-planning-initiative
[22] Bay Area Air District - Building Appliances Rule Implementation: https://www.baaqmd.gov/en/community-health/building-appliances-rule-implementation
[23] Bay Area Regional Energy Network: https://www.bayren.org/

that receive electric service directly from PG&E or through Sonoma Clean Power, our local community choice aggregator. BayREN provides expertise and services across three main areas:

- Promoting Healthy and Energy Efficient Buildings: This applies to single-family and multifamily residents, as well as small to medium commercial property owners.
- Building Capacity for Local Governments: Offering training, mentoring, and a range of resources to increase their impact across the nine Bay Area counties.
- Reducing Emissions: Catalyzing regional activities and connecting them to existing initiatives.

BayREN offers programs for single-family homeowners, multi-family property owners, commercial business owners, and local government agencies. Specific program offerings include:

Single-Family Residential - Efficiency And Sustainable Energy (EASE) Home Program: The EASE Home Program provides support for home upgrades that improve comfort, energy efficiency, and safety:

- Weatherization upgrades that keep your home warm in the winter and cool in the summer—like improved insulation, duct sealing or replacement, and whole-home air sealing
- Energy efficiency upgrades such as smart thermostats and weatherstripping to reduce energy
- Health and safety upgrades that can include pest control and mold remediation.
- High-efficiency electrical appliances that improve indoor air quality, and provide safer, more consistent performance compared to gas-powered alternatives
- Electrical infrastructure upgrades support these new technologies.\

Single-Family Residential - Home Energy Score: BayREN promotes efficient, comfortable, and healthier homes by providing assessments of a home's building envelope and major energy systems. An assessor uses a formula developed by the USDOE to score your home's energy use on a scale of 1 to 10, as well as provide energy saving solutions to cost-effectively improve your home's efficiency.

Multi-Family Residential - Bay Area Multifamily Building Enhancements (BAMBE): A financing and upgrade program that assists multifamily building owners, with a priority on affordable properties. BAMBE offers free energy audits and rebates for energy upgrades, focusing on renters and middle-income families to improve housing affordability. BAMBE staff customizes a package of improvements that are expected to save 10% or more of the building's energy use and to apply for project rebates.

Commercial Business Programs: The BayREN Business Program is currently closed to new project applications and will re-open with incentives for new projects later in 2025. The BayREN Refrigerant Replacement (BRRR) Program helps Bay Area food and floral businesses reduce greenhouse gas emissions by swapping out harmful refrigerants for more environmentally-friendly alternatives. Additionally, the program installs energy efficient equipment that will help lower utility bills.

Codes and Standards Program: Assists local governments in evaluating and improving Energy Code compliance, developing options for accelerating energy efficiency, and providing no-cost training to building departments across a wide variety of construction topics. The Codes and Standards Program also funds demonstration projects and assists communities in developing reach codes.

Utility Climate Context

Pacific Gas and Electric Company

Pacific Gas and Electric Company[24] (PG&E) is one of the largest combined natural gas and electric utilities in the United States. Incorporated in California in 1905, it serves a vast 70,000-square-mile service area across Northern and Central California, providing natural gas and electric service to approximately 16 million people. PG&E's primary business is the transmission and delivery of energy.

- Electricity: PG&E generates, transmits, and distributes electricity to its customers. It owns and operates a diverse portfolio of generation facilities (though a significant portion of its electricity comes from power purchase agreements with other generators, including a large amount of renewable energy). It maintains an extensive network of electric distribution lines (over 106,000 circuit miles) and transmission lines (over 18,000 circuit miles).
- Natural Gas: PG&E transmits and distributes natural gas through its vast pipeline network (over 42,000 miles of distribution pipelines and over 6,400 miles of transmission pipelines). This gas is used for heating, cooking, and other industrial and commercial purposes.
- Energy Efficiency Programs: PG&E, under the oversight of the California Public Utilities Commission, administers a wide range of energy efficiency programs that provide rebates, incentives, and educational resources to residential, commercial, and industrial customers to help them reduce their energy consumption.

PG&E also operates a series of Energy Centers[25] with workforce training and resources for businesses with more than 400 technical courses on a wide range of topics, including energy efficiency, decarbonization, and electrification. Some trainings are available in-person led by industry experts, with additional classes for all skill levels available as on-demand online videos.

Additionally, PG&E provides funding to the County of Sonoma to implement the Sonoma County Local Government Partnership[26] which provides additional energy efficiency and technical assistance services to local agencies, special districts, and K-12 schools. This program is managed locally by the County of Sonoma Energy and Sustainability office and integrated with their other program offerings.

Finally, given that PG&E owns and operates the majority of electric transmission and distribution infrastructure throughout Sonoma County, they must work in close relationship with community choice aggregators[27] such as Sonoma Clean Power to procure power resources and to track and bill this usage by customers. Under this arrangement, PG&E partners with Sonoma Clean Power to deliver the electricity over PG&E's transmission and distribution system, as well as continuing to provide meter reading, billing, maintenance, and outage response services.

[24] Pacific Gas and Electric Company – Home Electrification: https://www.pge.com/en/clean-energy/building-electrification.html
[25] PG&E Energy Centers: https://www.pge.com/en/business-resources/business-education-and-tools.html
[26] PG&E – Planning with Local and Tribal Governments: https://www.pge.com/en/outages-and-safety/outage-preparedness-and-support/partnerships/local-and-tribal-government-planning.html
[27] PG&E – Community Choice Aggregation (CCA): https://www.pge.com/en/account/alternate-energy-providers/community-choice-aggregation.html

Sonoma Clean Power (SCP)

Sonoma Clean Power[28] (SCP) is a not-for-profit public agency that serves residents and businesses in Sonoma and Mendocino counties, with the exceptions of the cities of Healdsburg and Ukiah, which have their own municipal utilities. The organization aims to offer clean energy solutions and incentives to help customers reduce their utility bills and contribute to cleaning up California's electric grid. SCP procures clean electricity from renewable sources such as solar, wind, and geothermal, and also utilizes hydropower. It is one of 24 Community Choice Aggregators (CCAs) operating in California. While SCP provides electricity generation services, Pacific Gas & Electric (PG&E) remains the utility responsible for managing billing and the physical electricity infrastructure.

SCP also offers a range of programs and incentives[29] designed to help customers manage energy bills, promote grid stability, reduce greenhouse gas emissions by shifting away from fossil fuel end uses, and decrease overall energy consumption. SCP's customer offerings and incentives are also designed to be practical and inclusive of Empower Communities, which are census tracts most impacted by pollution, socioeconomic challenges, and affordability issues. Some of SCP's current customer offerings include:

- SCP's Customer Center serves as a resource hub for understanding energy bills and getting questions answered, as well as providing an immersive demonstration space for customers to learn about high-efficiency electric technologies that can save money and reduce emissions.
- Residential and Commercial Electrification Incentives are available for various electric technologies. Higher incentives are available for income-qualified customers enrolled in California Alternate Rates for Energy (CARE) or Family Electric Rate Assistance (FERA) programs.
- Induction Cooktop Lending allows customers to borrow an induction cooktop to become familiar with the technology before replacing their methane natural gas stove.
- GridSavvy Rewards program pays customers for reducing energy use during energy-saving events (typically 4-9 p.m.) SCP also offers discounts and incentives to purchase and connect smart devices (like EV chargers and smart thermostats) that can automatically adjust usage to facilitate energy savings and peak demand reduction.
- EverGreen is SCP's 100% renewable, locally generated energy option from geothermal and solar resources in Sonoma and Mendocino counties. It costs an additional 2.5 cents per kilowatt-hour and eliminates nearly all greenhouse gases from electricity use.
- Non-Profit Electric Vehicle Incentives are offered by SCP to non-profits to help them transition from gas-powered vehicles to clean EVs, providing incentives up to $22,500 per vehicle.
- Do-It-Yourself Home Energy Toolkit were developed in partnership with local agencies like Sonoma Water and the Sonoma County Library, and can be checked out at local libraries to help customers identify quick home upgrades for energy, water, and money savings.

[28] Sonoma Clean Power – Who We Are: https://sonomacleanpower.org/who-we-are
[29] Sonoma Clean Power – Strategic Action Plan and Equity Framework: https://sonomacleanpower.org/strategic-action-plan

To guide their program design, SCP has conducted a series of community needs assessments that revealed the key customer priorities below. Contractors engaging with SCP customers also noted that most customers seeking energy efficiency and electrification projects are well-informed and have access to funding. However, challenges remain for low-income residents, who may struggle to afford upgrades or find qualified contractors. SCP also recognizes the need for programs that provide emergency bill relief, discounted electricity bills, and assistance in reducing electricity usage for these communities. Below are some of the key recommendations from the recent Residential and Commercial Community Needs Assessment:

- Reduce Energy Bills and Help Low-Income Customers
    - Promote energy efficiency and conservation.
    - Educate customers on time-of-use (TOU) rates to shift usage to off-peak times.
    - Increase participation in GridSavvy Rewards to reduce peak-time energy use.
    - For Empower Communities and low-income customers, provide emergency bill relief and discounts.
    - Install energy efficiency measures (e.g., smart thermostats, LED lighting).
    - Target low-income customers for GridSavvy Rewards.
- Improve Affordability of Energy Efficiency Solutions
    - Reduce upfront costs, offer rebates, and sell discounted energy-efficient equipment.
    - Help commercial customers create energy efficiency plans.
    - Target commercial customers for GridSavvy Rewards.
    - For Empower Communities, offer larger rebates and discounts.
- Protect Against Power Outages
    - Provide rebated or discounted battery storage and solar panel pairings.
    - Offer emergency outage kits or backup battery generators.
    - Encourage participation in GridSavvy Rewards to reduce energy use during peak times and help stabilize the grid, reducing the likelihood of power outages.
    - For Empower Communities, offer larger rebates and discounts.
- Address Climate Change
    - Promote efficiency and electrification technologies, battery storage, and GridSavvy.
    - Build more local renewables.
    - For Empower Communities, offer larger rebates and discounts, shade tree planting.
- Build Local Renewables
    - Promote rooftop solar with battery storage.
    - For Empower Communities, offer a discount on EverGreen option, and/or offer discounted or direct installation of rooftop solar systems paired with battery storage.
- Improve Access to Information on Rates and Incentives
    - Raise awareness on time-of-use (TOU) rates and available incentive programs through bill inserts, "tell a friend" options, and targeted marketing.
    - Enhance program education via phone/email/chat concierge and digital channels.
    - Improve website usability to make programs easier to find.

Healdsburg Electric Utility

The final electric supplier within Sonoma County is the publicly owned utility that provides electric service to the City of Healdsburg[30]. Having its own municipal electric utility gives Healdsburg much local control over its energy supply and rates. It is governed by the City Council and is accountable directly to the residents and businesses it serves. Healdsburg prides itself on providing reliable electricity at costs significantly lower than PG&E, saving the community millions annually.

The Electric Department within the City of Healdsburg is responsible for:

- Power Procurement: Securing electricity for the community's needs through various generation projects, allocations (such as from the Western Area Power Administration), and long- and short-term power contracts (typically in coordination with the Northern California Power Agency (NCPA) and other NCPA members).
- Distribution and Maintenance: Maintaining and operating the City's electric distribution system, including substations, overhead and underground lines, poles, transformers, and streetlights.
- Regulatory Compliance: Ensuring compliance with state and federal energy and environmental regulations and reporting, including the State's Renewable Portfolio Standard (RPS) Program and the Clean Energy, Jobs, and Affordability Act of 2022.
- Customer Service and Billing: Managing utility billing for electric, water, and wastewater services for its over 6,000 residential and commercial customer accounts, as well as managing the income-qualified utility bill discounts.
- Conservation Programs: Offering various energy efficiency and greenhouse gas reduction programs and rebates to residential and commercial customers, including programs for building and transportation electrification. All conservation programs are outlined at the Smart Living Healdsburg website[31] and reported annually to the California Energy Commission[32].
- Climate Mobilization Strategy (CMS): Leading multiple keys strategies and actions identified in the City's CMS Implementation Plan, such as renewable and carbon-free electricity, efficient building electrification and decarbonization, electric transportation, and more[33].

[30] City of Healdsburg – Electric Department: https://www.ci.healdsburg.ca.us/228/Electric
[31] City of Healdsburg – Smart Living Healdsburg: https://www.smartlivinghealdsburg.org/
[32] Northern California Power Agency – Reports Submitted Pursuant to Senate Bill 1037: https://www.ncpa.com/policy/reports/energy-efficiency/
[33] City of Healdsburg – Climate Mobilization Strategy: https://healdsburg.gov/730/Climate-Change-Sustainability

Countywide Climate Context

Northern Sonoma County Air Pollution Control District

The Northern Sonoma County Air Pollution Control District[34] (NSCAPCD) is the local regulatory agency responsible for maintaining and improving outdoor air quality in the northern and coastal regions of Sonoma County, including areas like Cloverdale, Healdsburg, Guerneville, and The Sea Ranch. NSCAPCD's mission is to promote and protect the health, welfare, quality of life, and ecological resources for residents and visitors of Northern Sonoma County through the effective reduction of air pollutants. To accomplish this, NSCAPCD provides financial incentives to replace or retrofit diesel-powered equipment or vehicles with newer and cleaner engines, awards Clean Air Protection "mini-grants" to local community projects, offers particulate sensors at no cost to community groups to help plan for and respond to air pollution events, provides rebates for the replacement of wood-burning stoves, and funds the installation of publicly-available electric vehicle chargers throughout the district.

County of Sonoma

In March 2021, the Board of Supervisors approved a new Five-Year Strategic Plan[35] which included pillars on Climate Action and Resiliency and on Resilient Infrastructure. Selected goals within the plan cover becoming carbon neutral by 2030 and making all County facilities carbon free and resilient.

Climate Resilience Comprehensive Action Plan

Following adoption of the Strategic Plan, work began on a more robust Climate Resilience Comprehensive Action Plan[36], which was subsequently adopted by the Board of Supervisors in August 2024. The plan provides a roadmap to reduce greenhouse gas emissions from the County's internal municipal operations and make those operations more resilient to climate hazards that increasingly threaten Sonoma County. The Climate Plan also presents a strategy to engage with Sonoma County communities more fully to better understand their climate resilience priorities and how the County can most effectively support community climate resilience progress.

The plan includes 54 County Operations measures to reduce carbon emissions from County facilities and operations, increase their resilience to climate impacts and hazards, and increase the health of County-owned lands and the carbon they store. Measures are organized by sector, including Energy, Transportation, Waste, Water, Wildfire, and Natural and Working Lands.

The Climate Plan also outlines a Community Engagement Strategy to better understand climate resilience concerns and priorities of diverse communities across Sonoma County, with an emphasis on reaching unincorporated, underserved, under-resourced communities whose voices are not always heard in climate policy discussions. Staff will present prioritized measures to the Board in 2026.

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[34] Northern Sonoma County Air Pollution Control District: https://nosocoair.org/
[35] County of Sonoma - Sonoma County Five-Year Strategic Plan 2021-2026: https://sonoma-county.legistar.com/View.ashx?M=F&ID=9198797&GUID=05520FF5-B616-40F4-B5B0-BAF68AE2AC2E
[36] County of Sonoma - Climate Resilience Comprehensive Action Plan: https://sonomacounty.ca.gov/administrative-support-and-fiscal-services/county-administrators-office/strategic-initiatives/climate-action-and-resiliency/publications/climate-resilience-comprehensive-action-plan

County of Sonoma Energy and Sustainability

The County of Sonoma Energy and Sustainability[37] office is a key partner focused on promoting energy efficiency, water conservation, and building resilience within Sonoma County. It functions as a one-stop-shop for individuals and businesses seeking to make improvements related to energy efficiency and water conservation. The overall objective of these services is to assist property owners and tenants in finding the information, resources, rebates, contractors, and financing that fits their specific situation. The focus of their work is on improving buildings and changing behaviors.

