

**Presentation to**

**6th Annual Forum of the California Biomass  
Collaborative**

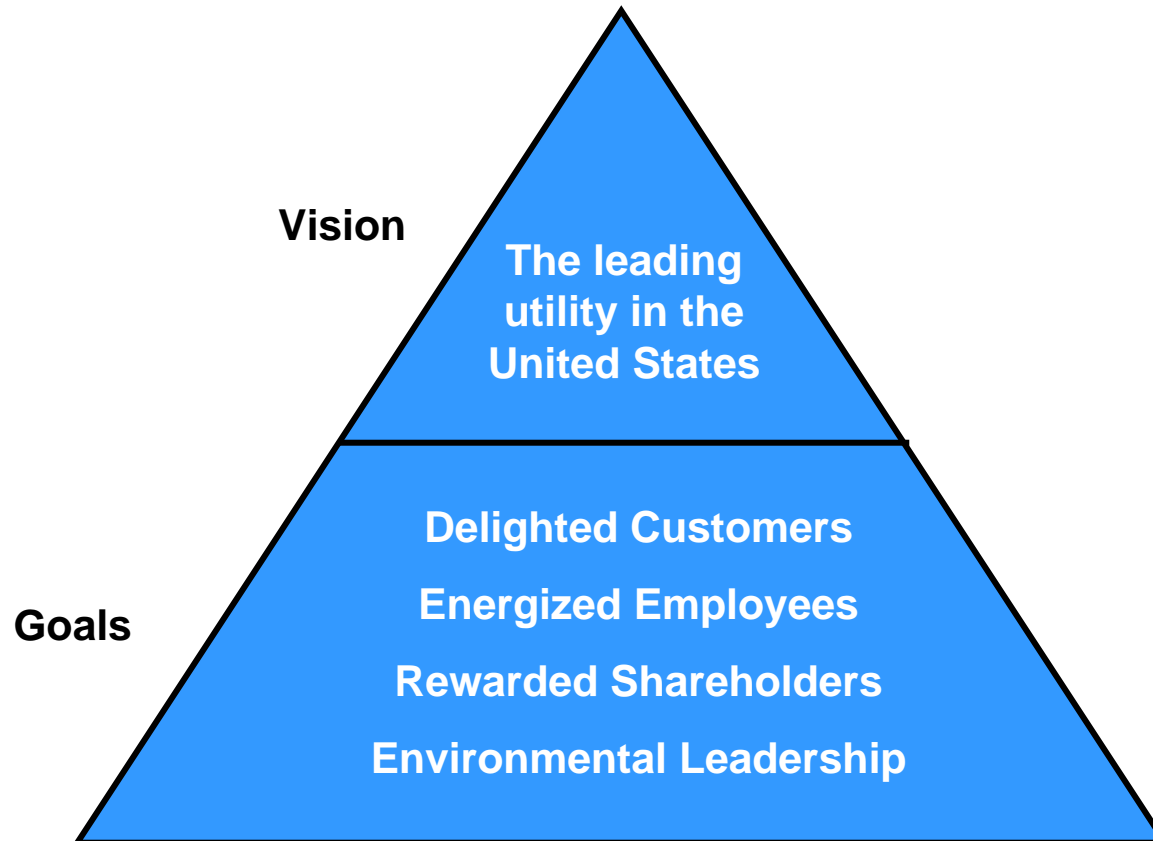
**May 12, 2009**

**by**

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Generation Interconnection Services  
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## PG&E is positioning for the future

