

PROJECT NARRATIVE

Applicant ID:

Limit document to 10 pages total. Times New Roman font size 11, 1-inch margins, and single-spaced. Do not change order of sections, margins, font size, or spacing.

(REMOVE ALL BLUE TEXT PRIOR TO SUBMITTAL)

I. Project Implementation Plan

History and Background

Provide the details of the history and background of the dairy operation. Provide herd size and breed, including average number of lactating cows (in freestalls and in open lot corrals), dry cows, replacement calves, replacement heifers, and any other livestock at your operation. Explain your current management practices in detail, including a description of lagoon(s) size (depth and volume) if currently using lagoon storage, parlor water use, bedding type, method and frequency of manure collection including percent of manure collected from each production group (i.e., lactating cows, heifers, etc.).

Include a schematic diagram showing total solids flows into and lost from the manure treatment system. Provide details of quantity, location, and source of manure and other materials (if any) digested, and quantify minimum daily total solids loads needed for the system to operate optimally. Explain if your facility will be able to guarantee the minimum feedstock needed for the digester project, and how manure will be handled when the system is not operational.

In case of a defunct digester, provide the history and background of the installed digester. Include information requested above in addition to: the funding source(s) for past construction, reasons for digester becoming non-functional and current strategies for destruction of methane generated in the absence of a functional digester. If methane is not being destroyed, what is its fate as per current management practices on the dairy operation?

Type of Digester

Provide details of type of digester planned and technologies proposed for anaerobic digestion. Project design documents, including schematics, figures, graphics and plans, must be submitted as part of the grant application. Provide a clear distinction about what the project is currently committed to accomplish and future plans. Project designs must be approved by a licensed professional engineer. Details such as digester volume, solids and hydraulic retention times and mass balance through the digester must be included. Mass balance must be illustrated in an annotated diagram with the following components clearly indicated:

- Manure input rate (mass or gallons with estimated total solids)
- Digestate outflow rate (mass or volume with estimated total solids)
- Expected bio-gas flow with methane content estimate.

If the volume of manure volatile solids deposited on land and not entering the anaerobic environment (lagoon) from project are expected to be different from the default values utilized in the California Air Resources Board Greenhouse Gas Quantification Methodology for the California Department of Food and Agriculture Dairy Digester Research and Development Program: Fiscal Year 2018-19 and associated

Calculator Tool for Dairy Digester Research and Development Program: Fiscal Year 2018-19, provide a justification to support the difference. Documents to support the justification (if any) should be included in Supporting Materials 5.1.

Cluster Projects

For projects that are part of a dairy cluster to produce biogas, the plan for the entire cluster must be included for each individual application. Indicate the name of the cluster, how many dairies and digesters are in the cluster, how many are currently operational, and how many are planned. Explain how the proposed project fits with the overall cluster plan, including a feasibility analysis indicating the minimum number of projects critical to the economic and technical viability of the cluster. Map(s) showing the layout of the cluster and connecting pipelines (if applicable) must be included. If providing individual applications for a cluster, each application should be prioritized in terms of importance of funding.

Renewable Power/Low-Carbon Fuels

Include a plan for renewable power or low-carbon fuels, i.e. your plan for utilization of the methane (biogas) produced in the project which will eventually result in destruction of the methane (i.e. emissions reduction). Provide details of the technology(ies) to be employed in your digester facility and for subsequent utilization of captured methane, specifically:

