



Biomethane-to-Pipeline Injection FAQs

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Biogas Project Incentives

1. Does Pacific Gas and Electric Company offer incentives for biogas digesters (a.k.a. anaerobic digesters) or other components of biogas digester projects?

- There are currently no incentives offered by PG&E for the construction or operation of biogas digester projects.

Biogas Purchase Contracts

2. How does PG&E go about purchasing the biogas generated by biogas digester projects?

- PG&E can negotiate contracts for biogas generated by eligible biogas digester projects. The price and term of these contracts are subject to negotiation.
- In 2007, PG&E negotiated two such contracts for biogas; one with [Microgy, Inc.](#), and another with [BioEnergy Solutions LLC](#).
- [CPUC Resolution E-4076](#) approved the BioEnergy contract on May 24, 2007.
- [CPUC Resolution E-4083](#) approved the Microgy contract on August 23, 2007.
- The biomass used in the biogas digester to create the biogas must comply with the definition of biomass in the [CEC Overall Program Guidebook](#)¹ March 2007, document CEC-300-2007-002-CMF.
- In order for the biogas to be injected into the natural gas transmission pipeline system, the biogas must meet PG&E's pipeline-quality gas standards as defined in PG&E's [Gas Rule 21 C](#).
- The biogas must be injected into a transmission pipeline system that is either within the Western Energy Coordinating Council (WECC) region or interconnected to a natural gas pipeline system in the WECC region that delivers gas into California.
- If you are interested in negotiating such a contract with PG&E, please contact [Ken Brennan](#), Senior Project Manager, Gas Business Development.

3. How does PG&E count the biogas it purchases from biogas digester projects towards its Renewable Portfolio Standard (RPS) goals?

- Although injecting the biogas into the transportation pipeline system mixes the biogas with other pipeline gas, natural gas regulations require gas entering the system to be "nominated" for use at a specific power plant or to a pipeline system owned by a publicly-owned utility or other load-serving entity (LSE).
- Consequently, the amount and energy content of the biogas or other RPS-eligible gas produced must be measured and either nominated for use at a specific power plant or

¹ Biomass — any organic material not derived from fossil fuels, including agricultural crops, agricultural wastes and residues, waste pallets, crates, dunnage, manufacturing, construction wood wastes, landscape and right-of-way tree trimmings, mill residues that result from milling lumber, rangeland maintenance residues, sludge derived from organic matter, and wood and wood waste from timbering operations.

Landscape or right-of-way tree trimmings include all solid waste materials that result from tree or vegetation trimming or removal to establish or maintain a right-of-way on public or private land for the following purposes:

- 1) For the provision of public utilities, including, but not limited to, natural gas, water, electricity, and telecommunications.
- 2) For fuel hazard reduction resulting in fire protection and prevention.
- 3) For the public's recreational use.



nominated to a pipeline system owned by an LSE. If the biogas is nominated to a pipeline system, the owner of the system must designate the facility for which the biogas will be used.

- The biogas deliveries under contract from Microgy and BioEnergy are currently nominated to PG&E's Humboldt Bay power plant near Eureka, CA.
- The amount of RPS-eligible electricity produced by this biogas is calculated by multiplying the electric energy generation of the facility (MWh) by the ratio of the biogas used and the total gas (biogas and natural gas) used by the facility. The electricity generated and gas use must be measured over an equal period of time (such as MWh produced per month and gas used per month).

4. For biogas digester projects that want to sell their biogas to PG&E, how close to a transmission pipeline does the project need to be?

- In PG&E's experience, biogas injection projects over 4-5 miles from a transmission pipeline become less economically viable. However, PG&E analyzes potential projects on a case-by-case basis, as they are all inherently different based on size, location, etc. For more information, please contact [Ken Brennan](#), Senior Project Manager, Gas Business Development.

5. Does PG&E prefer to buy biogas or electricity generated from biogas?

- PG&E is interested in purchasing either biogas upgraded to pipeline-quality standards or electricity from biogas projects. The decision to sell biogas or electricity resides with the biogas project owner and/or developer, and generally depends on the size and location of the biogas project.
- Because biogas projects generally create biogas throughout the day, biogas is considered to be more valuable to PG&E than electricity since the biogas can be stored and used to generate electricity when electricity is needed most.

6. Why can't biogas digester projects inject their gas into distribution pipelines as well as the transmission pipelines?

- Many distribution pipelines (especially those in California's high temperature rural areas) do not have much load (customer usage) during the summer, and they often do not have sufficient flow to distribute the biogas into PG&E's system. Without sufficient demand on a pipeline, there would be no market to deliver the biogas to, and hence, the biogas project would not be able to inject gas into the distribution system. Transmission lines usually have enough capacity available to handle the volume of biogas to be injected.

7. Does PG&E buy biogas from co-digestion projects (i.e. biogas digester projects that digest both manure and other biomass such as food waste or agricultural waste)?

- Yes. PG&E can purchase any biogas or natural gas that complies with Gas Rule 21.C. Details are available in the Gas Tariffs section of PG&E's web tariff book at <http://www.pge.com/tariffs/>.

