



Biomethane for Onsite Power Generation 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.

Net Energy Metering

2. Does PG&E offer net energy metering for biogas digester projects?

- Yes, PG&E allows customers with an eligible power generator to offset the cost of their electricity usage with electricity they export to the grid through [net energy metering](#). This is in addition to allowing their generator to directly serve concurrent load and avoid having to pay PG&E to serve that portion of the load. Net energy metering involves having a specially-programmed meter installed to separately measure both the electricity (kWh) the customer uses that is supplied by PG&E and the electricity (kWh) that the customer delivers into PG&E's grid.
- Specifically, for biogas digester projects, PG&E offers the [Net Energy Metering Service for Biogas Customer-Generators \(NEMBIO\) tariff](#). NEMBIO is an optional tariff (rate schedule) for customers with an eligible biogas digester powered generator operating in parallel with PG&E's grid to supply some or all of the customer's electricity needs.
- An eligible NEMBIO biogas digester electrical facility is defined as a generating facility that meets all applicable safety and performance standards in accordance with PG&E's Electric Rule 21 and produces electricity by a manure methane production project or as a byproduct of the anaerobic digestion of bio-solids and animal waste.

3. Under the NEMBIO tariff, how is the credit for the electricity produced by an eligible biogas digester powered generator calculated?

- Credit for the electricity delivered into PG&E's grid is calculated using the generation rate component of the energy charge of the Biogas Customer-Generator's Otherwise Applicable Schedule (OAS). This "Generation Rate Component" credit is generally in the range of \$0.06-\$0.08 per kWh.

4. Can NEMBIO credits be applied to other accounts on a dairy?

- Yes, dairy customers can apply their generation credit to other eligible accounts. PG&E will aggregate the load (usage) of all eligible metered Time-of-Use (TOU) accounts associated with dairy operations designated on the [interconnection agreement](#) to determine NEMBIO credits and/or charges annually. Eligible aggregated TOU metered service account(s) serving the dairy operation must be located on property adjacent, or contiguous, to the NEMBIO dairy facility including but not limited to accounts associated with the milking operations, milk refrigeration, or water pumping of the eligible dairy. All such metered service accounts must be under the same ownership and name as the account serving the NEMBIO account.
- Each year at the anniversary date of the interconnection, the customer's electricity delivery credits are trued up with its PG&E usage charges. Any excess credit is relinquished. Thus, customers should size their expected electricity production to the load (or for dairies, their aggregated load.) As a general rule of thumb, PG&E recommends interconnecting the biogas digester generating facility to the account with the greatest load.



5. Is the NEMBIO account aggregation provision available to customers that are not eligible dairies?
- No. The net metering account aggregation provision is only available to eligible dairies as outlined in the [NEMBIO tariff](#).
6. If a biogas digester project received Self-Generation Incentive Program (SGIP) funding, can the project still opt for NEMBIO with PG&E?
- Yes.
7. Do dairies served on NEMBIO retain the Renewable Energy Certificates (RECs) generated by their biogas digester powered generators?
- Yes, customer-generators such as dairies retain ownership of all RECs associated with their electricity generation.

Power Purchase Agreements for Electricity

8. I will be generating more energy in a year than I can use on-site. Is there an alternative to NEMBIO where PG&E will purchase the electricity generated by my biogas digester generator?
- [On February 14, 2008, the CPUC approved Resolution E-4137](#), which authorizes two new tariffs and standard contracts for purchase of Renewable Portfolio Standard (RPS)-eligible electricity. The tariffs and contracts are:
 - Schedule E-SRG and its related contract, the Small Renewable Generator Power Purchase Agreement (SRG PPA); and,
 - Schedule E-PWF and its related contract, the Standard Contract for Water and Wastewater Agencies Power Purchase Agreement (PWF PPA).
 - Both these proposed tariffs and standard form contracts are based on Section 399.20 of the Public Utilities (PU) Code, added by Assembly Bill 1969, which was passed and signed into law in 2007. The California Public Utilities Commission (CPUC) authorized such tariffs and standard form contracts in [Decision \(D.\) 07-07-027](#).
 - The proposed tariffs and standard form contracts were filed with the Commission by PG&E Advice Letter 3098-E and PG&E Advice Letter 3100-E on August 3, 2007. As draft CPUC Resolution E-4137 was approved during the CPUC's February 14 meeting, the tariffs and standard contracts are now effective.
 - Under the E-SRG and E-PWF tariffs, eligible renewable generators with an effective capacity up to 1.5 megawatts (MW) will be allowed to sell their energy deliveries to PG&E. The contract term options are 10, 15 and 20 years.
 - The price that PG&E will pay generators for their energy deliveries under these new tariffs is the [Market Price Referent \(MPR\)](#) that is in effect at the time the contracts are executed and specified for the actual date the facility commences commercial operation. This delivery price will remain constant for the term of the contract. The MPR was established for the Renewable Portfolio Standard (RPS) proceedings; it is a benchmark for conventional baseload power adopted by the CPUC and is recalculated and revised each year with the CPUC's oversight. The MPR is published in Schedules E-SRG and E-PWF, available in the Electric Tariffs section of PG&E's website tariff book at <http://www.pge.com/tariffs/>, and in [CPUC Resolution E-4137](#). The 2007 MPR values that were adopted by the CPUC can also be found in [CPUC Resolution E-4118](#), issued October 4, 2007. Note that these values will change once the CPUC adopts the 2008 MPR values.