- The make and model (or energy capacity) of the engine-generator, boiler, gas turbine, fuel cell, or other technology, or gas upgrade system (if product is RNG),
- The make, model and capacity of the gas cleaning/conditioning system including information of constituents removed (examples include but not limited to: hydrogen sulfide, carbon dioxide and moisture).
- Describe the details of the air pollution control equipment proposed. Will this technology meet local air district rules and the requirements of this program?
- How much energy product is expected to be produced by the system? Include the kW-h/year estimates for electricity projects and MMBTU per hour and per year of upgraded gas for RNG projects and for projects that combust biogas in a boiler and recover useful thermal energy.
- Is there a plan in place for conditioning of bio-gas and pipeline injection of RNG or use of RNG as transportation fuel or fuel displacement for other equipment, e.g. boilers?
- Is a Power Purchase Agreement in place for electric power generation (if yes, provide a copy of agreement or support letter from the utility service as evidence)? Discuss status of project in BioMAT-FiT (if applicable). Is an agreement to sell RNG in place? Provide offtake agreements, if applicable.
- Will the project include any peak demand provisions, if so, discuss.
- Discuss local versus regional use of generated fuel or electricity,
- For projects that propose to change their biogas end-use within the 10-year life of the project, ensure that this is discussed in the Project Narrative, and is reflected and consistent in the Estimated GHG Emissions Reduction, Environmental Performance, Community Impact, Budget Worksheet sections and Work Plan attachment.
- Are you proposing any other uses for bio-methane (if yes, please explain)?

Site Control

Dairy digester developers proposing installation on a dairy site must demonstrate legal control of the site. Is there a lease agreement in place? Please provide a copy. If not, please discuss plans on finalizing contractual arrangements with a dairy operation. Owners of the dairy operation must submit a copy of their deed if they are the primary applicant. Will project be located and serve one location or multiple locations (i.e. cluster projects)?

Provide:

- Timeline for the project to be operating at full capacity, expected lifetime of the digester, and a clear and concise description of the goals and objectives of the project,
- Plan for proper use or disposal of the digestate and management of residual materials from pre- and post-digestion processes,
- Justification for the need for CDFA funding, and an explanation of market viability including target markets, barriers, financial risks, partners, and economic viability with cash-flow projections, and,
- Details pertaining to ensuring fuel quality and safety of use, and, safety, maintenance and training plan for the project facility and staff.
- Discuss the potential for replicability of the project.

Describe any potential challenges that applicant foresees to project implementation and provide plans to avoid or overcome them.

II. Long-Term Viability of Project

Demonstrate how the operations and maintenance costs of the project will be sustained beyond the project term (i.e. development and construction period ending September 30, 2021), and for the life of the project (minimum expected lifetime of digester projects is 10 years). Explain all ongoing funding sources for the project. List personnel positions assigned to carry out digester operations and maintenance through the life of the project.

Component Repair and Support

Examine, compare and describe the availability of required replacement parts and qualified service personnel to keep the system operating as effectively as possible with a minimum amount of downtime for repairs or maintenance. Provide information regarding availability of replacement parts and qualified service technicians, the cost of commonly replaced parts/services, and the availability of included maintenance packages.

Maintenance

Examine and compare the maintenance requirements of the available internal combustion engine/generator packages, microturbines, fuel cells, boilers, FlexEnergy systems, pipeline injection systems, and fuel production systems. Provide information regarding necessary maintenance intervals, common maintenance requirements, cost of common maintenance parts/fluid replacement, complexity of maintenance, warranty required services, need for technicians to perform maintenance, typical annual maintenance cost, and time required for maintenance tasks.

III. Project Team Qualifications

Organization

Provide a list of team members along with a short description of their qualifications, experience, technical expertise, capabilities, and credentials (e.g., a professional resume). This must include at a minimum, project developers, project manager, and participating dairy farmer(s). Applicant must identify why this particular team composition and representation will enable successful implementation of the proposed work plan. Collaboration is encouraged.

Experience

If a project is being submitted by a project developer, a contractual agreement documenting project support from the dairy producer must be included. Letters of commitment from team members demonstrating understanding of their participation and specific role(s) in the project must also be included.

Provide an explanation of how various tasks will be managed and coordinated and how the project manager's technical expertise will help achieve the goals of the project. Describe previous experience of the project team with dairy digesters in California or other parts of the United States.

List past digester projects developed by the project team, including digesters implemented in California and their operational status.