Specifically, the Energy and Sustainability office offers the following services to the public:

- Better Building and PV Solar Consultations: The team provides free and unbiased consultations on various aspects of home energy, sustainability, PV solar, and battery storage systems.
- Access to Incentives and Financing: The office also helps homeowners navigate and access various incentives programs and financing options for their projects.
- Educational Resources and Guides: Energy and Sustainability provides comprehensive information and tools to educate homeowners. They offer the "Home Resilience Guide[38]" in partnership with BayREN. This guide is designed to educate residents on improvements for a more energy-efficient, safe, comfortable, and resilient home.
- Workshops and Community Events: The office actively participates in and organizes public education initiatives focused on energy-efficient equipment and strategies, such as ductless heat pumps and hot water heat pumps. Free PV solar workshops are also offered as a resource for residents. Many of these workshops are available for free in their online Video Library[39].

Two key programs that the office administers include:

- Sonoma County Energy Independence Program (SCEIP): This is a municipally operated property-assessed financing program that the Division manages. SCEIP offers Property Assessed Clean Energy (PACE) financing for up to 100% of project costs at a fixed interest rate, repaid over 10 to 20 years via property tax bills. It simplifies financing for energy efficiency, renewable energy, water conservation, wildfire safety, and seismic upgrades with no upfront money or complicated qualification processes. In July 2025, it was announced that no new residential financing applications would be accepted after January 12, 2026. Commercial PACE financing continues with no interruptions, and no existing residential contracts will be impacted.
- Sonoma County Local Government Partnership (LGP): As discussed above, this program is a partnership between the County of Sonoma and PG&E that aims to save money and energy while reducing harmful climate impacts. The LGP provides energy efficiency services, including no-cost energy audits, technical assistance, and project consultation to local agencies, special districts, and K-12 schools served by either PG&E or Sonoma Clean Power.

[37] County of Sonoma – Energy and Sustainability: https://sonomacounty.ca.gov/administrative-support-and-fiscal-services/county-administrators-office/energy-and-sustainability
[38] Energy and Sustainability – Home Resilience Guide: https://sonomacounty.ca.gov/administrative-support-and-fiscal-services/county-administrators-office/energy-and-sustainability/publications-and-guides/home-resilience-guide
[39] Energy and Sustainability – Video Library: https://sonomacounty.ca.gov/administrative-support-and-fiscal-services/county-administrators-office/energy-and-sustainability/video-library

Sonoma County Transportation and Climate Authorities

As mentioned in the introduction, the Sonoma County Transportation and Climate Authorities (SCTCA) acts as the countywide transportation and climate planning and funding agency and performs a variety of important functions such as advocacy, project management, planning, finance, grant administration, and research. The organization is composed of the Sonoma County Transportation Authority (SCTA) and Sonoma County Regional Climate Protection Authority (RCPA), which are considered separate legal entities, but share the same governing Board of Directors and combined staff.

In September 2019, RCPA adopted a Climate Emergency Resolution[40] outlining the agency's commitment to leading countywide efforts to mitigate and adapt to climate change in the decade ahead. The resolution directed RCPA staff to develop a Sonoma Climate Mobilization Strategy to mobilize an emergency response commensurate with the scale of the climate crisis. The document contains a ten-year policy package that outlines 13 countywide strategies under local authority that have the potential to significantly reduce GHG emissions and increase carbon sequestration by 2030. These strategies were developed in collaboration with its members, partners, advisory committees, and local climate experts. RCPA has been supporting the strategy by coordinating with incorporated jurisdictions, the County of Sonoma, and multiple special districts to assist with policy development and implementation of those areas that provide the greatest impact to reducing emissions.

This current Equitable Building Electrification Action Plan has been designed to support SCTCA's work on decarbonization of the building sector through a transition away from the combustion of methane natural gas. The Action Plan specifically supports *Strategy 1. All-Electric Buildings Campaign* and the goal to accelerate the electrification of existing buildings and electrify all new buildings.

- Objective 1.1: Develop a date-certain, funded, and phased retrofit requirement for existing buildings to transition to all-electric and improve their overall energy efficiency:
    - 1.1a: Adopt a requirement to retrofit 25 percent of all residential and commercial buildings to enhance energy efficiency and convert to all-electric by 2030 and the remaining 75 percent by 2050.
    - 1.1b: Adopt a requirement to retrofit all municipal buildings to enhance energy efficiency and convert to all-electric by 2030.
- Objective 1.2: Require new buildings to be all-electric:
    - 1.2a: Advocate for and work with the State of California to accelerate electrification through California Energy Code updates in 2022 and 2025.
    - 1.2b: Ban natural gas and propane for all new construction in Sonoma County.
- Objective 1.3 Integrate equity into building electrification plans:
    - 1.3a: Require equity impact assessments to be completed for all electrification policies.
    - 1.3b: Ensure funding for building electrification investments in frontline communities.

[40] Regional Climate Protection Authority – Climate Emergency Resolution No. 2019-002: https://rcpa.ca.gov/wp-content/uploads/2019/11/RCPA_CER_2019_Redacted.pdf

Local Climate Action Planning

Each incorporated jurisdiction within Sonoma County has adopted guidance documents to direct their local climate action planning efforts. For this purpose, some smaller jurisdictions rely on the Implementation Sections from RCPA's past Climate Action 2020 effort, while others have developed new action plans and emission reduction strategies. A resource list of these documents is included in Appendix B at the end of this report.

The recommended actions in this report were informed by a review of the priority actions described in the plans. Implementation of the recommended actions will be designed to support these priority actions. Of specific note are four plans listed below that have been adopted in the past two years that can act as a guide for other local jurisdictions looking to develop or update their climate action plan.

- City of Healdsburg: The Healdsburg Climate Mobilization Strategy (CMS) outlines cost effective and impactful efforts that serve as a roadmap to achieve greenhouse gas (GHG) emission reductions in support of the goal for Sonoma County to achieve carbon neutrality by 2030 and in alignment with the State's goal to reduce GHG emissions by 40 percent below 1990 levels by 2030 and achieve carbon neutrality by 2045. Within the Building Energy section, there are 22 listed actions spread across five measure areas that guide this decarbonization work.
- City of Petaluma: The Blueprint for Climate Action (Blueprint) lays out a bold path for carbon neutrality by reducing emissions from all activity in the city, including direct and indirect emissions, by reducing, sequestering, and, if necessary, offsetting emissions with local projects. With many jurisdictions, states and nations working to be carbon neutral by 2045, the City of Petaluma set a bold goal to be carbon neutral by 2030. The Blueprint's Buildings Action Plan includes sections with five key actions each for decarbonized New and Existing Buildings.
- City of Santa Rosa: The Community-wide Greenhouse Gas Reduction Strategy (Reduction Strategy) is an update to and replacement of the City's 2012 Community Climate Action Plan. The Reduction Strategy, prepared as part of the General Plan 2050, will serve as the City's strategic plan to reduce community-wide GHG emissions through 2050 and beyond. The Reduction Strategy establishes a roadmap to reduce the community's GHG emissions to a minimum of 40 percent below 1990 levels by 2030 and 85 percent below 1990 levels by 2045, consistent with State-mandated emission reduction targets. The document includes 16 programs which aim to reduce emissions from existing buildings and 8 programs related to transitioning to carbon-free energy sources for new construction.
- County of Sonoma: The County of Sonoma Climate Resilience Comprehensive Action Plan (Climate Plan) provides a road map to reduce greenhouse gas emissions from the County's operations and increase resilience to climate hazards that threaten Sonoma County. The Climate Plan also presents a strategy to more fully engage with Sonoma County communities, with a focus on unincorporated, climate justice, and environmental justice communities, to better understand their climate resilience priorities and how they can be most effectively supported. The plan includes 10 measures related to existing County facilities, as well as additional community-focused strategies to reduce carbon emissions from fuel use in buildings.

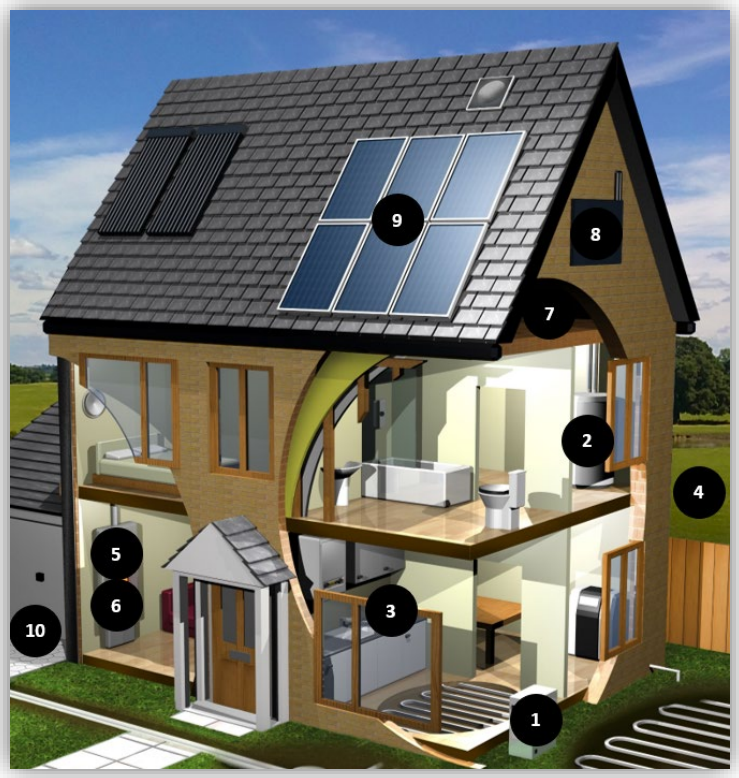
Role of Building Electrification Efforts

Sources of Climate Pollution from our Buildings

As discussed in the introduction, there are multiple sources of carbon emissions that are linked to the use of methane natural gas for powering, heating, and cooking in our buildings. These sources include:

- Fossil fuel-powered furnaces for space heating
- Fossil fuel-powered water heaters for hot water
- Fossil fuel-powered boilers for space heating and/or hot water
- Fossil fuel-burning stoves and cooktops for cooking
- Fossil fuel-powered pool and spa heating equipment
- Fossil fuels used for any off-site electricity generation by power providers
- Fossil fuels used for on-site backup generators or for any other uses

To reduce emissions, multiple upgrades are needed. The diagram below shows the improvements that can be made to increase energy efficiency, electrify building systems, and improve long-term resiliency:



1) Upgrading furnaces to heat pump HVAC systems
2) Upgrading hot water heating to heat pump water heaters (HPWH)
3) Upgrading kitchen to induction cooktops and electric ovens
4) Upgrade pool and spa heating to heat pump pool heaters
5) Expanding electric panel capacity when necessary to facilitate additional appliance upgrades
6) Installing “Watt Diet” measures in buildings where panel capacity is not able to be increased
7) Installing air sealing, attic and wall insulation, duct repair, high-efficiency windows and doors, and reflective cool roofs
8) Installing wildfire hardening and seismic safety resiliency measures
9) Installing solar photovoltaic (PV) systems with integrated battery storage for demand response during higher time-of-use periods and for continued electric use during grid outages
10) Purchasing electric vehicles with bi-directional charging to allow for additional battery storage

Benefits of Building Decarbonization

Greenhouse Gas Emissions Reduction

The main driver of SCTCA's work on building electrification is to reduce carbon emissions and thus to slow the impacts of climate change. In addition to lowered emissions, there are multiple co-benefits associated with decarbonization that should also be considered for a true accounting of benefits.

Health and Safety Benefits

A number of health and safety benefits can also be attributed to electrification and resiliency projects:

- Improved indoor air quality from reduced combustion of natural gas for heating or cooking
- Reduced outdoor air pollution from increased reliance on PV solar systems with integrated battery storage
- Fewer accidental explosions and fires from open flames on natural gas stoves and wall heaters
- Increased earthquake safety from seismic strengthening projects installed at same time

Comfort and Resiliency Benefits

Personal comfort and increased resilience to climate change is another area of potential benefit:

- Increased comfort from extreme temperatures and smoke exposure due to air sealing upgrades
- Resilience to extreme conditions from weatherization and insulation improvements
- Extended building lifetime due to making upgrades to aging infrastructure and systems

Workforce and Equity Benefits

Additionally, there can be a wide range of community benefits attributed to electrification efforts:

- High-quality job growth for trained electricians, heat pump HVAC technicians, PV solar panel installers, and other building trades associated with the decarbonization workforce
- Improvements to social equity and environmental justice if a focus is given to making energy efficiency and electrification improvements in low-income and underserved neighborhoods

Building Stock Analysis

A preliminary analysis has been conducted of the building stock across Sonoma County using the Bay Area Regional Energy Network's Bay Area Existing Buildings Study published in 2024, which gives a building count of just under 230,000 across all jurisdictions in Sonoma County, with approximately 100,000 buildings located in unincorporated areas and approximately 128,000 spread across the nine incorporated jurisdictions.

Building Count	Count (#)	Share (%)
Incorporated	**128,833**	**56.09%**
Santa Rosa	61,448	26.75%
Petaluma	22,339	9.73%
Rohnert Park	13,642	5.94%
Windsor	9,791	4.26%
Healdsburg	5,620	2.45%
Sonoma	5,613	2.44%
Cloverdale	3,704	1.61%
Sebastopol	3,520	1.53%
Cotati	3,156	1.37%
Unincorporated	**100,845**	**43.91%**
County	100,845	43.91%
Grand Total	**229,678**	**100.00%**

Over 90% of these buildings are residential structures, which include both single family and multifamily properties. The scale of the residential effort will be much larger than that needed for commercial building upgrades. While energy use and greenhouse gas emissions per building are higher for commercial structures, the scale of the problem and the strategies needed will call for a different fundamental approach to these upgrades as opposed to residential structures.

Building Count	Count (#)	Share (%)
Residential	**210,706**	**91.74%**
Incorporated	117,889	51.33%
Unincorporated	92,817	40.41%
Commercial	**18,972**	**8.26%**
Incorporated	10,944	4.76%
Unincorporated	8,028	3.5%
Grand Total	**229,678**	**100.00%**

Preliminary analysis of Sonoma County's building stock can be found in Appendix A at the end of this report. Tables and charts are available for Total Building Count, Total Building Size, Building Energy Use, GHG Emissions, Energy Use and GHG Emissions per Building and per Square Foot.

Additional insights from BayREN's Building Characteristics Report[41] include the following points:

- Nearly 80% of Bay Area single family homes are owner-occupied. Approximately 60% of single family households are above the Area Median Income (AMI) and 40% are at 150% or higher.
- In general, pre-1980 homes would benefit significantly from energy efficiency improvements, particularly in window upgrades and wall and roof insulation. Pre-1980 homes are also likely to need electrical panel upgrades to accommodate electrified heating, domestic hot water, and cooling, which can make retrofits more expensive and time consuming.
- About a quarter of multifamily homes were built before 1960 and may be in need of repair before electrification work can be accomplished. This is especially of concern for frontline communities who possess fewer economic, social, and/or political resources to enact change.
- Finally, homes that have existing air conditioning may be great candidates for AC-to-Heat Pump upgrades, and those without air conditioning may make for good equity investments as temperatures rise and health impacts increase. Heat pumps help address this equity concern.

