

Agricultural Electrification Program Design

Monterey Bay Community Power (now Central Coast Community Energy)

Challenge: Tierra recently completed the development of a strategic electrification plan for Monterey Bay Community Power, now Central Coast Community Energy (CCCE). The goal of the project was to prepare a comprehensive characterization of electrification opportunities in CCCE's service area and an electrification program roadmap to be deployed in a staged fashion over a five-year planning timeframe focusing first on an initial set of high priority offerings. In addition to the built environment and transportation sector, the plan also addressed electrification of the agricultural sector, a key market constituent in CCCE's service region.

The Agricultural Electrification Program was intended to be the flagship program in the electrification program portfolio for addressing the unique energy needs of the agricultural market by providing a combination of consultations, incentives, and technical assistance to drive electrification of farm equipment. It was one of multiple offerings designed to reduce greenhouse gas (GHG) emissions through promoting fuel switching in the transportation sector but is unique in that it focuses on farm implements, off-road utility vehicles used in agricultural applications, and other fossil fuel driven applications in the agricultural sector supply and delivery chain.

The rationale for implementing this program included:

- **GHG Emission Reductions:** replace gas-powered farm equipment with electric implements and vehicles
- **Customer Benefits:** subsidized energy consultations to help identify opportunities to improve operational efficiency through electrification, energy efficiency, and solar; energy savings and utility bill reductions through installation of high efficiency electrification measures
- **Economic Development:** additional work for local contractors, energy auditors and water pump testers
- **Complimentary Delivery:** leverage local agency services, infrastructure and expertise, as well as established customer awareness and relationships.

Approach: The plan project was completed in three phases: 1) a comprehensive market demographic and technology characterization of electrification opportunities in CCCE's service area, 2) a forecast of energy impacts and greenhouse gas (GHG) changes in a business as usual and electrification program scenarios, and, 3) preparation of a 5-year electrification program roadmap for deploying a suite of programs designed to achieve the company's goals. The analysis considered a broad range of technologies, applications, and measures including:

- **Farm implement and off-road vehicle replacement and electrification** including electrification of mobile, portable and stationary, off-road compression-ignition (CI or diesel), and large spark-ignition (LSI) agricultural equipment.
- **Infrastructure electrification projects** including electrification of stationary agricultural pumps and transport refrigeration units.
- **Agricultural water pump testing** to improve overall water pumping efficiency.
- **Energy audits** to identify and advise on applicable, high-value electrification, energy efficiency, renewable and storage project opportunities.

The program was designed to provide a range of services and incentives to support farm operators in equipment selection and project implementation to electrify fossil-fuel driven applications and reduce farm energy operating costs through the deployment of energy efficiency and renewable energy measures. Table 1 provides a sample of the subsidies and rebates that were recommended for the program.

Table 1. Sample Agricultural Electrification Program Subsidies and Rebates

Incentive	Amount	Limitations
Water Pump Testing Subsidies	Up to \$200/Test for pumps Up to \$50/Test for booster pump being supplied by a water well	None
Energy Audit Subsidy	75% of Audit Costs up to \$500	None
Farm Implement and Off-Road Vehicle Rebate	Up to an Additional 15% of Eligible Project Costs	Up to 65% of project costs
Incremental Infrastructure Rebate	Up to an Additional 15% Eligible Project Costs	Up to 65% of project costs

Outcome: Along with the suite of programs included in the electrification program roadmap, the agricultural sector program was designed to be phased in over time and provide the opportunity to incorporate other electrification, energy efficiency, and renewable energy components in response to the needs and goals of CCCE’s agricultural sector customers and constituents. Since 2020, CCCE has offered the Agriculture Electrification program with incentives for up to 70% of the total project cost for large growers and 80% for small growers for high-efficiency, clean energy electric equipment including irrigation pumps, refrigeration equipment, HVAC equipment, farm implements and other utility vehicles, and other medium- to heavy-duty trucks and utility vehicles. Due to the success of its earlier agricultural sector program, CCCE has renewed the program for 2022.



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