



Electrification & Innovation Grant Program Narrative

1. Title and Introduction

Please provide the name of your project/program and a brief overview of the proposal.

Title: Strategic Planning to Overcome Barriers to Deep Decarbonization

The Monterey County Sustainability Program is requesting funding from this grant in order to launch a multi-tiered approach to achieve deep decarbonization across our 189-facility portfolio via three key approaches: adopting a holistic decarbonization framework, strategically prioritizing infrastructure upgrades, and developing an innovative solution to decarbonization barriers at the panel and substation level.¹ This effort will result in a long-term roadmap to decarbonize County facilities in order to meet our ambitious 2035 Carbon-Neutral Buildings goal and a ready-for-bid plan to fully decarbonize a group of energy intensive County facilities using a combination of grid distributed electricity, distributed energy resources (DER), energy storage solutions, and microgrid technology.

The work funded from this grant will enable Monterey County to be a long-term electrification leader among 3CE's member agencies and result in real short-term emissions reductions of at least 330,000 therms, or 1,470 MTCO_{2e} using US EPA equivalencies, from the decarbonization of selected County facilities. Results from both the planning and decarbonization process will contribute to the literature of building decarbonization and provide a scalable solution to decarbonization barriers that inhibit market transformation.

2. Organization Background

Please describe the applicant organization in terms of its mission, location, relationship to the communities served, and past experience in the proposal subject area.

The Monterey County Sustainability program is grounded in a triple bottom-line approach to sustainability and is designed to support a vibrant environmental, social, and economic future for the residents of Monterey County. The Sustainability Program aims to meet California's climate goals of reducing greenhouse gas emissions (GHG) to 40% below 1990 levels by 2030 and carbon neutrality by 2045 through Climate Action Planning with a focus on environmental justice. In pursuit of these goals, Monterey County is committed to leading the way for residents by reducing municipal emissions and creating opportunities for residents to live a climate-friendly future.

Therefore, a key priority is the rapid decarbonization of County buildings, which account for 40% of County emissions, in order to provide our residents with sustainable infrastructure and assist in the local market transformation of electrification. In addition to our climate mandate, we support all-electric buildings because of the growing body of evidence that natural gas appliances emit harmful levels of air

¹ The 2021 California Building Decarbonization Assessment estimates panel upgrades in its electrification scenarios to range from \$30 million - \$2.3 billion by 2030.

pollutants that would be considered illegal from an industrial source; these pollutants pose increased risks to vulnerable groups such as children and the elderly, as well as low-income groups and communities of color who disproportionately suffer from the effects of air pollution.² Using a lens of environmental justice, it is a priority that the County translate the Decarbonization Framework resulting from this project into Spanish in order to raise awareness of electrification in non-English speaking professionals and communities, in accordance with the County's Civil Rights Office Policy on Language Access and Effective Communication.³

Electrification and deep decarbonization impose daunting organizational, technological, and economic barriers, so the Sustainability Program realized the need for a Zero-Net Carbon Pilot (ZNC) of key County facilities to demonstrate the feasibility and benefits of electrification, as well as increase awareness of building decarbonization. In 2020, the Sustainability Program partnered with Mynt Systems in Santa Cruz to fully decarbonize three County facilities, Schilling Place, the County Jail, and the neighboring Sherriff's Office. These sites were chosen because of their high energy consumption and full-time residential operation. Additionally, Monterey County Behavioral Health is working on converting the Jail into a residential mental health facility, this provides additional energy efficiency opportunities and an equity component of providing a vulnerable population with the health benefits of high-performance, all-electric buildings mentioned above.

3. Problem Statement

Please describe the problem the applicant organization seeks to address. The Problem Statement must relate to one of the following Tracks:

- Community Education and Workforce Track
 - a. **Education and Awareness** - Addresses education and outreach barriers that impact CCCE Energy Programs focused on Electrification.
 - b. **Workforce, Training, and Development** - Addresses gaps in local workforce training and development slowing the advancement of electrification of the building and/or transportation sectors.
- The Member Agency Track (for CCCE Member Agencies only)
 - a. **Planning and Implementation** - Funding to support planning and/or implementation of electrification projects for member agency fleets, municipal properties, and community infrastructure.
 - b. **Innovation** - Funding for CCCE Member Agency deployment of new and innovative electrification or energy technology for municipal buildings and/or fleets.