- The MPR values are further adjusted based on time of delivery (time of day, day of week, and season) as specified in [CPUC Resolution E-4137](#). These adjustments reflect the fact that energy delivered during peak hours is more valuable than energy delivered during off-peak hours.
- All Green Attributes, including Renewable Energy Certificates (RECs), associated with the renewable electricity sold to PG&E under this tariff and standard contract belong entirely to PG&E.
- Eligible renewable generators can sell either all the electricity they produce, or only the excess generation (i.e. the generation net of the seller's own use). However, dairies cannot aggregate their load as they can under NEMBIO, as it is not a provision of the E-SRG or E-PWF tariffs.
- Similarly, PG&E will acquire only the RECs associated with the energy it purchases. The seller will retain the RECs for the electricity it uses itself and does not sell.
- Generators participating under this new tariff and standard contract are not eligible to participate in, or eligible for payment under other Self-Generation or Net Energy Metering programs.
- The tariffs are limited and available on a first-come, first-served basis. PG&E will close each tariff once the aggregated capacity of either all valid SRG PPAs or all valid PWF PPAs that PG&E has signed reaches 104.603 MW of rated generation capacity, respectively.
- Further information regarding the E-SRG or E-PWF tariffs is available on PG&E's website at: <http://www.pge.com/tariffs/>.

9. If a biogas digester project received Self-Generation Incentive Program (SGIP) funding, can the project also execute a Small Renewable Generator PPA with PG&E?

- No. Section 3.7. of [Decision \(D.\) 07-07-027](#), the CPUC Decision that adopted the SRG PPA, states that "participants may not simultaneously obtain benefits from both this tariff and the SGIP, net metering programs, California Solar Initiative, or other similar programs." The conclusion of Law 18 in that Decision states that "Authorized tariffs/standard contracts should make clear that participants may not simultaneously obtain benefits from both this tariff and the SGIP, net metering programs, California Solar Initiative, or other similar programs."

10. Can biogas digester projects opt for NEMBIO and also execute a Small Renewable Generator PPA with PG&E?

- No. In [Decision \(D.\) 07-07-027](#), the CPUC Decision that adopted the SRG PPA, Section 3.7. states that "participants may not simultaneously obtain benefits from both this tariff and the SGIP, net metering programs, California Solar Initiative, or other similar programs." The conclusion of Law 18 in that Decision states that "Authorized tariffs/standard contracts should make clear that participants may not simultaneously obtain benefits from both this tariff and the SGIP, net metering programs, California Solar Initiative, or other similar programs."
- However, under the SRG PPA, eligible renewable generators can sell either all the electricity they produce, or only the excess generation (i.e. the generation net of the seller's own use).

11. Why do I need to interconnect under Federal Energy Regulatory Commission (FERC) tariffs for the Small Renewable Generator PPA, when under NEMBIO it is under the CPUC's Rule 21?

- The interconnection process for AB 1969 Small Renewable Generators is Federal Energy Regulatory Commission (FERC) jurisdictional since the power is essentially purchased and sold for wholesale purposes. All wholesale power purchase agreements are under the FERC's jurisdiction, unless the FERC allows an exception – which they did for retail net metering arrangements and for qualifying facility (QF) power purchase agreements where the generator is selling power to its serving utility as a "designated" QF. E-PWF and E-SRG do



not fall into either of these exceptions to the FERC's jurisdiction. PG&E expects that most of the parties submitting interconnection applications will be connected to PG&E at distribution voltage level (limited to 1.5 MW per project) so they will send their interconnection application directly to PG&E versus the CAISO. This should help minimize the administration, costs, and in the end, not significantly differ from the NEMBIO interconnection process other than in the use of the FERC Agreements to implement the customer's decision.