[41] Bay Area Regional Energy Network (BayREN) – Building Characteristics Report: https://www.bayren.org/sites/default/files/documents/2025/BayREN%20Detailed%20Building%20Characteristics%20Report_Final_0.pdf

Constraints and Barriers

In addition to the concerns listed above, there are also multiple barriers that need to be addressed before the full range of buildings in Sonoma County can be electrified. Some of these items are within the direct control of SCTCA and its member agencies, and others will need to be addressed through statewide policy efforts and by creating new funding sources for incentives and rebates. The items below were raised by participants in our engagement efforts:

- Affordability is the top concern, which includes both the up-front installation costs and ongoing maintenance costs. While these affordability concerns impact low-income households most directly, they are also a concern for middle-income households and those on fixed incomes.
- The current boom-and-bust model of incentive and rebate programs is difficult for both property owners and building contractors to navigate. Projects often are delayed as customers wait for new sources of rebate funds to become available and then scramble to catch up once limited funding becomes available – but which then run out after an unexpectedly short time.
- The continuing pace of electric rate increases has led to increasingly high utility bills that have many households concerned about installing equipment that will further raise these costs. This is especially true for PG&E and Sonoma Clean Power customers, while Healdsburg Electric has been able to offer lower rates given their status as a municipal Public Power Provider.
- Additionally, natural gas rates are also expected to continue rising, making further investments in fossil-fuel technologies also problematic and potentially costly for uninformed homeowners.
- Many people – especially those in rural areas – have concerns about electric grid reliability and about not being to heat their homes or cook food if the power goes out.
- Concerns were raised by multiple people about the lack of local contractors that are available for this work, and of the limited workforce training opportunities that these contractors have.
- There are concerns -- especially in forested areas -- about relying exclusively on PV solar.
- Given the need to make capital improvements, there are limited options for renters and tenants participating in the decision-making and installation process.
- There is a strong fear among renters of increases to rent associated with building upgrades and of potential displacement if the landlord can use the opportunity to evict tenants.
- Conversely, some landlords may be concerned about participating in rebate programs that identify additional upgrades requirements or items that do not meet current building codes.
- Many older buildings need basic improvements first before the installation of weatherization upgrades and new heat-pump appliances. It was recently documented that one in five income-eligible households were initially deferred from the Weatherization Assistance Program due to repairs needed to address existing conditions and health and safety issues[42].
- Limited building electrical panel capacity can act as an expensive bottleneck to upgrades.
- Limited time and a lack of discretionary income can easily delay upgrades even for highly-motivated households that have already developed a building electrification strategy.

[42] American Council for an Energy-Efficient Economy (ACEEE) - Estimating the Impacts of Weatherization Readiness Programs: https://www.aceee.org/research-report/b2504

Equity-Centered Approach

SCTCA used an equity-centered approach to develop the Action Plan. Through this process, a number of resources were identified that will be indispensable for the implementation of the recommended actions. Of specific note are documents from Greenlining Institute[43], the Urban Sustainability Directors Network[44] (USDN), and the Local and Regional Government Alliance on Race and Equity[45] (GARE).

In 2022, SCTCA adopted an Equity Statement[46] to guide our work. Specifically, our organization "will strive in all of our work to achieve racial, social, and environmental equity. Ethnic, gender, economic and racial disparities in our country make it clear that every institution and organization needs to take action to create a culture of inclusion, equity, and justice. We recognize the need to increase efforts to ensure that all members of our community, regardless of race, ethnicity, age, gender, religion, sexual orientation, disability, or socio-economic status, feel valued, safe, respected, and included."

A number of equity-related issues were identified through our community engagement and stakeholder process. These equity issues will need to be addressed for long-term success:

- There is a possibility for renter eviction or displacement if a landlord decides to raise rents significantly following the upgrade of rental units.
- Given limited budgets, funds spent toward new high-efficiency heating and cooling systems are then not available for deferred building maintenance.
- Workforce development efforts will need to focus on local community and vocational education to ensure that the local contractor workforce benefits from training opportunities.
- Without a large effort on statewide utility rate reform, many customers will be outpriced from making upgrades and may choose to not use their upgraded systems even when installed.
- As rebates and incentives are further reduced over time, new long-term financing products will need to be developed that offer viable options for low-income households or those without a positive credit history.
- Many incentive and rebate programs have funds allocated and distributed very quickly due to unmet high demand. Many lower-income households need both higher-level incentives and longer-term availability of incentives to ensure successful electrification project completion.
- Equity-based outreach efforts need to take place early in the process and include a diverse form of outreach techniques (email, text, social media, print, radio, TV, in-person, etc.), all program materials need to translated into Spanish, and outreach campaigns should focus first on the most underserved and disadvantaged communities throughout Sonoma County.

[43] Greenlining Institute – Equitable Building Electrification - A Framework for Powering Resilient Communities: http://greenlining.org/wp-content/uploads/2019/10/Greenlining_EquitableElectrification_Report_2019_WEB.pdf
[44] Urban Sustainability Directors Network - Equity and Buildings - A Practical Framework for Local Government Decision Makers: https://www.usdn.org/uploads/cms/documents/usdn_equity_and_buildings_framework_-_june_2021.pdf
[45] Local and Regional Government Alliance on Race and Equity - Racial Equity Toolkit - An Opportunity to Operationalize Equity: https://www.racialequityalliance.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=5aeb3928-3ec6-1aea-8311-b8a166916063&forceDialog=0
[46] Sonoma County Transportation Authority – Equity Statement: https://scta.ca.gov/about-scta/equity-statement/

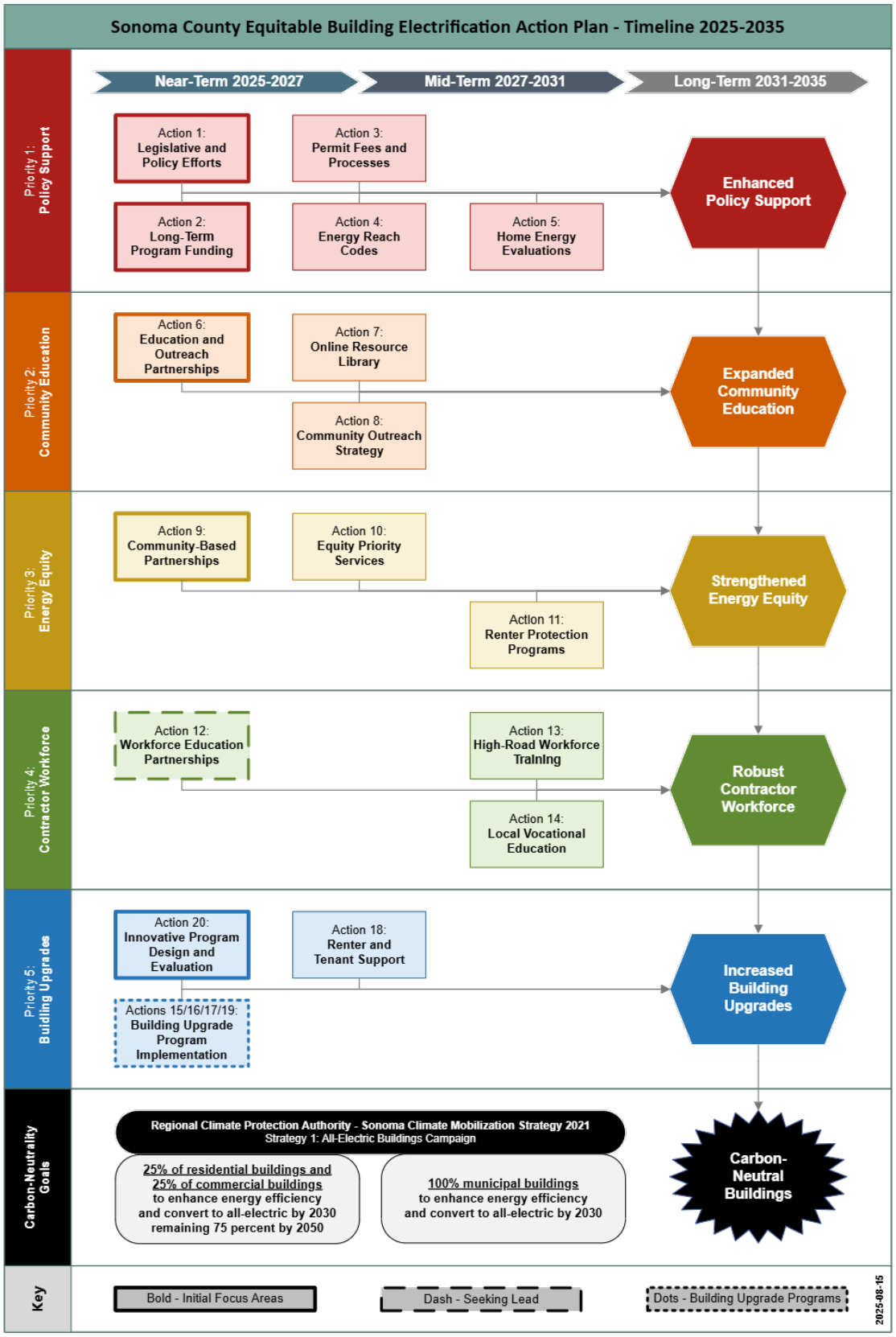
Achieving Our Goals

To achieve the goals for building decarbonization outlined in the Sonoma Climate Mobilization *Strategy 1: All-Electric Buildings Campaign*, SCTCA identified five key Priority Areas and developed a Strategic Vision statement for each of the areas. Additionally, recommended actions are grouped below each of these areas.

Given current staffing and resources available, SCTCA can take the lead on only a handful of these items and additional long-term funding will need to be identified before all actions can be fully implemented. SCTCA will have the most impact by focusing on our current strengths of policy, funding, and partnerships.

The sections below detail the timeline of recommended actions and highlight our initial focus.

Timeline and Recommended Actions



Priority 1: Policy Support

Vision: All local, regional, and state policies either directly support or are compatible with building decarbonization and electrification efforts.

#	Recommended Actions
*Action 1: **Legislative and Policy Efforts**	• Provide support for the adoption and implementation of legislative and policy efforts by local, regional, and statewide agencies that encourage building decarbonization and electrification efforts, with an initial focus on preparing for the implementation of the Bay Area Air District's Building Appliance Rules for water heaters and furnaces.
*Action 2: **Long-Term Program Funding**	• Coordinate efforts among local jurisdictions and other countywide agencies to develop stable long-term funding for expanded building electrification efforts countywide using equity-based approaches.
Action 3: **Permit Fees and Processes**	• Work in partnership with local jurisdictions, existing countywide roundtables, and regional resource providers to evaluate potential permitting changes to further support and simplify the installation of zero-emission equipment in existing buildings.
Action 4: **Energy Reach Codes**	• Evaluate adoption of "energy performance" reach codes for new construction and "air conditioning to heat pump" model ordinances for existing buildings that are allowable under the newly adopted restrictions to building code standard amendments.
Action 5: **Home Energy Evaluations**	• Develop a model ordinance for jurisdictions that requires owners of existing buildings to conduct a Home Energy Score evaluation prior to listing the building for sale and to provide a summary of the most recent evaluation to prospective lessees and buyers.

**Initial SCTCA Focus: Action 1 and Action 2*

Priority 2: Community Education

Vision: Local residents are fully informed about the financial and environmental benefits of building electrification and have access to the resources needed.

#	Recommended Actions
*Action 6: **Education and Outreach Partnerships**	• Create a partnership among local jurisdictions, electric power providers, and other agencies working on decarbonization efforts to identify priority outreach efforts, strategize on program collaboration and integration, and share education and outreach materials.
Action 7: **Online Resource Library**	• Compile and promote an online library of educational materials on decarbonization building upgrades, electrical panel optimization, local building contractors, available incentives and financing, and other co-benefits such as energy cost savings, improved indoor air quality, and household comfort.
Action 8: **Community Outreach Strategy**	• Develop strategies for expanded outreach to owners of existing buildings, renters and tenants, the contractor workforce, and local community-based organizations, especially those in equity priority areas to better communicate the process of building electrification, the financial and technical assistance available, and the benefits of decarbonization upgrades.

**Initial SCTCA Focus: Action 6*

Priority 3: Energy Equity

Vision: Equity guardrails are in place to protect Sonoma County's equity priority and low-income communities from unexpected cost increases or displacement.

#	Recommended Actions
*Action 9: **Community-Based Partnerships**	• Partner with local community-based organizations to provide culturally-inclusive educational resources and translated materials to support outreach and engagement on electrification upgrades, including available incentives and financing, technical assistance, potential energy bill impacts, and renter displacement protections.
Action 10: **Equity Priority Services**	• Partner with Sonoma Clean Power, BayREN, Healdsburg Electric, and other incentive providers to ensure that accessible funding and financing options, technical assistance, and multi-language services are available for households in equity priority and low-income communities.
Action 11: **Renter Protection Programs**	• Leverage and expand any existing renter protection programs and/or anti-displacement ordinances to ensure households are not displaced or negatively impacted by higher rents following building upgrades, giving special attention to untracked housing cost increases due to utility cost shifts, to the potential loss of naturally occurring affordable housing, and to concerns that landlords may choose to not participate in upgrade programs due to concerns of reduced eviction powers.

**Initial SCTCA Focus: Action 9*

Priority 4: Contractor Workforce

Vision: All local building contractors, their current employees, and future recruits have access to and take advantage of workforce development training.

#	Recommended Actions
*Action 12: **Workforce Education Partnerships**	• Partner with Sonoma County Economic Development Collaborative, Career Technical Education Foundation, North Coast Builders Exchange, and other workforce-related efforts to analyze the barriers faced by the local decarbonization workforce, identify potential solutions, implement high-priority actions to support local building contractors, and document the "business case" focusing on building electrification.
Action 13: **High-Road Workforce Training**	• Expand "high road" workforce training opportunities on zero-emission technologies and decarbonization installation techniques for building contractors and their current employees.
Action 14: **Local Vocational Education**	• Support efforts by local educational institutions to expand inclusive decarbonization training opportunities for prospective future workers who are current students preparing to enter the building workforce.

**Initial SCTCA Focus: Identify appropriate lead agencies for this partnership but focus our direct efforts on other identified recommended actions.*

Priority 5: Building Upgrades

Vision: All existing buildings are upgraded to reduce emissions, increase energy efficiency, and become more resilient in the shortest time possible.

#	Recommended Actions
+Action 15: **Single-Family Residential Upgrades**	• Provide increasing support to owners of single-family residential homes, especially through the promotion of BayREN's Efficiency and Sustainable Energy (EASE) Home Program and other municipal energy provider, state, or local incentive programs or assistance services.
+Action 16: **Multi-Family Residential Upgrades**	• Provide increasing support to owners of multi-family residential buildings, especially through the promotion of BayREN's Bay Area Multifamily Building Enhancements (BAMBE) Program and other municipal energy provider, state, or local incentive programs or assistance services.
+Action 17: **Municipal and Public Building Upgrades**	• Create a partnership among local jurisdictions to most-efficiently access technical assistance and financial incentives (such as BayREN's Integrated Energy Services and Targeted Decarbonization Services programs and other municipal energy provider, state, or local incentive programs or assistance services) with the goal of upgrading all public buildings to zero-emission alternatives and installing additional energy efficiency and resilience upgrades, including an evaluation of fossil-fuel backup emergency generators and potential alternatives.
Action 18: **Renter and Tenant Support**	• Provide increasing support to renters and tenants who support energy efficiency and resilience upgrades but need assistance in making basic in-place improvements and/or working with their landlord to authorize the decarbonization improvements.
+Action 19: **Non-Residential Commercial Upgrades**	• Provide increasing support to owners of non-residential commercial buildings, especially through the promotion of BayREN's Business Program for small and medium businesses and other municipal energy provider, state, or local incentive programs or assistance services.
*Action 20: **Innovative Program Design and Evaluation**	• Identify and evaluate innovative approaches to expanded building electrification that require additional funding resources prior to implementation, including such proposals as completing a countywide building stock and energy use analysis, creating a building benchmarking and building performance standards program for existing buildings, expanding energy concierge and project management services for property owners, developing a turnkey installation programs for single-family residential and a direct install programs for low income households, offering additional support for low-income households and equity priority communities, and creating an emergency appliance loaner program to facilitate the installation of zero-emission replacements.