We are applying under the Planning and Implementation track because the key results of this project are a series of plans. However, this project is innovative, as we aim to be the first of 3CE's member agencies to chart a course to 100% Carbon-Neutral Buildings by 2035 and to demonstrate that the innovative application of current technology can be used to overcome capital intensive panel upgrades that stall the rapid decarbonization of existing buildings. Using the California Energy Commission's (CEC) direct

² Seals, Brady and Andee Krasner. Health Effects From Gas Stove Pollution. Page 8 & 15. 2020. <https://www.psr.org/wp-content/uploads/2020/05/health-effects-from-gas-stove-pollution.pdf>.

³ <https://www.co.monterey.ca.us/home/showpublisheddocument/90918/637272068408100000>



emissions baseline, aggressive electrification is needed in order to meet the State’s goal to reduce GHG emissions to 40% below 1990 levels by 2030 and to meet the State’s 2045 goal of carbon neutrality.⁴ Additionally, the CEC assumes that the majority of building electrification work will take place by 2030, which makes this proof of concept for overcoming panel upgrade barriers even more valuable.

4. Program Goals and Objectives

Please describe the applicant organization’s goals and objectives and the envisioned approach to accomplish these goals and address the problem described above?

How will the proposed project or program advance CCCE’s goals of advancing electrification, reducing greenhouse gas emissions, and/or stimulating the local economy?

How will CCCE Electrification & Innovation grant funding support continued pursuit of these goals beyond current funding of the proposed program?

This project aims to accomplish three major objectives that align with both 3CE and County goals. First, the County will establish a framework for portfolio-wide decarbonization. This framework will allow the County to educate both staff and community members, as well as structure capital improvement processes in a manner that supports electrification throughout our wide service area. In addition to the organizational benefits to the county, this document will provide the local builder community with an educational document that demonstrates the County’s electrification trajectory. This provides assurance to the market that building electrification is a commonly accepted standard practice, which has been identified as one of the most important roles of government in 2022 for climate action.⁵

The second goal bridges the gap from electrification planning to implementation by strategically prioritizing capital improvement projects based on an Infrastructure Inventory of County facilities and equipment. This technical roadmap will allow the County to plot the most cost-effective path to reaching our 2035 Carbon Neutral Buildings goal and institutionalize large-scale GHG reductions. These first two goals accelerate electrification regionally by committing to decarbonizing a large portfolio, which will provide certainty towards workforce development and market transformation. Most of this work is data collection and will be accomplished with the help of PG&E funded Energy Watch program. However, this grant will allow the County to further partner with a consultant group with the engineering expertise to use this data to strategically prioritize capital improvements and natural gas infrastructure phaseouts.

The third objective of this grant is to develop a ready-to-bid plan for the full electrification of a group of County facilities that result in immediate GHG reductions and provides crucial proof-of-concept for rapid

⁴ Kenney, Michael, Nicholas Janusch, Ingrid Neumann, and Mike Jaske. 2021. California Building Decarbonization Assessment. Page 54. California Energy Commission. Publication Number: CEC-400-2021-006-CMF.

⁵ Roberts, D. (Host). (2022, January 28). *Volts podcast: Panama Bartholomy on decarbonizing America’s buildings*. Retrieved from [Volts podcast: Panama Bartholomy on decarbonizing America's buildings](#)



decarbonization. Based on the County’s initial assessment, the most logical sites for this fully decarbonized pilot are 1410 Natividad (County Jail), 1414 Natividad (Sheriff’s Office), and 1441 Schilling (County Office), as these sites would build upon the work of the Zero Net Carbon Pilot (ZNC) with Mynt systems, which achieved 60% decarbonization. This pilot consists of a suite of measures including energy efficiency upgrades, PV systems, and battery storage technology that reduce operating expenses; however, Mynt Systems determined that barriers at the panel and substation level prevented full electrification of these facilities.⁶ 100% electrification of these facilities would result in the reduction of an at least 330,000 therms of natural gas annually, which equates to an emissions reduction of 1,470 MTCO₂e.⁷ Another reason we believe there is opportunity at these sites is due to the deep retrofit anticipated at the County Jail facility. This building is part of the Natividad Jail complex, but the County is currently evaluating the feasibility of converting its use from a jail to a behavioral health inpatient center. Such a conversion will require a complete renovation of the facility including the HVAC system and is the perfect opportunity for the County to demonstrate a fully electric rehabilitation in a critical facility. The construction of this behavioral health center would be supported by a \$40 million dollar grant.