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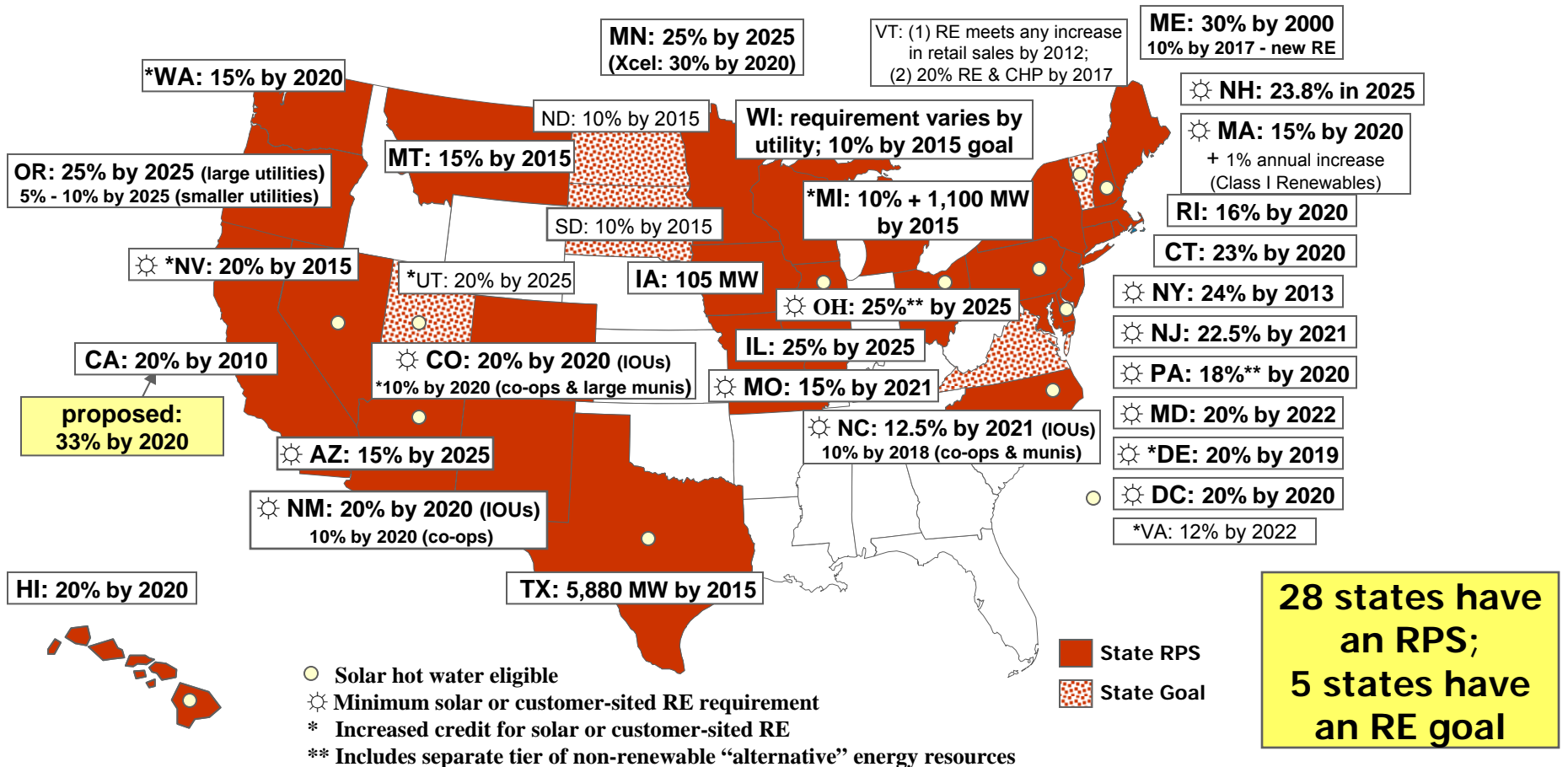


## What Makes California an Environmental Leader?

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- Long-standing State policies to lower carbon footprint.
- 30+ years of energy efficiency programs facilitated by “decoupling” of rates.
- California Energy Action Plan preferred loading order:
  - Customer Energy Efficiency
  - Demand Response/Dynamic Pricing
  - **Renewables**
  - **Distributed Generation**
  - Clean gas-fired plants

## California Has the Most Aggressive Renewable Portfolio Standard



DSIRE: [www.dsireusa.org](http://www.dsireusa.org)

