

Biogas Energy: Progress and Potential

Judith Iklé
Program Manager
Procurement, Renewables and Climate Strategy
Energy Division
April 19, 2007

Presentation Overview

- Regulatory Framework
- Progress: Existing Programs
- Potential: What We Have Learned
- Where We Go From Here

Regulatory Framework

- CPUC regulates rules, rates, contracts and programs of California investor-owned utilities.
 - Rules include State interconnection
 - Rates include Net Metering and agricultural tariffs
 - Programs include Self-Generation Incentive Program
 - Contracts include power purchase agreements
 - Emissions Performance Standard for GHG per AB 1368.
- CPUC does not regulate municipal utilities or irrigation districts

Interconnection Rules

- Electric interconnection is by CPUC or FERC Interconnection Rules
- CPUC Interconnection by Rule 21 is for
 - Net Metered biogas
 - Any non-exporting biogas or other onsite generation
- Biogas < 20 MW that exports to the grid, such as with a Purchase Power Agreement, is interconnected under the FERC Small Generator Interconnection Procedure (“SGIP”)

Progress: Existing Programs

- California leads the nation in digester gas generation - 18 digester plants producing 49.3 MWh/year.
- Existing CPUC Programs:
 - **Biogas Net Energy Metering**
 - **Self-Generation Incentive Program**
 - **Power Purchase Agreement (PPA)**
 - **Renewables Portfolio Standard**
 - **Purchase Power Solicitations**