While there is a possibility that the first two goals of this plan may influence the site selection of facilities to fully decarbonize due to technical infeasibilities, the County is committed achieving substantial GHG emissions reductions by developing a plan to fully decarbonizing a group of buildings using a combination of grid distributed electricity, distributed energy resources, energy storage solutions, and microgrid technology to demonstrate the potential of current technologies to overcome barriers at the panel and substation level. This envisioned approach leverages thermal energy and battery storage to manage electricity demand, while microgrid controller technology will allow the system to be powered from onsite DERs during high-production periods and draw clean grid electricity provided by 3CE during periods of low consumer demand.

5. Program Reach

Which communities does the applicant organization seek to reach and serve? How will the work reach and serve under-resourced and at-risk communities?

If the proposal seeks to educate across a large geographic area, how will resources be distributed equitably across the geographic area? How many members of the community does the proposal anticipate educating or training?

This grant funded project will catalyze electrification efforts in Monterey County and result in several benefits for County Residents. The long-term decarbonization efforts will improve health outcomes for residents by reducing air pollutants from the combustion of natural gas in County facilities. Additionally, the resulting energy efficiency measures entail cost-savings that can further be reinvested into our communities. These projects could also serve as a training ground for our workforce as we seek to develop the skills of tradespeople in our community relative to all electric and efficient buildings.

⁶ This report by Mynt Systems is titled *Recommendations Zero Carbon Resiliency Phase 1*, and is attached to this application.

⁷ A breakdown of current energy consumption of these facilities was provided by Mynt Systems, and is attached to this application with the document name *ZNC Monterey County End Uses*.



Furthermore, the Sustainability Program aims to incorporate this project as a foundation for future efforts. For example, this project could serve as the impetus to participate in broader Community Microgrid Enablement Program activity that increases the resiliency and sustainability of County residents. The diverse geographic distribution of County facilities and the portfolio-wide framework for decarbonization will result in regional market transformation and workforce development opportunities advancing electrification.

6. Project Evaluation

Please describe a plan for determining project or program's success. What metrics will be used to report on the success of the proposed project or program? How will the outcomes be measured and who will measure them?

This project shall be managed and evaluated by the Sustainability Program of Monterey County. Metrics for evaluation for each of the project's three main objectives are listed below:

Adopt County Decarbonization Framework:

- Did the Board of Supervisors adopt proposed Decarbonization Framework?

Strategic Prioritization of Capital Improvements

- Percentage of Infrastructure included in inventory.
- Did prioritization result in technical roadmap for long-term decarbonization?

100% Decarbonization Pilot:

- Did project result in ready-to-bid plan for full decarbonization of County facilities?
- Amount of GHG emissions reductions in metric tons of CO₂e expected from project?

7. Future Funding and Plans

Please describe how expenses not supported by the grant will be covered and how/if the project or program effort will continue after the grant ends.

If the proposal seeks funding to solely design a new program, what is the plan for future successful implementation of the program?

Upon successful conclusion the Sustainability Program will have three actionable planning documents that will allow us to achieve our decarbonization goals. First, the countywide Decarbonization Framework will be presented and approved by the County Board of Supervisors, without the need of additional funds. The document will be publicly accessible and distributed to staff to align operations with our 2035 Carbon-Neutral Buildings goal, which will begin with a moratorium on expanding County natural gas infrastructure.



The second deliverable goal of a completed Infrastructure Inventory and strategic prioritization of capital improvements does not require additional funding. It will be incorporated into the Capital Improvement Process of the County, so that Facilities staff and County Project Managers can successfully electrify County infrastructure. The Sustainability Program and County Administrative Office will be instrumental in the successful implementation of this deliverable.

The final deliverable of a ready-to-bid plan to fully decarbonize a group of County facilities is the only element of this project that will require additional funding. This funding is being accounted for via collaboration with County Behavioral Health, who is responsible for converting the County Jail into a residential behavioral health center using a \$40 million grant to pay for construction costs. Furthermore, this project site is connected to the Natividad Medical Complex campus and is part of PG&E's service area affected by Public Safety Power Shutoffs, which makes it an ideal site for future participation in the Community Microgrid Enablement Program. This program will provide up to \$3 million for the safe islanding of critical infrastructure.