+Current building upgrade program funding is available, but additional resources are needed for increased activities.

**Initial SCTCA Focus: Action 20*

Next Steps for Implementation

Initial SCTCA Focus Areas:

1: Legislative and Policy Efforts

2: Long-Term Program Funding

6: Education and Outreach Partnerships

9: Community-Based Partnerships

20: Innovative Program Design and Evaluation

Identify Appropriate Lead Agencies:

12: Workforce Education Partnerships

Existing BayREN Funding and Programs:

15: Single-Family Residential Upgrades

16: Multi-Family Residential Upgrades

17: Municipal and Public Buildings

19: Non-Residential Commercial

This Action Plan is designed to identify the key implementation areas for building electrification efforts across Sonoma County over the upcoming years. Given current staffing and resources available, SCTCA can take the lead on the items that will have the most impact by leveraging our current strengths of policy, funding, and partnerships. These initial focus areas include:

- Action 1: Legislative and Policy Efforts
- Action 2: Long-Term Program Funding
- Action 6: Education and Outreach Partnerships
- Action 9: Community-Based Partnerships
- Action 20: Innovative Program Design and Evaluation

Additionally, SCTCA will work to identify the appropriate lead agencies for work on:

- Action 12: Workforce Education Partnerships

Finally, existing programs offered through the Bay Area Regional Energy Network and other local providers will be integral for the success of building electrification efforts. Given that SCTCA is the local Sonoma County lead for BayREN programs, this work will leverage our existing program resources, in addition to working in close partnership with Sonoma Clean Power and Healdsburg Electric Utility.

- Action 15: Single-Family Residential Upgrades
- Action 16: Multi-Family Residential Upgrades
- Action 17: Municipal and Public Buildings
- Action 19: Non-Residential Commercial

Several additional themes have been identified that will also guide implementation of the Action Plan:

- Integration and promotion of existing programs from BayREN, County of Sonoma, Sonoma Clean Power, Healdsburg Electric, PG&E, and other decarbonization service providers.
- Identification of additional funding for customer incentives/rebates, technical assistance, workforce training, equity priority services, and possible turnkey installation service programs.
- Expansion of partnership model beyond climate-related organizations, including but not limited to community-based organizations, educational institutions, social equity and tenant rights advocates, and local economic development efforts.
- Exploration of community health centers as program partners, outreach event hosts, and developers of community-based resilience hubs.
- Development of tailored technical support and services for specific audiences, such as Multi-Family Building Owners, Commercial Property Managers, General Contractors, Community-Based Organizations, and Educational Institutions.

Each of the audiences listed above will be integral to our long-term efforts to decarbonize our building stock and become carbon neutral in the shortest time possible. This Action Plan may help to define the actions that are needed, but our long-term success will be based on a multi-stakeholder, multi-objective approach built around strategic partnerships, long-term affordability, and social equity.

# # #

Appendices

Appendix A: Building Stock Details

A preliminary analysis has been conducted of the building stock across Sonoma County using the Bay Area Regional Energy Network's Bay Area Existing Buildings Study published in 2024. As implementation moves forward, additional analysis will be needed to guide efforts and tailor the recommended actions for maximum impact.

Some areas of additional analysis that are needed for implementation:

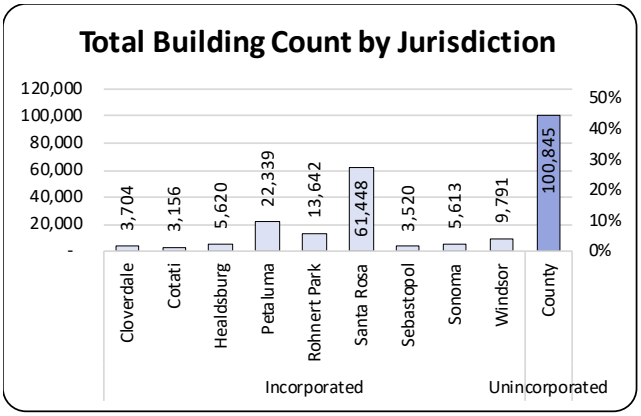
- Potential Energy Savings by Structure Type (Residential, Commercial, Public, etc.)
- Potential Energy Savings by Ownership Type (Primary, Secondary, Rental, etc.)
- Potential Energy Savings by Vintage Year (based on Building Code Standards, etc.)
- Potential Energy Savings by Geographic Location (Un/Incorporated, Equity Priority, etc.)
- Potential Energy Savings by Demographic and Socioeconomic Ranking (Low/Mid-Income, etc.)

Data sources that would be of specific value for a deeper analysis include those below:

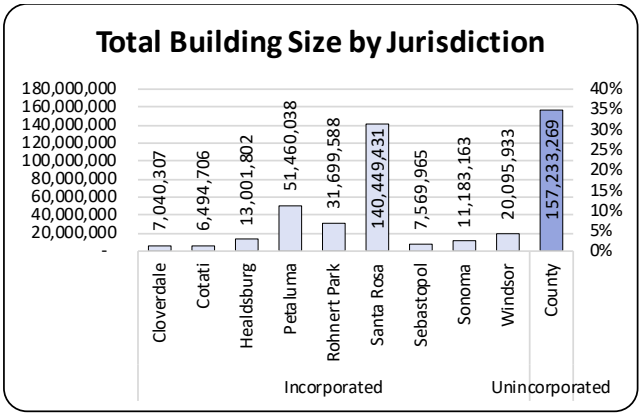
- BayREN's Existing Buildings Study Dashboard: https://www.bayren.org/existing-buildings-study
- Bay Area Energy Atlas (developed by BayREN in partnership with the California Center for Sustainable Communities at the University of California, Los Angeles): https://www.bayren.org/building-and-energy-tools/bay-area-energy-atlas
- U.S. Energy Information Administration's Residential Energy Consumption Survey (RECS): https://www.eia.gov/consumption/residential/data/2020/index.php?view=state
- U.S. Energy Information Administration's State Energy Data System – California Data: https://www.eia.gov/state/seds/?sid=CA
- U.S. Census Bureau's 2020 Census – Sonoma County Data: https://data.census.gov/all?g=050XX00US06097

Preliminary tables below include the following data:

- Total Building Count by Jurisdiction / Use Type
- Total Building Size by Jurisdiction / Use Type
- Building Energy Use by Jurisdiction / Use Type
- GHG Emissions by Jurisdiction / Use Type
- Energy Use / GHG Emissions per Building
- Energy Use / GHG Emissions per Square Foot

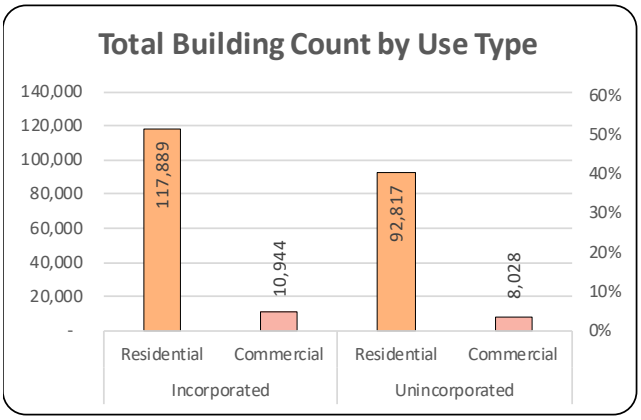


Building Count	Count (#)	Share (%)
Incorporated	**128,833**	**56.09%**
Cloverdale	3,704	1.61%
Cotati	3,156	1.37%
Healdsburg	5,620	2.45%
Petaluma	22,339	9.73%
Rohnert Park	13,642	5.94%
Santa Rosa	61,448	26.75%
Sebastopol	3,520	1.53%
Sonoma	5,613	2.44%
Windsor	9,791	4.26%
Unincorporated	**100,845**	**43.91%**
County	100,845	43.91%
Grand Total	**229,678**	**100.00%**

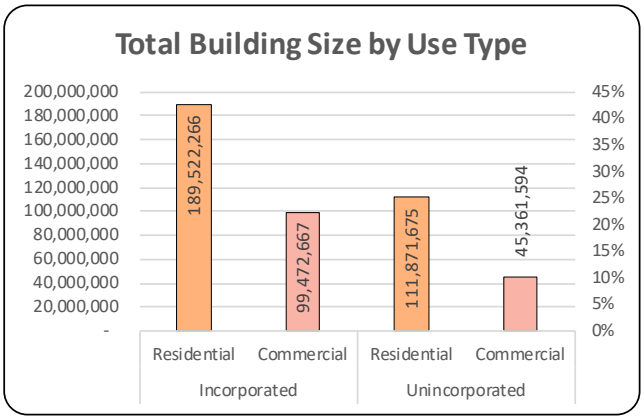


Square Footage	Size (#)	Share (%)
Incorporated	**288,994,933**	**64.76%**
Cloverdale	7,040,307	1.58%
Cotati	6,494,706	1.46%
Healdsburg	13,001,802	2.91%
Petaluma	51,460,038	11.53%
Rohnert Park	31,699,588	7.10%
Santa Rosa	140,449,431	31.47%
Sebastopol	7,569,965	1.70%
Sonoma	11,183,163	2.51%
Windsor	20,095,933	4.50%
Unincorporated	**157,233,269**	**35.24%**
County	157,233,269	35.24%
Grand Total	**446,228,202**	**100.00%**

Source: Bay Area Regional Energy Network (BayREN) - Bay Area Existing Buildings Study, 2024

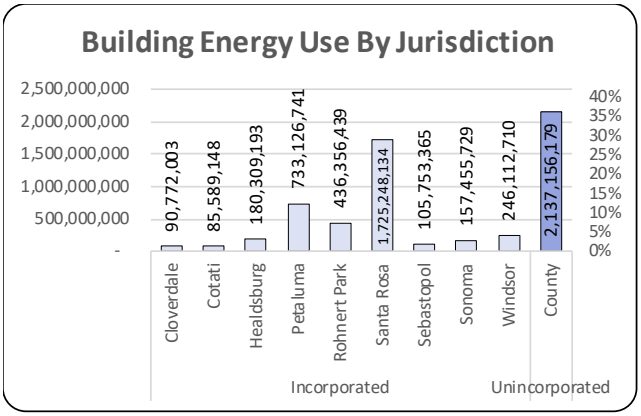


Building Count	Count (#)	Share (%)
Residential	**210,706**	**91.74%**
Incorporated	117,889	51.33%
Unincorporated	92,817	40.41%
Commercial	**18,972**	**8.26%**
Incorporated	10,944	4.76%
Unincorporated	8,028	3.50%
Grand Total	**229,678**	**100.00%**

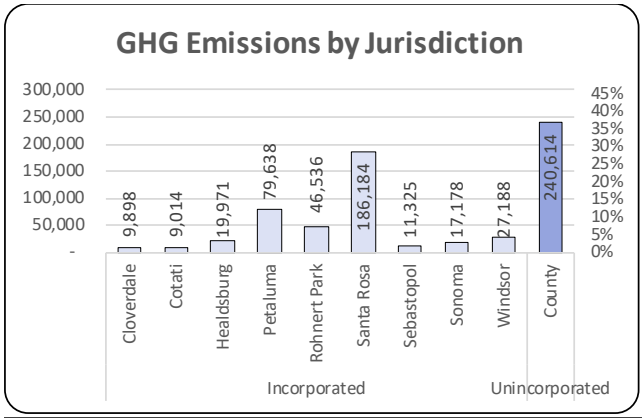


Square Footage	Size (#)	Share (%)
Residential	**301,393,941**	**67.54%**
Incorporated	189,522,266	42.47%
Unincorporated	111,871,675	25.07%
Commercial	**144,834,261**	**32.46%**
Incorporated	99,472,667	22.29%
Unincorporated	45,361,594	10.17%
Grand Total	**446,228,202**	**100.00%**

Source: Bay Area Regional Energy Network (BayREN) - Bay Area Existing Buildings Study, 2024

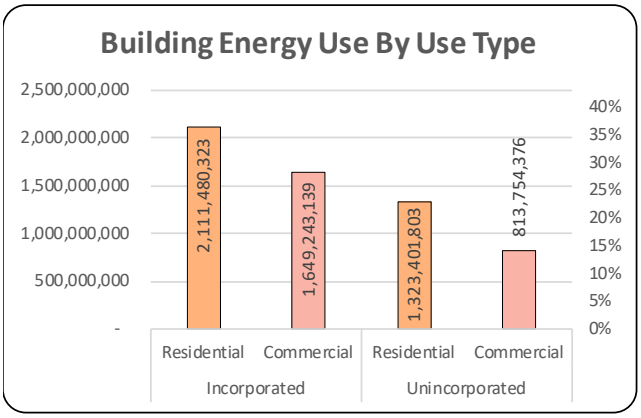


Energy Use	kWh (#)	Share (%)
Incorporated	**3,760,723,462**	**63.76%**
Cloverdale	90,772,003	1.54%
Cotati	85,589,148	1.45%
Healdsburg	180,309,193	3.06%
Petaluma	733,126,741	12.43%
Rohnert Park	436,356,439	7.40%
Santa Rosa	1,725,248,134	29.25%
Sebastopol	105,753,365	1.79%
Sonoma	157,455,729	2.67%
Windsor	246,112,710	4.17%
Unincorporated	**2,137,156,179**	**36.24%**
County	2,137,156,179	36.24%
Grand Total	**5,897,879,641**	**100.00%**

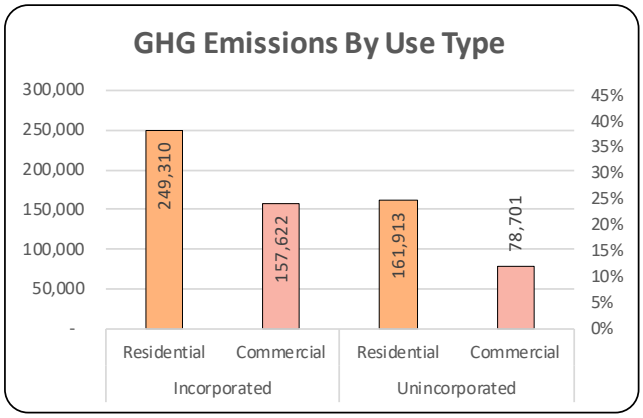


GHG Emissions	MTCO2e (#)	Share (%)
Incorporated	**406,931**	**62.84%**
Cloverdale	9,898	1.53%
Cotati	9,014	1.39%
Healdsburg	19,971	3.08%
Petaluma	79,638	12.30%
Rohnert Park	46,536	7.19%
Santa Rosa	186,184	28.75%
Sebastopol	11,325	1.75%
Sonoma	17,178	2.65%
Windsor	27,188	4.20%
Unincorporated	**240,614**	**37.16%**
County	240,614	37.16%
Grand Total	**647,545**	**100.00%**

Source: Bay Area Regional Energy Network (BayREN) - Bay Area Existing Buildings Study, 2024