Greenhouse Gas Emissions Reductions

12. 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.

13. Does the SRG PPA or the PWF PPA require that the biogas digester project also sell PG&E any additional greenhouse gas (GHG) emissions reductions (i.e. carbon offsets)?

- The SRG PPA and PWF PPA state that the Green Attributes associated with the Product (energy and capacity) transfer with the delivery of the Product. Both PPAs specify that Sellers provide and convey all Green Attributes from the Facility to PG&E as part of the Product (energy and capacity) delivered to PG&E for the duration of the Delivery Term. Green Attributes generated by the Facility that are not associated with the Product sold to PG&E may be sold separately, either to PG&E or another party.

Other Questions

14. As a result of the Qualifying Facility (QF) Avoided Cost proceeding, I understand there is a way to sell power. When could I take advantage of this program?

- In Decision 07-09-040, the CPUC directed the three investor-owned utilities to formulate standard contracts for the purchase of power from QFs. The IOUs have done so and, as of January 14, 2008, submitted them to the CPUC for approval. It is not presently known when



the CPUC will approve these contracts, but PG&E will be able to make its version of the standard contract available only after the CPUC approves it. For more details about these contracts and eligibility criteria see Decision 07-09-040.

15. Do I pay standby charges if I opt for NEMBIO or execute a Small Renewable Generator PPA?

a. If I opt for NEMBIO?

- Generally, no. To the extent that charges for transmission and distribution service are recovered through demand charges in any billing period, no standby charges will apply in that billing period. What this means is that for the months that the biogas generator satisfies all its own load requirements, and no demand was registered by the meter, the customer is liable for standby charges (reservation charges). Multiple Tariff Facilities interconnected under the terms of Special Condition 6 of Schedule NEMBIO will be subject to the requirements of Schedule S – Standby Service.

b. If I execute a Small Renewable Generator PPA?

- Generally, yes. Small Renewable Generators that require PG&E to provide back-up energy supply for some or all of the Generator station and/or site energy requirements will incur applicable charges under Schedule S. Generators requiring back-up energy supply for an extended period of time (at least one regular billing cycle) may request alternate billing on their otherwise-applicable rate schedule (refer to Schedule S, Special Condition 9.)

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

- [On February 14, 2008, the CPUC approved Resolution E-4137](#), which authorizes two new tariffs and standard contracts for purchase of Renewable Portfolio Standard (RPS)-eligible electricity. The tariffs and contracts are:
 - i. Schedule E-SRG and its related contract, the Small Renewable Generator Power Purchase Agreement (SRG PPA); and,
 - ii. Schedule E-PWF and its related contract, the Standard Contract for Water and Wastewater Agencies Power Purchase Agreement (PWF PPA).
- Both these proposed tariffs and standard form contracts are based on Section 399.20 of the Public Utilities (PU) Code, added by Assembly Bill 1969, which was passed and signed into law in 2007. The California Public Utilities Commission (CPUC) authorized such tariffs and standard form contracts in [Decision \(D.\) 07-07-027](#).
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- The price that PG&E will pay generators for their energy deliveries under these new tariffs is the [Market Price Referent \(MPR\)](#) that is in effect at the time the contracts are executed and specified for the actual date the facility commences commercial operation. This delivery price will remain constant for the term of the contract. The MPR was established for the Renewable Portfolio Standard (RPS) proceedings; it is a benchmark for conventional baseload power adopted by the CPUC and is recalculated and revised each year with the CPUC's oversight. The MPR is published in Schedules E-SRG and E-PWF, available in the Electric Tariffs section of PG&E's website tariff book at <http://www.pge.com/tariffs/>, and in [CPUC Resolution E-4137](#). The 2007 MPR values that were adopted by the CPUC can also be found in [CPUC Resolution E-4118](#), issued October 4, 2007. Note that these values will change once the CPUC adopts the 2008 MPR values.
- The MPR values are further adjusted based on time of delivery (time of day, day of week, and season) as specified in [CPUC Resolution E-4137](#). These adjustments reflect the fact that



energy delivered during peak hours is more valuable than energy delivered during off-peak hours.