March 2009

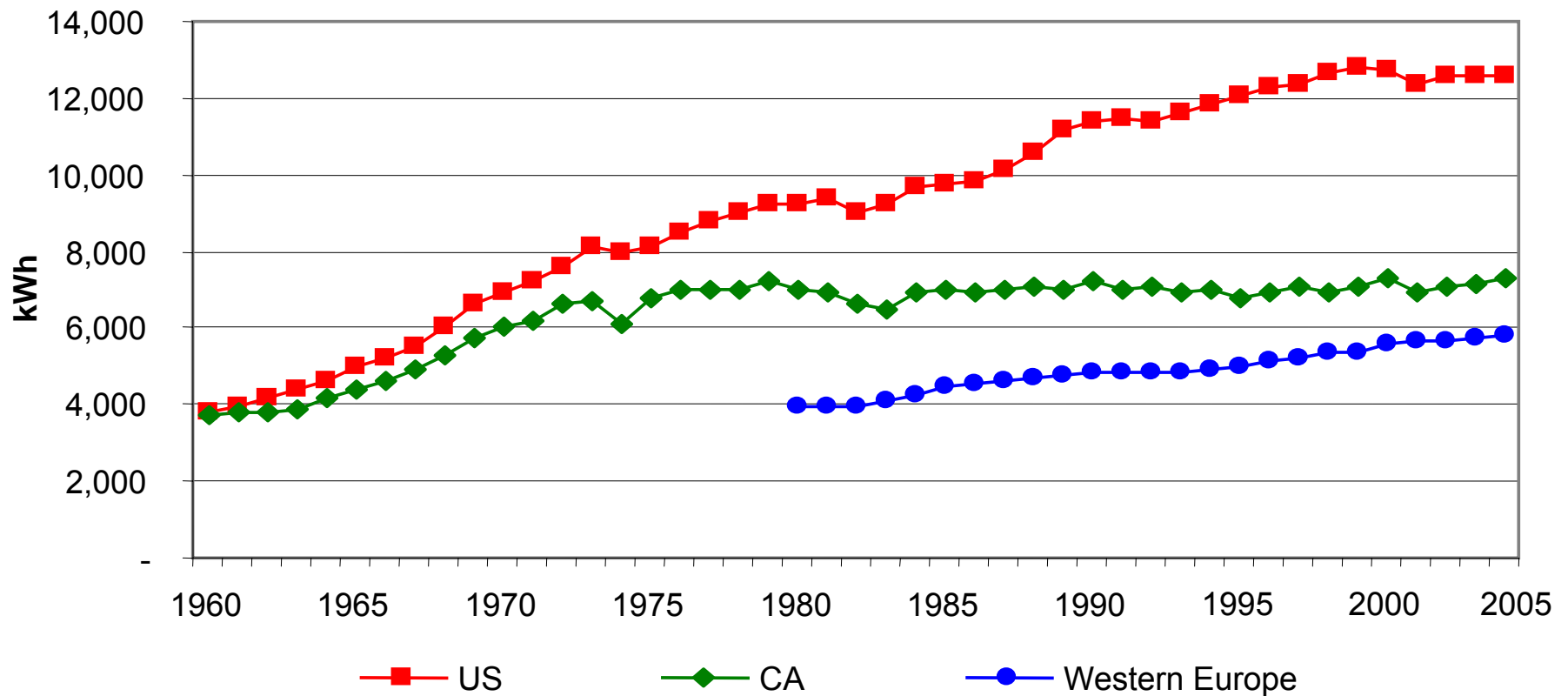
## State of California Renewable Portfolio Standard (RPS) Program

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- PG&E has a long history of developing, generating, and purchasing clean, renewable sources of power. The utility currently supplies 31 percent of its customer load from carbon neutral resources—18 percent from its large hydroelectric facilities and 13 percent from small hydro and other renewable resources that qualify under California’s RPS Program—one of the highest volumes of any utility in the United States. In total, roughly half of PG&E’s retail (residential) load is served from generating resources that have no carbon dioxide emissions that contribute to global warming.
- Since July 2007, PG&E has signed renewable energy contracts totaling 1,024 MW, including 57 MW of new geothermal energy with Calpine Corporation, 553 MW of solar thermal with Solel-MSP-1, 85 MW of wind power from PPM Energy, two MW of wave energy with Finavera Renewables, 177 MW of solar thermal with Ausra Inc., and 150 MW of wind energy with enXco.

## History of Energy Efficiency Key to California Success

Over the past 30 years, California per capita energy use has remained relatively flat compared to the 50% increase in U.S. per capita energy use.