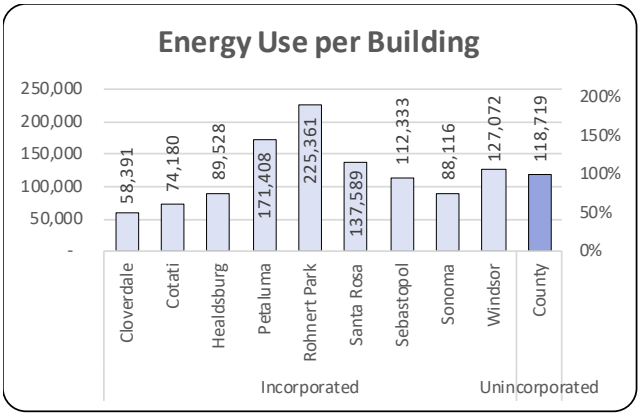


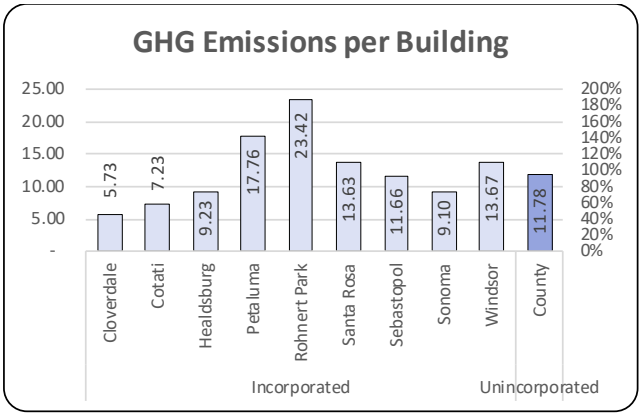
Energy Use	kWh (#)	Share (%)
Residential	**3,434,882,126**	**58.24%**
Incorporated	2,111,480,323	35.80%
Unincorporated	1,323,401,803	22.44%
Commercial	**2,462,997,515**	**41.76%**
Incorporated	1,649,243,139	27.96%
Unincorporated	813,754,376	13.80%
Grand Total	**5,897,879,641**	**100.00%**



GHG Emissions	MTCO2e (#)	Share (%)
Residential	**411,223**	**63.50%**
Incorporated	249,310	38.50%
Unincorporated	161,913	25.00%
Commercial	**236,322**	**36.50%**
Incorporated	157,622	24.34%
Unincorporated	78,701	12.15%
Grand Total	**647,545**	**100.00%**

Source: Bay Area Regional Energy Network (BayREN) - Bay Area Existing Buildings Study, 2024

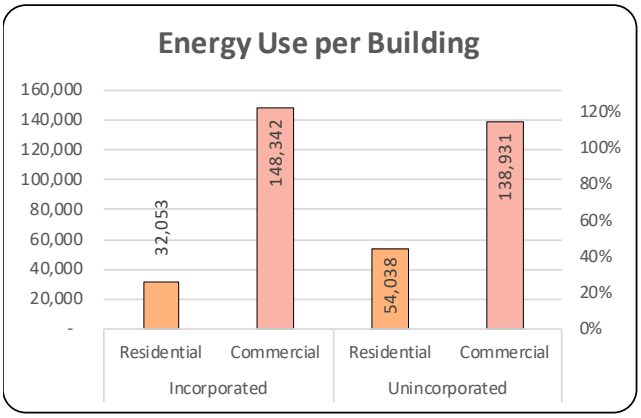


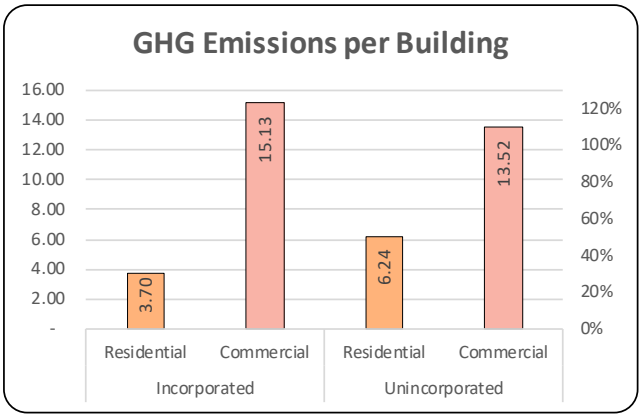


Energy per Building	kWh/bldg (#)	Relative (%)
Incorporated	**121,208**	**100.22%**
Cloverdale	58,391	48.28%
Cotati	74,180	61.33%
Healdsburg	89,528	74.02%
Petaluma	171,408	141.72%
Rohnert Park	225,361	186.33%
Santa Rosa	137,589	113.76%
Sebastopol	112,333	92.88%
Sonoma	88,116	72.85%
Windsor	127,072	105.06%
Unincorporated	**118,719**	**98.16%**
County	118,719	98.16%
Grand Total	**120,948**	**100.00%**

GHG per Building	MT/bldg (#)	Relative (%)
Incorporated	**12.46**	**100.57%**
Cloverdale	5.73	46.23%
Cotati	7.23	58.37%
Healdsburg	9.23	74.53%
Petaluma	17.76	143.31%
Rohnert Park	23.42	189.01%
Santa Rosa	13.63	110.03%
Sebastopol	11.66	94.08%
Sonoma	9.10	73.42%
Windsor	13.67	110.30%
Unincorporated	**11.78**	**95.11%**
County	11.78	95.11%
Grand Total	**12.39**	**100.00%**

Source: Bay Area Regional Energy Network (BayREN) - Bay Area Existing Buildings Study, 2024

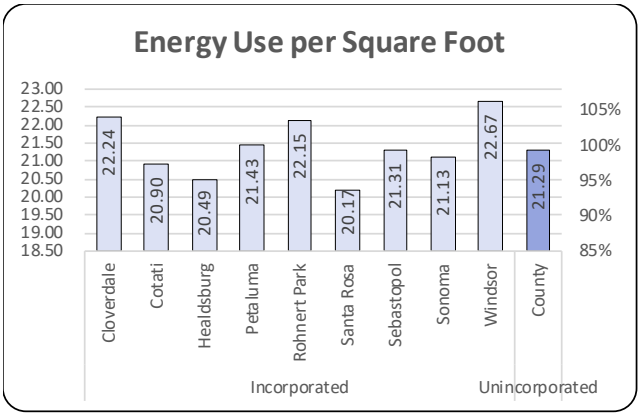


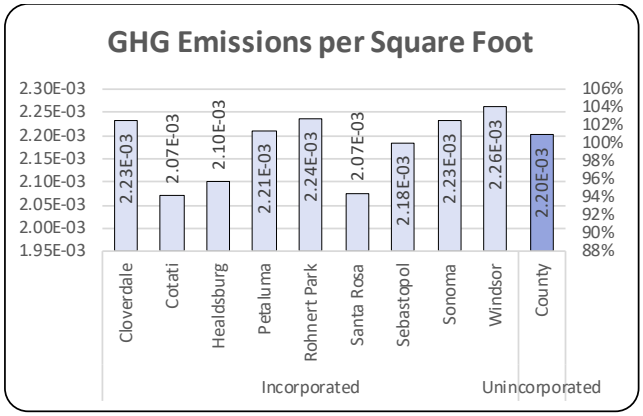


Energy per Building	kWh/bldg (#)	Relative (%)
Residential	**86,091**	**35.59%**
Incorporated	32,053	26.50%
Unincorporated	54,038	44.68%
Commercial	**287,273**	**118.76%**
Incorporated	148,342	122.65%
Unincorporated	138,931	114.87%
Grand Total	**120,948**	**100.00%**

GHG per Building	MT/bldg (#)	Relative (%)
Residential	**9.94**	**40.09%**
Incorporated	3.70	29.86%
Unincorporated	6.24	50.33%
Commercial	**28.65**	**115.60%**
Incorporated	15.13	122.09%
Unincorporated	13.52	109.10%
Grand Total	**12.39**	**100.00%**

Source: Bay Area Regional Energy Network (BayREN) - Bay Area Existing Buildings Study, 2024

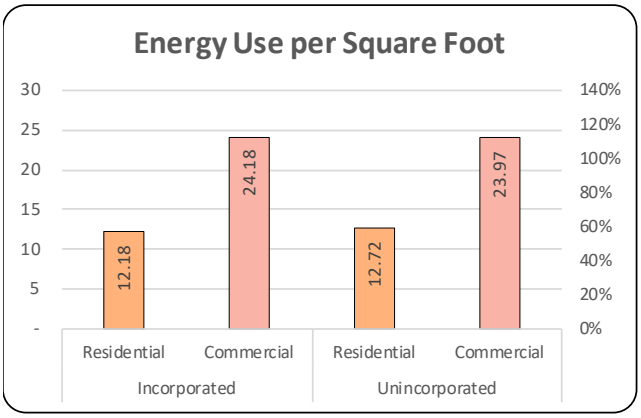


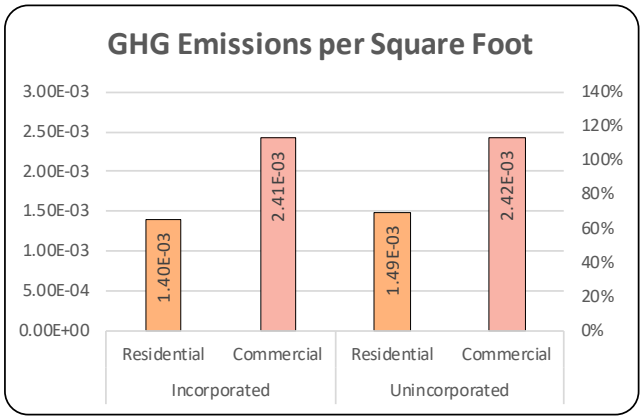


Total Energy per SF	kWh/sf (#)	Relative (%)
Incorporated	**21.38**	**100.04%**
Cloverdale	22.24	104.06%
Cotati	20.90	97.80%
Healdsburg	20.49	95.85%
Petaluma	21.43	100.27%
Rohnert Park	22.15	103.62%
Santa Rosa	20.17	94.39%
Sebastopol	21.31	99.69%
Sonoma	21.13	98.86%
Windsor	22.67	106.08%
Unincorporated	**21.29**	**99.62%**
County	21.29	99.62%
Grand Total	**21.37**	**100.00%**

Total GHG per SF	MT/sf (#)	Relative (%)
Incorporated	**2.18E-03**	**99.89%**
Cloverdale	2.23E-03	102.31%
Cotati	2.07E-03	94.88%
Healdsburg	2.10E-03	96.41%
Petaluma	2.21E-03	101.35%
Rohnert Park	2.24E-03	102.49%
Santa Rosa	2.07E-03	95.14%
Sebastopol	2.18E-03	100.19%
Sonoma	2.23E-03	102.36%
Windsor	2.26E-03	103.76%
Unincorporated	**2.20E-03**	**100.92%**
County	2.20E-03	100.92%
Grand Total	**2.18E-03**	**100.00%**

Source: Bay Area Regional Energy Network (BayREN) - Bay Area Existing Buildings Study, 2024





Total Energy per SF	kWh/sf (#)	Relative (%)
Residential	**24.90**	**58.25%**
Incorporated	12.18	57.00%
Unincorporated	12.72	59.50%
Commercial	**48.15**	**112.65%**
Incorporated	24.18	113.14%
Unincorporated	23.97	112.16%
Grand Total	**21.37**	**100.00%**

Total GHG per SF	MT/sf (#)	Relative (%)
Residential	**2.89E-03**	**66.26%**
Incorporated	1.40E-03	64.31%
Unincorporated	1.49E-03	68.20%
Commercial	**4.84E-03**	**110.93%**
Incorporated	2.41E-03	110.72%
Unincorporated	2.42E-03	111.14%
Grand Total	**2.18E-03**	**100.00%**

Source: Bay Area Regional Energy Network (BayREN) - Bay Area Existing Buildings Study, 2024

Appendix B: Local Climate Action Plan Documents

Implementation of the recommended actions within this report are designed to support the local climate action goals contained within the documents below. Individual jurisdictions will continue to lead their city-specific efforts but will be invited to work together collectively as appropriate.

City of Cloverdale

- Climate Action 2020 and Beyond - Cloverdale Local Chapter - Adopted July 2016
  https://rcpa.ca.gov/wp-content/uploads/2016/07/CA2020_Plan_7-7-16_web.pdf

City of Cotati

- Climate Action 2020 and Beyond - Cotati Local Chapter - Adopted July 2016
  https://rcpa.ca.gov/wp-content/uploads/2016/07/CA2020_Plan_7-7-16_web.pdfText

City of Healdsburg

- Climate Mobilization Strategy – Adopted October 2023
  https://www.ci.healdsburg.ca.us/DocumentCenter/View/17326/Adopted-Healdsburg-CMS-Compiled

City of Petaluma

- Blueprint for Climate Action - Final Approved with Appendices November 2024
  https://storage.googleapis.com/proudcity/petalumaca/2025/04/Petaluma-Blueprint-for-Climate-Action_Final-Approved.pdf

City of Rohnert Park

- Rohnert Park 2040 General Plan - Public Review Draft Policy Document 2022
  https://envisionrp.com/images/docs/gp2040_draft.pdf

City of Santa Rosa

- Santa Rosa Community-Wide Greenhouse Gas Reduction Strategy - Public Review Draft 2024
  https://www.santarosaforward.com/files/managed/Document/952/Appendix_A.SR-GHG-Reduction-Strategy_PublicDraft-October2024.pdf

City of Sebastopol

- Sebastopol Climate Action Framework - Adopted 2022
  https://ci.sebastopol.ca.us/wp-content/uploads/2023/01/Sebastopol-Climate-Action-Framework_FINAL_07-21-22-1.pdf

City of Sonoma

- Sonoma Climate Action Strategies - Adopted 2024-02-08
  https://storage.googleapis.com/proudcity/sonomaca/2024/10/Final-Climate-Action-Strategies.pdf

Town of Windsor

- Municipal Climate Action Plan
  https://www.townofwindsor.ca.gov/DocumentCenter/View/30258/Town-of-Windsor-Municipal-Climate-Action-Plan?bidId=

Appendix C: Countywide Climate Action Plan Documents

Implementation of the report's actions will be designed to support these countywide documents.

County of Sonoma

- Five Year Strategic Plan - Adopted 2021
  https://s45165.pcdn.co/wp-content/uploads/2025/01/1-Five-Year-Strategic-Plan-2021-26-English.pdf
- Climate Resilience Comprehensive Action Plan
  https://www.sonomacountylawlibrary.org/Main%20County%20Site/Administrative%20Support%20%26%20Fiscal%20Services/CAO/Documents/Climate%20Action%20and%20Resiliency/Climate-Resilience-Comprehensive-Action-Plan.pdf
- Sonoma County Home Resilience Guide – English and Spanish
  https://sonomacounty.ca.gov/Main%20County%20Site/Administrative%20Support%20%26%20Fiscal%20Services/CAO/Documents/Climate%20Action%20and%20Resiliency/Home%20Resilience%20Guide_English%20ADA%20Apr2023.pdf
  https://sonomacounty.ca.gov/Main%20County%20Site/Administrative%2023-05-0920Support%20%26%20Fiscal%20Services/CAO/Documents/Climate%20Action%20and%20Resiliency/Home%20Resiliency%20Guide_Spanish%20ADA%20Apr%202023.pdf

Sonoma Clean Power

- Strategic Action Plan – Customer Offers and Incentives 2025
  https://sonomacleanpower.org/uploads/documents/Strategic-Action-Plan-12.24.pdf
- Residential and Commercial: Needs Assessment Report
  https://sonomacleanpower.org/uploads/documents/2024-SCP-Final-CNA-Report-7.16.2024.pdf

Sonoma County Transportation and Climate Authorities

- Sonoma Climate Mobilization Strategy - Adopted 2021
  https://rcpa.ca.gov/wp-content/uploads/2020/12/Sonoma-Climate-Mobilization-Strategy-Adopted-2021-03-08.pdf
- Climate Action 2020 and Beyond - Action Plan and Appendices
  https://rcpa.ca.gov/wp-content/uploads/2016/07/CA2020_Plan_7-7-16_web.pdf
  https://rcpa.ca.gov/wp-content/uploads/2016/07/CA2020_Appendices_7-7-16_web.pdf

Sonoma Water

- Sonoma Water Climate Adaptation Plan - Adopted 2021
  https://www.sonomawater.org/media/PDF/Environment/Climate%20Adaptation%20Planning/SW_CAP_Final_October_2021.pdf

Appendix D: Selected Building Electrification Resources

The following documents were especially helpful in developing this Action Plan.