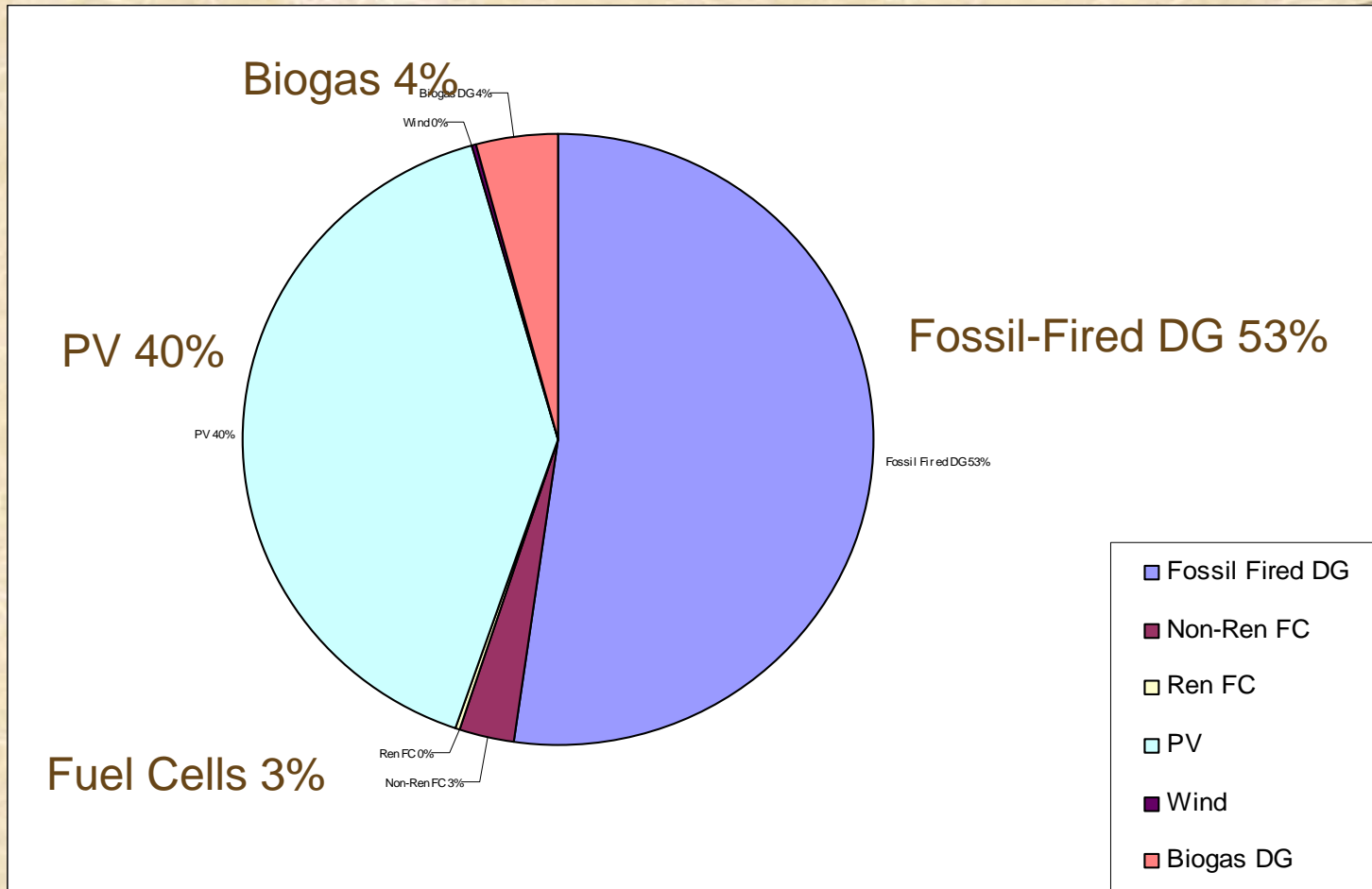
Net Energy Metering for Biogas

- Net Energy Metering may be helpful to customers whose renewable generating potential is comparable to their annual consumption
- Biogas-fired generators and fuel cells are credited for net monthly power production at the generation portion of their rate.
- NEM customers are exempt from standby charges.
- Biogas generators up to 1 MW are eligible.

Self-Generation Incentive Program

- SGIP incentives paid through 2006 support 14,835 kW of renewable-fueled internal combustion engines, micro-turbines & fuel cells.
- “Renewable-fueled” includes digester gas, landfill gas and gas from wastewater treatment.
- New biogas-fueled generators are eligible until December 31, 2007 to be awarded SGIP funding that will continue until January 1, 2012
- SGIP participants may export or be net metered

Self-Generation Incentive Program Completed Projects – December 2006



Power Purchase Agreement (PPA) through Application

- Renewable energy can be sold to a utility at a negotiated price with a PPA.
- PPAs may be helpful to dairies with biogas generating potential that is larger than annual onsite consumption
- The Commission approved a PPA with PG&E for a 150 kW dairy biogas generator on March 15, 2007 (D.07-03-042).