Source: California Energy Commission

# Advancing Renewable Energy Technologies

## Traditional



**Biomass**



**Small Hydro**



**Geothermal**



**Wind**

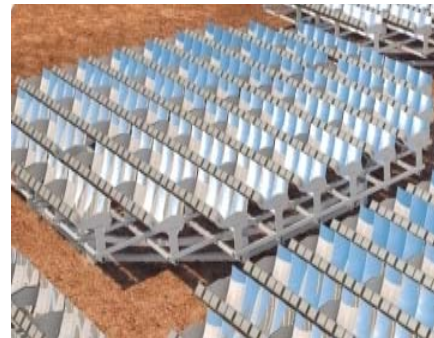
## Emerging



**BioGas**



**Concentrating Solar Thermal**

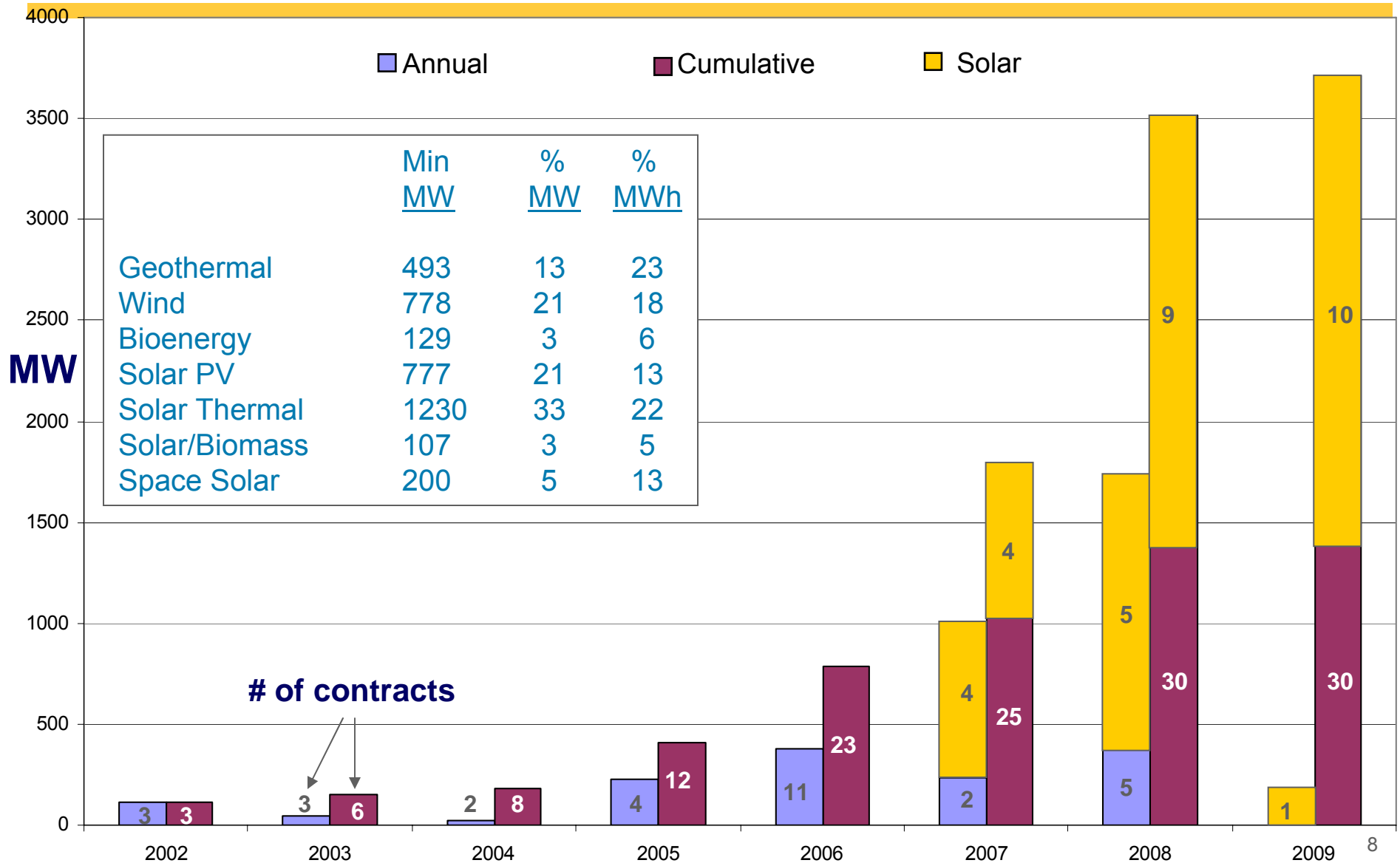


**Concentrating Photovoltaic**



**Wave Power**

## Aggressive Contracting for Renewables





## Success as seen through the Customer's eye's

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bi·o·mass — (bī'ō-mās')