Consumers Energy

- Consumers Energy All-Electric Multifamily Design Guide
  https://cdn.prod.website-files.com/62b110a14473cb7777a50d28/6396bd729db8fe580b2feefd_Consumers%20Energy%20All-Electric%20Multifamily%20Design%20Guide%20October%202021.pdf

Redwood Energy

- A Pocket Guide to All-Electric Retrofits of Single-Family Homes
  https://cdn.prod.website-files.com/62b110a14473cb7777a50d28/6396be1051f34460e7dd5f26_A%20Pocket%20Guide%20to%20All%20Electric%20Retrofits%20of%20Single%20Family%20Homes.pdf
- A Zero Emissions All-Electric Single Family Construction Guide
  https://cdn.prod.website-files.com/62b110a14473cb7777a50d28/6396be50fd907ebe477d5927_Zero%20Emissions%20All-Electric%20Single%20Family%20Construction%20Guide.pdf
- A Pocket Guide to All-Electric Retrofits of Commercial Buildings
  https://cdn.prod.website-files.com/62b110a14473cb7777a50d28/6377e7c7fd6f8cc30f88afa7_Redwood%20Energy-s%20Pocket%20Guide%20to%20All-Electric%20Commercial%20Retrofits.pdf
- A Zero Emissions All-Electric Multifamily Construction Guide
  https://cdn.prod.website-files.com/62b110a14473cb7777a50d28/6396bf1076a0d29e9c772dfa_A%20Zero%20Emissions%20All-Electric%20Multifamily%20Construction%20Guide.pdf
- Zero Carbon Commercial Construction: An Electrification Guide for Large Commercial Buildings and Campuses - 2nd Edition
  https://cdn.prod.website-files.com/62b110a14473cb7777a50d28/6396bece08e3e6821659ca69_Zero%20Carbon%20Commercial%20Construction%202nd%20Edition.pdf

California Energy Commission

- 2024 California Building Energy Action Plan
  https://www.energy.ca.gov/programs-and-topics/programs/energy-efficiency-existing-buildings
- Final 2021 Integrated Energy Policy Report - Volume I: Building Decarbonization
  https://efiling.energy.ca.gov/GetDocument.aspx?tn=241599
- California Building Decarbonization Assessment - Final Commission Report
  https://efiling.energy.ca.gov/GetDocument.aspx?tn=239311

Appendix E: Social Equity Resources

The following documents were especially helpful and will be integral to our implementation efforts.

American Council for an Energy-Efficient Economy

- Adapting Energy Efficiency Programs to Reach Underserved Residents
  https://www.aceee.org/sites/default/files/pdfs/adapting_energy_efficiency_programs_to_reach_underserved_residents_-_encrypt.pdf

Building Decarbonization Coalition

- A Methodology for Geographically-Targeted Building Electrification for Environmental and Social Justice Communities in California
  https://buildingdecarb.org/wp-content/uploads/geographically-targeted_building_electrification_for_environmental_and_social_justice_communities_in_california.pdf

Building Electrification Initiative

- Inclusive Workforce Development Strategies for Building Electrification
  https://www.beicities.org/s/BEI_Inclusive-Workforce-Development-Strategies-for-Building-Electrification_Sept-2024.pdf

Emerald Cities Collaborative

- Climate Equity and Community Engagement in Building Electrification - A Toolkit
  https://emeraldcities.org/wp-content/uploads/2021/05/Climate-Equity-and-Community-Engagement-Toolkit_Nov102020.pdf
- Building Electrification Equity Project
  https://emeraldcities.org/wp-content/uploads/2021/04/BEE_Report_Final.pdf

Greenlining Institute

- Equitable Building Electrification - A Framework for Powering Resilient Communities
  http://greenlining.org/wp-content/uploads/2019/10/Greenlining_EquitableElectrification_Report_2019_WEB.pdf

Local and Regional Government Alliance on Race and Equity

- Racial Equity Toolkit - An Opportunity to Operationalize Equity
  https://www.racialequityalliance.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=5aeb3928-3ec6-1aea-8311-b8a166916063&forceDialog=0
- Advancing Racial Equity and Transforming Government - A Resource Guide to Put Ideas into Action
  https://www.racialequityalliance.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=c7da94ce-4e82-ce97-592d-9ff0e98062dd&forceDialog=1
- Racial Equity - Getting to Results
  https://www.racialequityalliance.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=766af79b-f7d5-3990-4073-f0247c3f26b0&forceDialog=1
- Racial Equity Action Plans - A How-to Manual
  https://www.racialequityalliance.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=a1780a0b-4314-ff6c-e82a-824973972b52&forceDialog=1

Measure of America

- A Portrait of Sonoma - Sonoma County Human Development Report 2014
  https://s3.amazonaws.com/ssrc-static/moa/APOS_FINAL.pdf
- A Portrait of Sonoma - 2021 Update
  https://ssrc-static.s3.amazonaws.com/moa/APortraitofSonoma2021Update.pdf

Southern California Association of Governments

- Climate Equity Compendium - A Resource Document to Advance Climate Equity
  https://scag.ca.gov/sites/main/files/file-attachments/23-3130-climate-equity-compendium-sep-2023.pdf

Urban Sustainability Directors Network

- Equity and Buildings - A Practical Framework for Local Government Decision Makers
  https://www.usdn.org/uploads/cms/documents/usdn_equity_and_buildings_framework_-_june_2021.pdf
- A Guidebook on Equitable Clean Energy Program Design for Local Governments and Partners
  https://cadmusgroup.com/wp-content/uploads/2018/09/Cadmus-USDN-Equitable-Clean-Energy-Guidebook.pdf
- Equity in Sustainability - An Equity Scan of Local Government Sustainability Programs
  https://www.usdn.org/uploads/cms/documents/usdn_equity_scan_sept_2014_final.pdf

Zero Cities Project

- Equity Assessment Tool
  https://www.usdn.org/uploads/cms/documents/equity_assessment_tool_-zero_cities_project_-_race_forward_2019.pdf
- Impacts of Covid 19 - Addendum to the Racial Equity Assessment Tool
  https://www.usdn.org/uploads/cms/documents/final_raceforward_impactsofcovid19_cc.pdf

Appendix F: Community Engagement Feedback

Feedback Received at SCTA-RCPA Board Meeting 2023

Community Education

- There is a need for the creation of new educational materials that present the full range of options for homeowners to evaluate.
- The Better Building Consultations offered by the County's Energy and Sustainability Team could be expanded to match these expanded materials and walk homeowners through all their upgrade options.
- There is a need to better educate property owners on upgrade strategies to maximize rebates, incentives, and tax credits.
- Press releases and Op-Eds will be important marketing tools in building public support.

Energy Equity

- There is a strong need to reduce cost barriers across all upgrades for all customer types.
- There is a need to protect renters from rent increases if their buildings are upgraded.

Contractor Workforce

- There is a need to fully educate contractors about high-efficiency heat pump equipment so that they can be knowledgeable advocates to customers.

Building Upgrades

- There could be a role developed for trusted "project managers" that directly assist building owners in the upgrade process.
- Evaluate panel upgrades that incorporate circuit sharing to reduce total building load.
- There is a need to handle burnout situations in addition to planned upgrades.

Feedback Received at Climate Protection Initiative Listening Sessions 2023

General Comments

- Any proposed solutions need to have small up-front costs to appeal to low-income households.
- These upgrades also need to have small ongoing costs to reduce longer-term financial impacts.
- Current climate goals are aspirational, but uncertainty still remains in planning for electrification upgrades across the entire county and/or at the building-specific level.
- There is often a general lack of trust in local government policies, despite their potential value or benefit.

Community Education

- Most people are comfortable with their current situation and there must be better systems put in place to educate and motivate people.
- Most households are more concerned with food and gas costs and have no capacity or desire to address climate change.
- Partnering with local BIPOC leaders for future outreach meetings is recommended, with invites coming from community leaders, not directly from RCPA.
- There are opportunities to teach about techniques for cooling without using air conditioning that also reduce overall energy demand.

Rental Units

- There is limited ability for renters to make building-related improvements without landlord authorization.
- Landlords are often either unknowledgeable about potential options or else are not motivated to make improvements due to concerns over loss of rental profit.
- Even if improvements are made, costs are often transferred to the renters in increased rent.
- A streamlined package for landlords could be created that includes improvements and permitting.
- Rental protection ordinances could ensure that tenants can stay for a certain time period at a specific rent level after upgrades have been completed.

Fuel Switching

- Many rural households use propane for heating and cooling, but almost all available incentives are restricted to those switching from natural gas to electricity.
- Due to more frequent power outages, rural households are especially concerned about grid capacity and reliability.

Contractor Issues

- Contractors may not be fully aware of the benefits of electrification and may not promote them.
- Some contractors unwilling to recommend the installation of electric heat pumps due to the need to change their operating practices if they move beyond natural gas heating systems.

Feedback Received at CAAC Meetings 2024-2025

January 2024

- Report should incorporate info on upcoming changes from pending 2025 building energy code update.
- Include discussion on embodied energy and its role in "total" carbon emissions from buildings.
- Workforce development efforts should include information on union-based, private sector contractors.
- Potential workforce development partners include SRJC and North Coast Builders Exchange.
- Funding is needed to accomplish this work, and a housing parcel tax may be a good solution.
- The Cool Petaluma model may be a good model for replication in other jurisdictions, although it is best suited for mid-income households over low-income households.
- Climate Corps Fellows could be a good fit for future placement in the energy efficiency workforce.
- Consider analysis that identifies the largest local emitters and offers tailored educational resources.
- A "rapid replace on burnout program" for water heaters could assist with installation of heat pump water heaters to ensure that households don't choose the "easy route" of natural gas water heater.
- For households that can't afford the up-front cost burden prior to receiving financing at the project's completion, consider creating a "microloan program" for short-term bridge financing.

March 2025

- Consider the specific inclusion of opportunities for "neuro-divergent" populations in the workforce development actions.
- Many parking spaces at multi-family housing are not located near a unit's electrical panel.
- There is a need to encourage electric vehicle charging during the day when supply is plentiful due to solar production.
- Consider incorporation of supply chain and end-of-life issues for the needed equipment.
- The current legal issues related to electrification reach codes make this a very uncertain area.
- Concern about how these actions would be implemented in more rural areas due to power outages, limited cell phone coverage, and prohibitive up-front costs. Microgrids may be a possible solution for working around these rural issues.
- The complexities of workforce development and the need for adequate contractor resources throughout the county should be included.
- There needs to be a balance between voluntary measures (backed by incentives) versus mandatory measures (backed by reach codes) to ensure progress.
- Recommended to work with jurisdictions to incorporate actions from this report directly into their general plans.
- Given the upcoming BAAQMD rules for upgrading water heaters and space heaters, specific outreach to local contractors and the expansion of installation services will be key to meeting local goals.

May 2025

- In relation to messaging to different demographics or household types, consider the use of a "personas" model that identifies key messages and motivators (health, cost, resilience, etc.) for different audiences.
    - The "Six Americas" is one way to segment the larger population into smaller constituent groups: https://climatecommunication.yale.edu/publications/global-warmings-six-americas-fall-2024/
    - Additional models also come from the U.S. Department of Energy: https://www1.eere.energy.gov/communicationstandards/pdfs/eere_personas_fullview.pdf
    - And the Smart Energy Consumer Collaborative: https://smartenergycc.org/who-are-lower-income-consumers-infographic/
- Focus should be given to tracking the "ease of plugging in" for electric vehicles separated out by customer/housing type: single family, multi-family, HOA, mobile home, commercial business, etc.
    - Based upon specific needs, there are innovative ways to maximize EV access on a single line.
    - Another alternative may be to reprogram home charging equipment using open source software to allow for better management and tracking of charging use for multiple customers.]
- For outreach to individuals that rely on electric medical equipment, consider tabling at the Disabled Services and Legal Center's Aging and Disability Resource Expo held annually each spring.
- "Affordability" is a key messaging topic across all customer types. Some "affordability solutions" include:
    - Solar PV and integrated battery storage at facility-scale to allow for independence from utility providers
    - Facility energy upgrade planning that includes EV charging and other e-mobility options
    - Home hardening measures that can be accomplished at same time as energy upgrades
- Report should acknowledge the negative environmental impacts of heavy metal mining and extraction techniques that underlie much of the "decarbonization" technology that we are looking to install.
- Due to multiple hazards found in West County, many homeowners will be resistant to full electrification unless they can be assured of resilient power sources during fire, earthquakes, AND flood events that can often last longer than a week.
    - Individual and/or community solar and wind production is NOT a viable solution in much of the rural parts of county due to dense tree cover.
    - Community microgrids may be a viable long-term solution of enough solar access is available.
    - EV-to-house is another emerging option that may allow for more innovative battery storage solutions.
    - Bulk purchase programs may be another viable option to increase affordability of upgrades. This model could be extended further with "community messaging" campaigns to recruit neighbors.
- Include information on the risks and danger of methane (natural gas) within the built environment, especially during wildfires and other natural disasters.
- Need to research and include the current state of permit streamlining across all jurisdictions.
    - The City of Lancaster is a good example to look toward for streamlining success.
- There may be an opportunity for a completely new "installation model" to meet the needs of lower-income households that can not afford to make the needed upgrades.
    - Could a "community-based organization" model work better than the existing profit-based model with price markups included at each and every step in the process?
- Concern that the "Home Energy Score" is too simplistic to give homeowners enough information to make informed decisions. A "whole home carbon calculator" may be better suited for broad adoption.
- Efforts to decarbonize commercial buildings, especially large employers, is an incredible opportunity to integrate with solar PV and daytime EV charging equipment installations for daytime charging.
- The previous SHIFT Sonoma County plan has quantifiable objectives that are currently lacking in this plan. This then allows for an impact analysis to determine success metrics across multiple categories.
- The upcoming Bay Area Air District rules for space heating and water heating will have dramatic impacts in Sonoma County. All analysis in this plan should start from that general organizing principle and determine how other efforts build on top of this initiative and extend beyond (workforce, outreach, etc.)

Feedback Received from EBEAP Staff Review 2025

Introduction

- Some of these actions are feasible to encourage/promote countywide, but would ultimately need to be adopted by the individual Councils, which some may or may not choose to do. Recommend adding the clarification that jurisdictions are not obligated to implement the specific actions and clarify responsibility/accountability of countywide plan implementation.
- It would be helpful to have a better understanding on how much each individual jurisdiction is obligated to accomplish these. For example, Healdsburg is working on its Electric Energy Demand Forecast right now to determine the feasibility of % of renewable procurements. Many of the actions also require Council adoption, which individual Councils may or may not adopt.
- Maybe also include that multiple jurisdictions have their own CMS / Plan, which actions within the jurisdiction-specific plans will likely take precedence. It is important to keep in mind that our jurisdiction-specific CMS already outlines a number of actions for our small staff to complete. It will be good to help jurisdictions identify which of the actions within this plan align with the actions that they have already committed to, or will help make those actions more successful (or programs that RCPA can lead that help support the actions for all jurisdictions.)
- Depending on the building upgrade actions and how much financial support to building owners is envisioned, it will require A LOT of funding.

Priority 1: Policy Support

- A short term action could be focused on the CalGreen heat pump when replacing AC optional requirement.
- Wording of 'all policies support building decarbonization' might not work. We have lots of policies that are not related to building decarbonization at all. Maybe change to Implement policies that support building decarbonization efforts.
- I'm curious what you have in mind for "modifying utility rate structures to ensure affordable access to electricity". Healdsburg Electric is ~50% less than PG&E rates, and offers a 25% discount for households at 80% AMI.
- Energy Reach Codes: Would there be opportunities to look for models that provide incentives rather than require decarbonization, in the event that AB 306 is enacted as currently drafted, prohibiting adoption of new Reach codes, except to address emergencies?
- Providing homeowners access to BayREN's programs might be a way to encourage rather than require energy efficient upgrades.