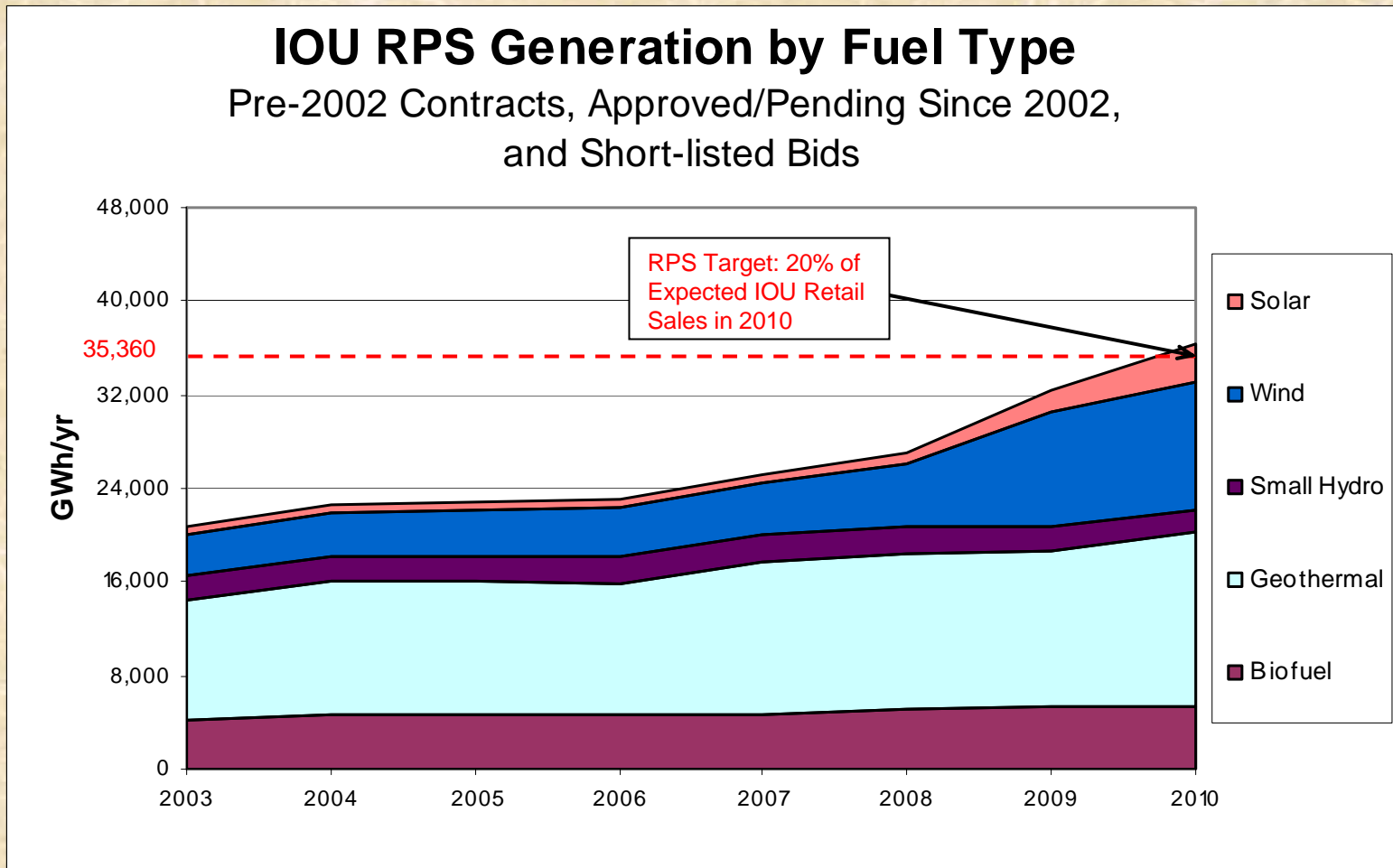
Purchase Power Solicitations

- Renewables Portfolio Standard (RPS) requires utilities to obtain 20% of their electricity from renewable resources by 2010.
- Bioenergy Action Plan goal is for 20% of that (or 4% of the total) to be from biogas and biomass.
- Utilities conduct annual solicitations to meet their RPS obligations. Biogas generators can bid in these solicitations.
- RPS PPAs have standard terms and conditions.
- Biogas generators can also bid in utility all-source solicitations.

RPS Biofuel Contracts

- Since 2002, the CPUC has approved:
 - 14 biomass projects (227 MW)
 - 10 biogas projects (50 MW)
 - 3 additional biogas contracts (7 MW) and 1 additional biomass contract (40 MW) that were later canceled
- 72% of the biogas capacity and 55% of the biomass capacity is from new or re-started facilities
- 20 MW of new biogas facilities have come online; two re-started biomass facilities are scheduled to come online this fall
- 4 new biomass projects (82 MW) are delayed due to difficulties with fuel supply and/or site control

In 2007, biofuels are expected to provide 19% of CA's RPS-eligible energy. In 2010, they are expected to provide 15%.



Potential: What We Have Learned

- The potential is significant for digester gas to help meet State's renewable energy and greenhouse gas goals. Approximately 150 MW of capacity representing 1,203,000 MWh per year of electric generation.
- 7 digester plants are planned for 30.9 MWh/year but they are by customers of munis or irrigation districts.
- Biogas has favorable characteristics in terms of availability & distributed nature for California's energy system
- Concerns have been reported about interconnection delays and a need for more opportunities to sell exported power

Proposed Legislation

Bill No.	Author	Description	CPUC Recommendation
SB 463	Negrete-McLeod	Permits utilities to buy annual NEM surplus	n/a
AB 1064	Lieber	Permits SGIP incentives for biogas to continue after 2008	Support
AB 1223	Arambula	Permits NEM agricultural solar and wind customers to aggregate load	Support with technical amendments
AB 1428	Galgiani	Expanding existing biogas NEM pilot program with agricultural waste NEM pilot	n/a
AB 1532	Parra	New NEM pilot for biogas and biomass to total of 50MW	Support with technical amendments

Where We Go From Here

- Continue working with utilities to streamline interconnection
- A renewables standard offer or purchase power tariff (PPT) would have a pre-set price and would simplify the sale of biogas energy to utilities. The PUC is investigating a PPT in RPS Proceeding.
- Changes to net metering would require legislation.
- Other options are possible such as sale of biogas to a generator

Renewables Purchase Power Tariff

- AB 1969 requires utilities to purchase renewable energy from public water and wastewater agencies via a standard tariff.
- Under a standard tariff, the energy will be purchased at the “Market Price Referent” set by the Commission
- On March 12, 2007, the Commission asked utilities to propose a standard tariff by April 11 and to comment on whether to make the standard tariff available to other renewable generators. Reply comments are due May 2. (R.06-05-027)
- The standard tariff may be helpful to dairies with generating potential that is larger than annual onsite consumption

Further Options for Biogas

PG&E has submitted PPAs for a demonstration project to buy clean and dry biogas from digester developers and burn it in an existing PG&E power plant.

- Developer installs anaerobic digesters at dairies.
- Developer installs scrubbing, drying and compression equipment to process biogas gathered from dairies
- PG&E pays a negotiated price per MMBTU injected into its gas transmission system
- PG&E Advice Letters AL 2979-E and 2996-E. No protests have been received. PUC may rule Summer 2007.

Further Options for Biogas

- A biogas developer could pay the utility to transport clean and dry biogas to a generator or customer generator. Would require development of a gas distribution transportation tariff.
- A biogas developer could build a generator at the site where biogas is gathered and processed. An alternative to processing biogas for sale to a utility or to generators.
- Utility could finance biogas generation.

DG Biogas
Contact Information

Jay Morse
415 703 2575
jxm@cpuc.ca.gov