8. Do biogas digester projects need to build gas storage facilities if they want to sell their biogas to PG&E?

- No. Biogas injection projects have the ability to flow gas directly into PG&E's transmission pipeline system, and thus, no storage facilities are required.



Greenhouse Gas Emissions Reductions

9. How can a biogas digester project generate both Renewable Energy Certificates (RECs) and greenhouse gas (GHG) emissions reductions (i.e. carbon offsets)?

- There are two distinct environmental benefits associated with capturing biogas via biogas digesters and burning the biogas to generate electricity. First, there is environmental benefit in preventing the GHGs in the biogas from being released into the atmosphere; and second, burning biogas to generate electricity displaces the use of non-renewable fuel for the electricity generation.
- The biogas generated by biogas digester projects is comprised primarily of methane (CH₄) (50-75%), carbon dioxide (CO₂) (25-50%), nitrogen (N₂) (0-10%), hydrogen (H₂) (0-1%), hydrogen sulfide (H₂S) (0-3%), and oxygen (O₂) (0-2%).
- The methane in biogas is chemically identical to the methane that comprises natural gas. Because methane, on a per ton basis, is approximately 21 times more potent a GHG than CO₂, when one unit of methane is combusted, it is like creating 21 units of GHG emissions reductions.
- However, when methane is combusted, it is converted into a few units of CO₂. The overall amount of GHG emissions reductions created from methane combustion is therefore reduced by the small amount of GHGs generated in the methane combustion process.
- The GHG emissions reductions that are used to offset the CO₂ generated by the methane combustion process are the environmental attributes (e.g. RECs) that are sold along with the electricity generated by the methane combustion process in order to make that electricity carbon-neutral and therefore eligible for PG&E's RPS.
- The GHG emissions reductions still remaining from the combustion of the methane are the environmental attributes (e.g. carbon offsets) that can be sold as a separate product.

10. Does a biogas contract with PG&E require that the biogas digester project also sell PG&E any additional greenhouse gas (GHG) emissions reductions (i.e. carbon offsets)?

- With regard to PG&E's biogas contracts, the biogas contracts that have been negotiated thus far give PG&E the option to buy any additional GHG emissions reductions (i.e. carbon offsets) from those projects that are not already associated with rendering the biogas sold to PG&E carbon-neutral and therefore eligible for PG&E's RPS.

11. What standards govern the accounting of greenhouse gas (GHG) emissions reductions (i.e. carbon offsets) from biogas digester projects?

- The [California Climate Actions Registry \(CCAR\)](#) created the [Livestock Project Reporting and Certification Protocols](#), which provide guidance to account for and report GHG emissions reductions associated with installing a biogas digester project for livestock operations, such as dairy cattle and swine farms. Project developers that install biogas capture and combustion technologies may use this protocol to register GHG emissions reductions with the Registry.
- The Livestock Project Protocols were approved at the CCAR's Board of Director's meeting on June 19, 2007 and are now available for use. Please contact [Derek Markolf](#) at the CCAR with questions or comments about them.
- PG&E is interested in purchasing GHG emissions reductions generated by biogas digester projects certified by the Livestock Project Protocol for PG&E's [ClimateSmart](#) program.
- You may also contact [Robert Parkhurst](#), ClimateSmart Manager.



Other Questions

12. What options are available for biogas projects at public wastewater facilities?

- At this time, PG&E cannot accept biogas from public wastewater facilities into its gas transmission system. The only option available for wastewater feedstock is for onsite power generation.

Links and Resources

[PG&E's website tariff book](#): This link provides access to all current gas and electric rate schedules, preliminary statements, rules, forms and advice letters.

[CEC Overall Program Guidebook](#): The *Overall Program Guidebook*, March 2007, document CEC-300-2007-002-CMF describes specific aspects of how the Energy Commission's Renewable Energy Program is administered and outlines terms and definitions. This Guidebook also addresses aspects related to California's Renewables Portfolio Standard (RPS), which has a goal of obtaining 20 percent of the state's electricity from renewable resources by the year 2010. These Guidelines assist interested applicants in applying for Renewable Energy Program funds and RPS Certification.

[Gas Rule 21 C](#): In order for the biogas to be injected into the natural gas transmission pipeline system, the biogas must meet PG&E's pipeline-quality gas standards as defined in PG&E's Gas Rule 21 C.

[California Climate Actions Registry](#): The California Climate Action Registry (CCAR or the Registry) was established by California statute as a non-profit voluntary registry for greenhouse gas (GHG) emissions. The purpose of the Registry is to help companies and organizations with operations in the state to establish GHG emissions baselines against which any future GHG emission reduction requirements may be applied.

[Livestock Project Reporting and Certification Protocols](#): Created by the CCAR, these protocols provide guidance to account for and report GHG emissions reductions associated with installing a biogas digester project for livestock operations, such as dairy cattle and swine farms. Project developers that install biogas capture and combustion technologies may use this protocol to register GHG emissions reductions with the CCAR.

[ClimateSmart](#): A PG&E program that enables customers to offset the GHG emissions associated with their energy use through a variety of California-based, third-party certified emissions reduction projects.