Priority 2: Community Education

- In terms of order of operations, more community education is likely needed before some of the goals above will be successful.
- Energy Cost Increases: I think quite a bit of work is needed here. I've had a handful of conversations where it didn't matter to folks that the gas bill would theoretically decrease. They were more concerned about their electric bill increasing and were therefore not interested in anything that would increase electric use.
- Need more outreach/campaigns on benefits of upgrading rental properties (reduced tenant turnover, reduced tenant complaints, doing the right thing, avoiding costly emergency replacements, etc.)
- I hear about panel upgrade concerns often as well. There are ways to more strategically use the existing panel capacity that would be good to provide technical assistance and education on.
- Free County consultations seem to have been very useful to those that signed up for one!
- Encouraging neighbors to gather (with RCPA/BayREN representatives) to become informed about decarbonization might be a way to get neighbors encouraging one another to make upgrades--and have opportunities to see upgrades in one another's homes. This would have the added benefit of community building, creating an ongoing network to continue to work with as new technologies become available.
- Just knowing what technologies are available for individual homeowners, costs involved, grant funds or subsidies available would benefit most neighborhoods.

Priority 3: Energy Equity

- Tenant Protections: It would be good to have more data on how much displacement is occurring. I feel like most of the upgrades I see are usually in-between tenants.
- If something like this were written into the rebate requirements, I am concerned about my capacity/ability to actually follow up on it. As well as placing the City in the position to enforce whether a substantial rent increase was due to the energy project vs a variety of other reasons that rent might have increased.
- I think a valid consideration is if rental property owners will opt not to participate in programs or will decide not to make any upgrades if their ability to set market rents and recover their costs will then be regulated.
- Affordable Utility Rate Structures: Healdsburg currently has a 25% electric bill discount for any household at or below 80% AMI.
- For Equity Priority Services, I could use RCPA and/or external support on technical assistance.
- Untracked Housing Cost Increases: While rent increases are often regulated or monitored, utility cost shifts due to electrification (e.g., moving from gas to electric heating or appliances) may result in higher total housing costs for renters. These costs often fall outside rent cap or anti-displacement measures and may not be effectively tracked or mitigated.
- Loss of Naturally Occurring Affordable Housing (NOAH): Many of our older, non-electrified buildings — especially duplexes and small multifamily properties — represent some of the last naturally affordable housing in Sonoma County. If owners are concerned that participation in a voluntary program might trigger inspections or reveal existing code issues, they may opt out entirely. These risks leaving the most critical housing stock untouched. This includes the program being overly complex or prescriptive.
- Programs like TCAC, Section 8, and USDA apply utility allowances to help offset costs, but those allowances are often based on standard consumption estimates that don't always reflect real-world usage after electrification. This can unintentionally reduce the affordability of subsidized units even if base rents remain restricted.
- Most new affordable housing developments are already built to high energy-efficiency standards. The greater challenge lies with older deed-restricted and unsubsidized units that operate on very tight margins. These properties need deeper, upfront support to be part of the solution.
- Since the EBEAP is framed as a voluntary initiative, participation will depend heavily on how accessible and non-punitive the program feels to small landlords and housing providers. Incentives alone may not be enough if owners fear opening the door to unrelated enforcement actions.
- One suggestion is to consider pairing electrification efforts with broader housing rehab incentives or light-touch code compliance assistance. This could help build trust, encourage participation, and prevent the unintended consequence of losing existing affordable homes due to avoidance.
- As local governments cut back on staff, RCPA might certify volunteers that could be part of a network that could help out homeowners and neighborhoods. Or RCPA could maintain a list of reasonably priced contractors that could assist homeowners.

Priority 4: Contractor Workforce

- This seems like a really good area where RCPA could take the lead.
- These actions look excellent. This would be a great resource.

Priority 5: Building Upgrades

- What is the timeframe for 'all' buildings upgraded? That is certainly not feasible within the dates provided for the actions. Even with zero-emission replacement requirements in the future, there are going to be a % of people that will keep their gas equipment going as long as possible to avoid switching to electric. I think that upgrading 'all' buildings will be very difficult even in the long term category of 2031-2035.
- Diesel Municipal Emergency Backup Generators: To ensure resiliency, this should be 'additions' or 'inclusions'. I've heard in a couple presentations that it is most ideal to have solar, batteries, and a fossil fuel generator that can recharge the battery if there is not sufficient solar. Given the intensity of our recent winter storms, it would be unwise for a back up system of critical services to rely solely of solar and battery.
- Solar PV Generation and Battery Storage Systems: In the full report, it would be good to describe what is required per 2025 code.
- PG&E, BayREN, and Healdsburg: It is still TBD on how much of this program Healdsburg residents will qualify for. Add info about other energy provider, state, and local incentives.
- Identify existing programs that provide FREE upgrades for income-qualified properties.
- It would be good to provide an example of a 'basic in-place' improvement, such as DIY Toolkits.
- These actions look excellent. It looks like a great blueprint for success.

Feedback Received at EBEAP Equity Focus Groups 2025

Priority 1: Policy Support

- All policy proposals should be run through a three-part equity matrix to analyze:
  - 1) racial/equity impacts,
  - 2) cost/benefit impacts, and
  - 3) health/wellness impacts.
- Seek partnerships with CA Office of Health Equity and Sonoma Office of Equity for policy analysis.
- The Massachusetts Public Health Alliance (MPHA) has developed a Health Equity Policy Framework that asks a handful of key questions to help improve policy proposals to be more equitable. https://mapublichealth.org/wp-content/uploads/2024/09/Health-Equity-Policy-Framework-9.24.24.pdf
- Consider contacting Aliados Health's Senior Director of Policy and External Affairs who has experience with getting earmarks for health centers.

Priority 2: Community Education

- Focus on "building trust" within the community by offering useful and timely information and working through "trusted community partners" for additional visibility.
- Allocate funds for these partners to cover their time and materials for the effort.
- Make the information easy to understand in simple language and translate into Spanish or other languages as needed.
- Focus on communicating the decisions that are being made with those who will be impacted.
- Consider presenting to the Municipal Advisory Councils, Community Advisory Commissions, and Citizen Advisory Councils throughout the unincorporated areas of the county. Another good option would be working through local Chambers of Commerce and the five Board of Supervisors' offices.
- Educational materials need to be not just "made available" but also need to be included as part of active outreach campaigns and at community events.
- Consider creation of permitting "how to" guides that could be distributed through the planning departments of local jurisdictions.
- Consider partnering with the County's Department of Emergency Services, an agency that has already developed trust within the larger community.
- Working in partnership with the affordable housing departments within each city is another way to reach low-income households via a trusted messenger.
- Outreach materials such as how-to guides and tutorials should include culturally-responsive messages and be translated into Spanish for wider reach.
- Work through federally-qualified health centers (FQHCs) for health-based recommendations and information on asthma impacts.
- Consider using "healthy aging" programs to reach senior citizens with outreach materials.
- If possible, synchronize outreach efforts with other like-minded efforts such as wildfire resilience and vegetation management programs from County of Sonoma and Sonoma Ecology Center.
- Consider working with non-profit health clinics as outreach support partners and using community health centers as locations for community events.
- Create broad coalitions to support this work: health + biking + buildings + sustainability, etc.
- Health care center staff are often "trusted community members" and can help spread the message.
- Hold multi-language workshops to encourage broad participation.

Priority 3: Energy Equity

- Partner with existing energy efficiency and weatherization programs, such as North Coast Energy Services..
- There is a strong need to build trust and accountability for these recommended actions given the number of "door-to-door scams" that are selling energy services
- Due to the high cost of living in Sonoma County, financial impacts should be also considered for "middle-income" households in addition to only looking at low-income households.
- Equity issues also need to be evaluated for senior citizens and those on disability, especially those who are dependent on electric wheelchairs or other electric medical equipment.
- Additional partners should include the Sonoma Community Action Partnership (formerly CAP Sonoma) and organizations like Petaluma People Services.
- To make upgrades in multi-family housing, a specific partnership with multi-unit building owners is needed to educate them about electrification and provide financial cost information.
- Consider developing a rental unit disclosure form to uncover the "hidden" cost of utilities above base rent costs.
- With the federal government's elimination of the Low Income Home Energy Assistance Program (LIHEAP) program, there is a need to identify and fund similar state-level programs.
- Connect with North Bay Tenants Union (with North Bay Organizing Project) as a conduit to renters.
- Consider "advocating for better living conditions related to health and affordability" instead of a focus on "climate change" or "GHG emissions."
- Use "energy burden" as a metric to identify selected communities for targeted upgrade services.
- Track down or consider developing a guide for renters about existing rent protection laws in the community and include the contact information for the local Rent Board.
- Other useful guides for renters would be a "Know Your Rights" pamphlet and a "What to Expect during Your Energy Upgrade" checklist.
- There is also a need to hold landlords accountable for providing safe living conditions such as wall insulation and installation of venting hoods over natural gas stovetops.

Priority 4: Contractor Workforce

- Key partners include Santa Rosa Junior College, Sonoma County Adult Education, Petaluma Adult School, CTE Foundation, and high school vocational departments, such as agriculture or manufacturing.
- Need to include consumer protections from predatory practices to protect against potential fraud.
- Repeated unsolicited sales calls for solar systems and other "energy services" has many residents hesitant to participate in any programs, even those offering legitimate services.
- Contact Sonoma Community Action Network regarding workforce development issues.

Priority 5: Building Upgrades

- Develop a technical assistance pathway for faith-based and community-based organizations that own facilities and need to upgrade these buildings.
- Some incentive programs have a cut-off that is too low due to the high cost of living in Sonoma County.
- There are other climate-related building improvements, such as cool roofs, that are not currently mentioned.
- Older buildings may also need more basic infrastructure improvements and wiring upgrades before considering the installation of new heat pump appliances. This may be an opportunity to empower local neighborhood contractors to perform this work as an investment in their community.
- There is a need to identify low-cost energy measures that renters can install without landlord approval.
- Affordable housing developers could use specific technical assistance to balance between the high cost of development and their desire to "do the right thing."
- Some health centers are interested in expanding to become community resilience hubs, including acting as heating/cooling centers during extreme weather events or power shut offs.
- Many of these same locations could also be good opportunities for site-level microgrid development.
- A topic not covered by the report at all are "embedded emissions" in building materials and construction process.

Feedback Received from EBEAP Technical Review 2025

Introduction

- Need to reconcile the discrepancy between local jurisdictions not being obligated to complete the recommended actions and how the specified goals for building upgrades can be reached.
- I love the emphasis so far on collaborating with other organizations and jurisdictions.
- After reviewing all of this, I am wondering if stakeholders might provide a more helpful overall action framework than the five categories used here. I can see that these were useful for initial brainstorming, but when moving into implementation, I suspect that it may be more effective to organize in terms of: What are we going to do for:
    - Renters
    - Homeowners (parsing by low-income vs. others)
    - Multifamily building owners
    - Multifamily building operators
    - Public and commercial building operators
    - General and trade contracting businesses
    - Members of the labor workforce
    - Building design practitioners
    - Education institutions
    - etc.
- Prioritize effort accordingly based on questions below:
    - What is the relative importance and influence of each respective group in determining decarbonization outcomes?
    - What is the relative burden borne by each of these groups?
    - What is our relative ability to support each group?

Priority 1: Policy Support

- Legislative and Policy Efforts
    - What types of support do you envision? Good intent, but this is pretty vague.
    - Be more specific than "support." Give examples of actions that RCPA can take that make this effort easier for jurisdictions to pass resolutions in support of specific policies.
- Long-Term Climate Program Funding
    - Super-important; wondering what specific avenues you may be contemplating?
    - What's missing is after establishing funding (Action 2), creating a protocol for how that will be allocated across jurisdictions.
    - Long term climate funding should not be a Priority 1 item given that Prop 4 has nothing for building electrification in the plan and regional funding approaches are not politically viable in the short term. Grant funding may be appropriate for building stock assessment. The main funding for climate efforts locally will continue to be from Sonoma Clean Power and BayREN with assistance from [the County]. State and Federal funding is very short lived and durable programs can't depend on it.
- Permit Fees and Processes
    - The first part of Action 3 -- create a partnership among local jurisdictions -- should really be at the very top of this list, as it will benefit all subsequent actions in this category (and others). That partnership should include written commitments stipulating active participation by local jurisdiction staff.
    - Solid strategy. The challenge may be finding local jurisdiction staff time to participate.
    - From my conversations with contractors, permit fees are not the stumbling block. It is more the scheduling and labor costs associated with handling inspectors showing up on time. Many have said that they preferred the online inspections that were done during the pandemic. Many contractors will ask the client if they want to get a permit. This is the real issue here. Making incentives and assistance tied to a permit will help drive this. The City of St. Helena had a limited time reduced permit fee that didn't seem to have much participation according to staff.

    - The City of Santa Rosa recently evaluated a series of permit fees and it was a long and contentious process. More info: https://www.srcity.org/CivicAlerts.aspx?AID=2694
    - Look into Australia's permitting approach to solar. They really remove a lot of barriers and cost. The cost there is negligible. It adds about $0.20/Watt here.
    - Amendments to the permitting structure or permit fees may gain more traction if they are presented to the cities as best practices or as case studies from other jurisdictions instead of trying to include each jurisdiction in the process of developing new structures/fees.
    - The actions that involve coordination with the building/planning departments in cities seem especially difficult in light of recent financial issues at many cities and the County. For example, the City of Santa Rosa is poised to lay off employees, including some in the Planning and Building Department.
- Energy Reach Codes
    - Each jurisdiction's legal counsel will want to make its own decision, but a collaborative effort to identify best practices/viable strategies will be valuable.
    - This action consumes limited city resources and is already in place at the two biggest cities. While it might make sense for Rohnert Park and the unincorporated county to pursue this, most smaller cities have looked at this and determined that the amount of building that is occurring which is not all or mostly electric is too small to warrant the cost. We are better off focusing on other actions.
- Home Energy Score Evaluations
    - Inasmuch as this has been done successfully elsewhere, and existing homes are much more numerous and need improvements much more than new ones, this should be Action #1 and should be framed more affirmatively, e.g., "Develop a model ordinance for jurisdictions to require ... "
    - Also, an equivalent process is needed for multifamily buildings, paired with tenant protections.
    - While this would face considerable pushback from realtors, it is worth considering and possibly making a near-term action that RCPA can initiate background research on. This is also an opportunity to assess electrification status, age of equipment and electric panel needs. RCPA could examine the various other current methods for building energy assessments to determine if this warrants jurisdictions to pursue this action.

Priority 2: Community Education

- In the online library of resources, include the average ballpark cost of the various recommended upgrades. This will help orient the customer to the general costs they can expect.
- The current vision statement calls to have materials AVAILABLE. This vision should be reworded so that Sonoma county residents (owners, renters, businesses, etc.) are informed about the financial and environmental benefits of electrification and know the resources available to make it happen (trustworthy contractors, incentives available, financing options, landlord-tenant models, etc.)
- Education and Outreach Partnerships
    - I see this as an overarching action that should sit like an umbrella over all five action categories. As needed, that partnership could comprise committees focused on the categories, but it absolutely should be the backbone of the effort.
    - Allocate funding to hire a REALLY GOOD communications firm to develop materials for a co-op education/awareness program that can be adopted and customized by each jurisdiction (or that are relevant across RCPA territory).
    - Is this partnership trying to solve issues that exist now? If so, be more specific like issues with redundancy, clear lines of responsibility, educational resources availability and recommendations for household electrification path.
- Online Resource Library
    - There are two challenges to this type of effort: first, recognized experts need to be put in charge of vetting and curating the resources; and second, ongoing funds need to be set aside for maintenance and enhancement -- both substantive and administrative.
    - Include bilingual library of materials.