The continuation of this effort is expected to be an ongoing collaboration between the County Sustainability Program and the Facilities team, with supportive funding from the County CIP. The idea behind the Decarbonization Framework and the Infrastructure Inventory is to strategically reduce the cost of decarbonization, prioritizing conversion of thermal equipment as it ages out and becomes inefficient.

8. Project Schedule & Budget

Please fill out the budget document linked on the application site. Grant fund payments will be distributed on a deliverable basis determined at the time of application award. Applicant will need to document and submit payments made to external entities for materials and services.

Below, please describe a proposed schedule in narrative form, including project start and end dates and planned milestones. If the proposal is related to an existing project or program, please provide a status update as part of the narrative. Assume in the timeline that the grant decision is made in June 2021.

As the project consists of three distinct deliverables, this section describes their narrative timeline in tandem:

The first deliverable is to create a Decarbonization Framework encompassing the County's 189 building portfolio.⁸ This work will begin immediately upon the award of this grant by the Monterey County Sustainability Program, but will need information from the second deliverable of the project. Concurrently, the Infrastructure Inventory will begin, which is the second deliverable of this project. We are partnering with Central Coast Energy Watch (CCEW) to complete this inventory, who has outlined their timeline as follows. Step 1, CCEW will perform walkthroughs with of County facilities with escorts by County staff. This process will take approximately 3.5 weeks to complete, and will therefore be

⁸ This Decarbonization Framework is inspired by the framework recently adopted by the CSU network, which was created in partnership with [ARC Alternatives](#), who have been involved in the creation of this application and whose expertise the County has relied on to evaluate past projects. This framework can be accessed at: [CSU Bldg Decarb Conceptual Recommendations.pdf \(calstate.edu\)](#)



completed on Week 4. Step 2 consists of CCEW lead data consolidation and will take approximately 1 week to consolidate the photos, equipment information, etc. This step is projected to be completed on Week 5. Step 3, CCEW will spend the next 2 weeks uploading the consolidated data to their Infrastructure Inventory platform, and will finish on Week 7. At this point, the Sustainability Program will need to partner with an external vendor with the engineering expertise to turn this data into a prioritized strategic plan to decarbonize County Infrastructure. This is Step 4 of the Infrastructure Inventory, which is estimated to take 6 weeks, and be completed on Week 13. Each of these steps is a key milestone needed to complete this project.

Next, the completed Infrastructure Inventory and strategic prioritization will be incorporated into the Decarbonization Framework. This writing intensive process is envisioned to be a collaborative effort between Sustainability Program staff and our third-party vendor, and is expected to take a combined 6 weeks of work. Assuming that the Infrastructure Inventory is completed on Week 13, then Decarbonization Framework will be completed on Week 19.

Once these supporting documents are complete, the work to implement our framework will begin with the creation of a plan to fully decarbonize our ZNC facilities. Our third-party consultant will lead this effort in creating a ready-to-bid plan for the full decarbonization of selected County facilities by applying the first and second deliverables. This timeframe is outlined as follows, beginning on Week 19: Step 1, our consulting partner will confirm that target sites are suitable for project needs and fit within budget constraints, this is estimated to take 3 weeks to complete and end on Week 22. Next, Step 2 begins where the team will gather additional site requirements that are beyond the scope of the Infrastructure Inventory, (such as operational patterns, access, and security), to determine any impacts on the project scope. This step is estimated to take an additional 3 weeks, and therefore be completed on Week 25. Step 3 will apply the Decarbonization Framework to develop conceptual designs for the project and quantify carbon impacts. This is the largest aspect of technical work, and will take an estimated 16 weeks to complete, ending on Week 41. Next, the team will develop zero-net carbon scenarios and adjust project scope and design to achieve our carbon goals. Thus step 4 will take 4 weeks to complete, finishing the project design elements on Week 45. Once this work is complete, Step 5 will move towards implementation by outlining procurement and delivery options over the course of 3 weeks, ending on Week 48. Finally, Step 6 will be to develop an implementation schedule that the Sustainability Program will use to turn this project into a reality in coordination with County Behavioral Health, Facilities, and the County Administrative Office. This last step will take 2 weeks, which means the entire project should be completed at the end of Week 50.