- All Green Attributes, including Renewable Energy Certificates (RECs), associated with the renewable electricity sold to PG&E under this tariff and standard contract belong entirely to PG&E.
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- Similarly, PG&E will acquire only the RECs associated with the energy it purchases. The seller will retain the RECs for the electricity it uses itself and does not sell.
- Generators participating under this new tariff and standard contract are not eligible to participate in, or eligible for payment under other Self-Generation or Net Energy Metering programs.
- The tariffs are limited and available on a first-come, first-served basis. PG&E will close each tariff once the aggregated capacity of either all valid SRG PPAs or all valid PWF PPAs that PG&E has signed reaches 104.603 MW of rated generation capacity, respectively.
- Further information regarding the E-SRG or E-PWF tariffs is available on PG&E's website at: <http://www.pge.com/tariffs/>.

Links and Resources

[Self Generation Incentive Program \(SGIP\)](#): With the enactment of Senate Bill 2778 beginning January 1, 2008, PG&E is no longer able to offer incentives through the SGIP for renewable fuel internal combustion engines, gas turbines, or micro-turbines. Starting January 1, 2008, the SGIP will only offer incentives for wind and fuel cell projects, which includes fuel cells powered by renewable fuel such as biogas.

[Net energy metering](#): PG&E allows customers with an eligible power generator to offset the cost of their electricity usage with electricity they export to the grid through net energy metering. This is in addition to allowing their generator to directly serve concurrent load and avoid having to pay PG&E to serve that portion of the load. Net energy metering involves having a specially-programmed meter installed to separately measure both the electricity (kWh) the customer uses that is supplied by PG&E and the electricity (kWh) that the customer delivers into PG&E's grid. Customers that participate in net energy metering via a net energy metering tariff are eligible for credit on an annual basis for the electricity that they produce net of the electricity that they use from PG&E.

[Interconnection agreement for net energy metering of biogas digester generating facilities](#): This document specifies how a Biogas Customer-Generator interconnects and operates an Eligible Biogas Digester Electrical Generating Facility in parallel with PG&E's Distribution System to serve the electrical loads connected to the electric service account that PG&E uses to interconnect a Biogas Customer Generator's Generating Facility.

[Net Energy Metering Service for Biogas Customer-Generators \(NEMBIO\) tariff](#): NEMBIO is an optional tariff (rate schedule) for customers with an eligible biogas digester powered generator operating in parallel with PG&E's grid to supply some or all of the customer's electricity needs.

[CPUC Decision \(D.\) 07-07-027](#): This Decision authorized tariffs and standard contracts for water, wastewater and other customers to sell electricity generated from RPS-eligible renewable resources to electrical corporations. The proposed tariffs and standard contracts are based on Section 399.20 of the Public Utilities (PU) Code, added by Assembly Bill 1969, which was passed and signed into law in 2007.



[PG&E Advice Letter 3098-E](#): This advice letter filed the proposed [Schedule E-SRG](#) tariff and its related contract, the Small Renewable Generator Power Purchase Agreement (SRG PPA), with the Commission on August 3, 2007.

[PG&E Advice Letter 3100-E](#): This advice letter filed the proposed Schedule E-PWF tariff and its related contract, the Standard Contract for Water and Wastewater Agencies Power Purchase Agreement (PWF PPA), with the Commission on August 3, 2007.

[CPUC Resolution E-4137](#): This resolution, effective January 27, 2009, adopts the 2008 MPR values, which are as follows (Nominal - dollars/kWh):

Resource	Type		10-Year	15-Year	20-Year
2009	Baseload	MPR	0.10043	0.10537	0.11126
2010	Baseload	MPR	0.10175	0.10748	0.11390
2011	Baseload	MPR	0.10400	0.11046	0.11730
2012	Baseload	MPR	0.10698	0.11405	0.12126
2013	Baseload	MPR	0.10998	0.11776	0.12527
2014	Baseload	MPR	0.11278	0.12122	0.12897
2015	Baseload	MPR	0.11605	0.12503	0.13290
2016	Baseload	MPR	0.11971	0.12915	0.13706
2017	Baseload	MPR	0.12367	0.13352	0.14144
2018	Baseload	MPR	0.12802	0.13814	0.14603
2019	Baseload	MPR	0.13271	0.14298	0.15080
2020	Baseload	MPR	0.13775	0.14797	0.15578

[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.

[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.