    - Ensure use of accessible terminology, e.g., not "decarbonization" or even "electrification." Test messaging with a range of representative audiences.
    - Is this within the capacity of RCPA because jurisdictions will not have the capacity to do it? This is best left to non-governmental groups like The Switch Is On and Rewiring America.
- Community Outreach Strategy
    - Not just “expanded outreach” but also ENHANCED, including culturally appropriate messaging and Spanish-language materials. Include information about actions available to tenants, such as small electric kitchen appliances that can be used to supplement or replace gas cooking.
    - This is key. While this may be too many eggs in one basket, I think focusing education on the upcoming BAAQMD requirements and what contractors, renters and tenants can do to prepare will give us the biggest return on investment. One of the challenges is that people will skip getting a permit especially for water heaters, or replace equipment with a gas unit (maybe ordered on-line or bought outside of the BAAQMD jurisdiction territory) and not be aware of the incentives or assistance. Outreach should focus on the incentives and the benefits.

Priority 3: Energy Equity

- Empanel an equity advisory group to develop an assessment checklist that will be used every time a policy, program, or incentive is being contemplated, to ensure it passes muster from an equity perspective.
- There are ways for landlords to benefit from going solar where the renter doesn’t have to pay more for electricity. Essentially the landlord becomes like a PPA. Plus it adds to the home value.
- Ensure that equity priority & low-income households are not disproportionately subject to power outages or other adverse effects of extreme heat/cold or other climate impacts.
- Community-Based Partnerships
    - Ideally, eliminate duplicative actions to avoid duplicative or potentially conflicting efforts addressing the same core objectives. I think if you adopt the 'umbrella partnership' model in the next iteration of this plan, this issue may resolve itself.
    - Reframe: Actively engage CBOs to lead creation and/or curation of the resources (not just dissemination). Fund these efforts; don't expect the partnering to come free.
    - Instead of using somewhat vague action language of "partner with" it should be more action oriented like assess current services for culturally-inclusive educational material. Along with assessment there should be concrete recommendations for improvement.
- Equity Priority Services
    - Set aside funding to provide FREE small electric kitchen appliances that can be used to supplement or replace gas cooking. Also clothes lines and drying racks, portable electric heat pumps, etc. -- along with free installation and training/technical assistance with operation.
- Renter Protection Programs
    - This strikes me as a policy action. You might consider that, rather than having an energy equity category, adding equity-focused language to every action.
    - Since the main upgrades will occur at end of life for water heating and space heating equipment, I think most landlords will probably not be increasing rent much or at all for something they legally need to provide. The bigger issue in my mind is that if rentals are leaky and under-insulated or replacements are not heat pumps, then electrification will end up costing tenants more to operate than natural gas. Another longer-term issue is if lower income households become some of the last to electrify, then they are left with the large infrastructure costs to maintain and replace natural gas lines ($3 million per mile to replace.) A research role for RCPA would be to gather information to help determine what percentage of building energy upgrade costs are passed along to tenants. I think that the main equity action is to have the incentives mainly target lower income owners and owners of subsidized housing units.

Priority 4: Contractor Workforce

- First of all, I LOVE that workforce is a priority at all. It is so hard to find good skilled labor in the Bay Area. And the entire construction industry is concerned about the lack of interest in the skilled trades going into the future. If you don't know about it already, #theskilledproject -- based in Petaluma -- would be a great collaboration partner. https://www.theskilledproject.com/
- One thing I will tell you on this topic is that as a contractor who pays my employees a living wage and always does permits and pays Worker's Comp, it is very difficult to compete with companies who are charging like $7k less than me. The only way they can do that is on the backs of the workers. So as an equity issue and as a workforce issue, I would love to see the county supporting contractors who do things by the book over contractors who exploit workers and cheat workers compensation and State/Federal taxes in order to get the bare minimum pricing out there to the community.
- Look at local and other national programs that exist (if they exist) and learnings from those that can be applied to us (again, if they exist.)
- "Access" to workforce development programs doesn't guarantee participation, retention, and successful employment.
- How is this getting funded as part of the larger plan?
- Here are a few additional Technical Review questions to consider adding:
    - Is there an opportunity for training to be done more efficiently and/or shortened without losing quality of training/education?
    - What will be the best training program for zero emission / decarbonization efforts? Does anything exist (outside of Sonoma Co), that we can replicate and replicate quickly?
    - What are we doing well now? How can this be amplified?
    - How are building codes and/or policy helping or hurting contractors' decarbonization efforts?
    - How are union and non-union programs co-existing in this plan that we're creating?
    - What is the definition of "high road" and what qualifies as "high road"?
    - What metrics or accountability measures are we setting up to ensure program participation, retention, and growth?
- We need to prime people now. I think if you're looking to expand high road careers, you need to have started yesterday in educating and exposing.
- Solutions need to work within the structures impacting workforce development (e.g.,. California State Licensing Board.)
- Teachers/instructors make more in the field so any expansion of a program that needs instructors needs to consider higher salaries (more than what they would make in the field) if they want to attract and keep quality teachers.
- There is currently less than 35% completion rate of electrical apprenticeships nationwide. Case management/mentorship programs need to be stood up in conjunction as they are building out high road careers. This goes to rethinking/retooling how we are training people.
- Useful reference: "Race to the Bottom" article on the impact of gutting the workforce and quality of jobs. https://www.nytimes.com/2025/04/07/magazine/contractors-construction-real-estate.html
- Workforce Education Partnerships
    - Change "efforts" to "stakeholders (including SRJC, SSU, high schools)".
    - Exercise care, as "decarbonization workforce" is not a term that will compute for most members of that workforce.
    - The timing is way too slow. Identifying barriers shouldn't take 2 years. There is tons of existing data. And we have AI.
    - There is a focus on getting these education partners together, but there needs to be a very concerted effort on listening to local contractors, unions and what they're needs/constraints are. This may be included, but it is not explicitly stated.
    - Other workforce partners include Lime Foundation, SRJC, NBBE, and Department of Rehabilitation.

- High-Road Workforce Training
    - Training the local workforce is key to the success of building decarbonization. They are the ambassadors for programs, and reach the average homeowner who may not know about programs or incentives.
    - "High road" is important, but the vast majority of the building industry workforce is woefully unaware of and inexperienced in high-performance (i.e., high-efficiency, high-efficacy) building practices. This is a SERIOUS missing link in virtually all workforce education efforts and must be addressed. It is particularly important to ensuring that excessive heating/cooling capacity is not deployed (adding to grid stress) when enclosure efficiency improvements can reduce loads while also improving comfort and enhancing passive survivability -- particularly for vulnerable populations.
    - Challenge: there are very few practitioners who have this expertise and they are in high demand as practitioners, per se, as well as in teaching roles. A program is needed to transmit their knowledge to a new cadre of instructors.
    - Note: "Training" is insufficient; education includes training but is much broader and includes teaching of concepts, motivations, societal benefits, and other factors.
    - This is a long play and needs to be started in the NEAR term.
    - We shouldn't be waiting until 2027 to implement training or programming. If they do stick to 2027 timing, they should be priming people now if they are shooting for a 2027 expansion, so that goes for getting pilot programs, job walks, etc. into middle schools and high schools now. Educating students/parents on the career opportunities and the programs they have access to explore careers.
    - Identify who provides training now.
    - Partner with the North Coast Builders Exchange to host trainings.
    - Start with analyzing barriers as something RCPA can help lead. The partnership is a means to the analysis and necessary for the implementation for high priority actions.
    - Contractors are notoriously difficult to partner with as they are very busy and have small margins for their services. Consider paying contractors to attend trainings, or meet them at their worksite for a quick meeting before they head out to a job. Meeting with contractors in the winter months when business is slower may be a desired option.
    - Contact Kris Loomis at Sonoma County Water Agency who manages the Qualified Water Efficient Landscaper (QWEL) training program for landscape contractors. These trainings are well attended.
- Local Vocational Education
    - In addition, provide support to ensure that educational methods are appropriate for neurodiverse individuals, who represent a high fraction of the building industry workforce and are frequently well-suited to these occupations due to their innate strengths.
    - This is a long play and needs to be started in the NEAR term.
    - Call out "youth programming and youth exposure" explicitly.
    - Identify which educational institutions provide training now and what the training is for. Mendocino Community College offers a Sustainable Construction and Energy Technology Program. SRJC has nothing like that. This would require funding (maybe from Sonoma Clea Power) and program support from SRJC. Alternatively, contractors are usually more interested in training people themselves, and their main concern is finding people who are hard workers and can show up regularly. For contractors, this is more of an organic process where they ask their current employees if they know anybody who might be a good fit.

Priority 5: Building Upgrades

- Conduct an analysis – or locate an existing one -- on the number of homes (and their associated characteristics) that have upgraded appliances or processes. This type of study could lead to an understanding of how many houses could still participate in programs, the housing characteristics (age of house, income and demographics of household, etc.) of participating homes, and an understanding of how much support is needed to encourage further adoption. For example, if very few homes have participated - what are the barriers? Of those which have participated - what was their motivation and how can that be used to market to other houses with similar demographics?

- Include information about insulation and home thermal management, as that is one of the most effective ways to decrease energy usage.
- Partner with organizations like Daily Acts or do this through AHJs when permits are issued.
- What I'm not seeing here is whether any funding (Action 2) will be spent on direct installation, vs. program development and administration (which will certainly entail a non-insignificant investment all by itself). Is that part of the vision?
- Single-Family and Multi-Family Residential Upgrades
    - Many contractors are not on the BayREN lists due to the hassle factor where they have to add on administrative overhead cost and time that don't make it worth it for them to participate. This should be more explicit to call out Sonoma Clean Power and [the County.] If PG&E has assistance, we should include them too.
    - Other than promotion of BayREN programs, what does this support look like?
- Municipal and Public Building Upgrades
    - What if, when someone applied for a permit for any electrification projects, they were given information about the rebates/ incentives available to them for those items and related items? The county could commit to providing the most updated info to the Authorities Having Jurisdiction (AHJs.) One of the most difficult things is how complicated it is to find these programs and then also to apply for them. Even just a one page flyer that got updated 2x year that gets tagged along with a permit.
    - I think that the percent of total building energy GHGs from municipal buildings is relatively small. It does set an example, and jurisdictions like it because it shows them doing something, but it doesn't solve our bigger problems. According to the DOE, detached and attached single family building make up 65% of all natural gas use in Sonoma County. With our limited resources, I don't think this item should be a near-term priority.
    - See prior "umbrella" comments.
- Renter and Tenant Support
    - Equity considerations dictate elevating this to the top of this category; also see preceding comments related to forms of support that should be offered to renters.
    - Help tenants and landlords be aware of the models/landlord benefits of going solar. Please provide specific examples of what support would be increased.
- Non-Residential Commercial Upgrades
    - If PG&E has assistance, we should include them too.
- Innovative Program Design and Evaluation
    - I think direct install programs for low income households should be moved up in priority and emphasized. It is difficult to know the value of a building stock review without knowing what that would roughly cost, who would pay for it and are there grants available. Appliances loaner should also be explored and possibly prioritized. With the BAAQMD water heating requirements, this may be a critical factor for allowing borrowers of the units to get more time to swap to electric. There may need to be an incentive for the labor too for the temporary unit installation. This would encourage acceptance of the new requirement and allow the loaning entity to track the installations.
    - Add to the list: bulk buying & warehousing.

Feedback from EBEAP Survey Responses 2025

Survey Comments	Concerns / Issues
• I absolutely hate talking with contractors and negotiating scope and pricing. I just don't have the time or patience. So instead, very little happens even though we are motivated for change. We would upgrade all our appliances across the board if there was a "one-stop" turnkey option available with competitive pricing and ease of coordination. No multiple bids, no need for negotiation, no need for taking endless afternoons off work to vet unknown contractors. Please consider developing a simple program where homeowners just Call --> Choose Equipment --> Install.	• Negotiating with contractors • Lack of time and patience • Desire for simple turnkey installation program
• Our electrical panel is maxed out currently, so we need to update it before we can add more electrical appliances/upgrades.	• New electric panel needed before upgrades
• Why no rebates to add batteries to an existing solar system?	• Lack of rebates for added battery storage
• I am aware of some rebates but maybe not all. I already have electric heaters in one of my rental unit but they are very inefficient and I would like to replace with a mini split but they are too expensive. Would need to upgrade electric for entire property for further electrification which would be very expensive.	• High up-front costs for new equipment • Full electric upgrade needed even for smaller improvements
• The last major gas use in my house is my water heater. I use about $30/month in gas to heat my water. The quote I received to replace with a HPWH was over $10K, including rebates. It is really hard to justify the switch.	• High up-front costs for new equipment can't be justified for small savings
• I would love to put in solar panels (with a battery) and then eventually convert all of my appliances and vehicles to electric. However, I have a tile roof which complicates the project and often leaves homeowners with leaks due to poor quality solar installation. Further, I know that I need new underlayment on the roof, which is very expensive, making the whole transition to solar economically infeasible. Without solar, electric appliances are too expensive to operate due to the rising cost of electricity.	• Roof upgrades needed before solar PV • Solar PV needed before appliance upgrades • High cost of electricity without solar PV
• Other deferred DIY projects (irrigation, roof, siding) are higher priority.	• Other household maintenance priorities
• Whole house electrification is high on my list but it is overwhelming. Glad there are some resources through Sonoma County. Some financing incentives are available, but it's all very confusing. I could see how somebody would throw their hands up and stick with gas appliances.	• Overwhelmed by process • Incentive options are confusing
• I checked "within 5 years" and expect it will be towards the end of that period because of current economic uncertainty. Hope I'm still able to at that time.	• Short-term economic uncertainty
• I wish there was one place/website I could look to find out about rebates when converting to electric appliances.	• Desire for one-stop rebate website

• The up front costs for conversion make it a long-term process. We invest in upgrades when it makes sense, like spending more for a replacement appliance that's electric or adding solar panels and a battery when we installed a new roof. The cost is too high for us to decide to replace an appliance that's in good working condition with a brand new appliance, and we don't qualify for many of the incentive programs.	• High up-front costs • Unwilling to replace working appliances when upgrades are not needed • Don't qualify for incentive programs
• It takes a lot of work and time to coordinate the different trades needed to install new electric outlets, shut off gas and haul away old, then install new. I don't know of any contractors who will do the whole project for a reasonable price, and I struggle to find the time to research reliable contractors and negotiate with them to schedule the work and not be without an important appliance for too long.	• Lack of time to identify and select contractors • Concern of being with appliance during upgrade
• I installed a hybrid heat-pump water heater and then had to replace it in 18 months when it broke down. I went to a gas tankless heater, which was frustrating, and costly. My opinion is that heat-pump water heaters are not quite ready for 'prime-time' and also that some installers don't have the expertise to install them.	• Concerns that HPWH technology is not ready • Lack of contractor expertise with heat pump technology

# # #

This *Countywide Equitable Building Electrification Action Plan* has been developed to guide local electrification and decarbonization efforts within the built environment to meet Sonoma County's carbon neutrality goals.

The document is designed as a roadmap for collaborative efforts between SCTCA and our local jurisdictional members and countywide agency partners.

Recommended actions fall across the five broad priority areas listed below:

1) Policy Support
2) Community Education
3) Energy Equity
4) Contractor Workforce
5) Building Upgrades

Additionally, feedback was sought from local community-based organizations to define a set of equity actions to protect Sonoma County's renters and low-income communities from unexpected cost increases or displacement.

The overlapping needs are great, but together we can meet the challenge.

SCTCA
Sonoma County Transportation and Climate Authorities

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