**n.**

Plant material, vegetation, or agricultural waste used as a fuel or energy source.

*As defined by the Customer:*

A biomass generator that is clean, supports public policy, is good for the local environment and the planet.

## Customer Perceived Barriers to Use of Biomass for Energy

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- **California Public Utility Code:**
  - ❖ **2827 – Governs CPUC jurisdictional interconnection (Net Energy Metering)**
  - ❖ **399 – Governs FERC jurisdictional interconnection (Feed-In-Tariff)**
- **Regulatory:**
  - ❖ **CPUC, CEPA, etc.**
  - ❖ **NEM-Bio tariff cap and eligibility (50 MW statewide cap)**
  - ❖ **Feed-In-Tariff, FERC Small Gen Interconnect Procedures (104.6 MW cap)**
  - ❖ **Retail vs. Generation NEM credit**
- **Utility:**
  - ❖ **Interconnection policies, fees, cost associated w/ non-certified equipment.**
  - ❖ **Departing Load Charges may apply.**
  - ❖ **Demand Charges**
- **Renewable Market Factors:**
  - ❖ **Proliferation of Solar PV**
  - ❖ **Wind**

## Small Generation Qualifying Facility Power Purchase Agreement

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- PG&E has acted on the interests of smaller renewable generators (i.e. Bio-digesters, small hydro & solar) and other eligible renewable resources wishing to install generation with the intention of export power to the grid.
- PG&E has developed a Feed-In-Tariff (FIT) Power Purchase Agreement (PPA) for smaller renewable generators (Max. Nameplate Capacity = 1.5 MW).
- FIT Eligible Renewable Energy Resource – An electric generating facility as defined in Public Utilities Code Section 399.12 and California Public Resources Code Section 25741. Generating facility (GF) requires CEC certification. GF disqualified from FIT PPA if previously received CSI, SGIP, NEM, or other similar incentive funding sources.

## CPUC approved Net Energy Metering (NEM) Bio-Mass Tariff

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**NEMBIO:** For customer's with generators fueled from an eligible biogas digester. This program is limited to generation capacity of 1 MW or less. The CA Legislature has authorized only 3 larger NEMBIO projects with a 10 MW limitation to be implemented in any of the IOU's.

A generating facility used to produce electricity by either a manure methane production project or as a byproduct of the anaerobic digestion of bio-solids and animal waste (P.U.Code Section 2827.9).

## What is Departing Load?

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Customer generation departing load is the portion of a Pacific Gas and Electric Company electric customer's load for which the customer, on or after December 20, 1995:

- Discontinues or reduces its purchases of bundled or direct access electricity service from PG&E.
- Purchases or consumes electricity supplied and delivered by customer generation to replace the PG&E or direct access purchases.
- Remains physically located at the same location within PG&E's service area as it existed on April 3, 2003.

## The Departing Load Tariff

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- Schedule E-DCG is PG&E's CPUC approved Tariff that describes Departing Load
- There are 8 “Nonbypassable” charges that might apply to load displaced by a distributed generator, depending on the customer's situation:
  - Department of Water Resources (DWR) Bond Charge
  - Department of Water Resources (DWR) Power Charge
  - Competition Transition Charge (CTC)
  - Nuclear Decommissioning (ND) Charge
  - Regulatory Asset (RA) Charge
  - Public Purpose Program (PPP) Charge
  - Trust Transfer Amount (TTA) Charge
  - Energy Cost Recovery Amount (ECRA)

**Note: DG customer may be exempted from some departing load charges by meeting the Best Available Control Technology Standard (BACT) and by meeting the efficiency standards in P.U. Code Sec. 218.5**

## Why the Trend to Photovoltaics?

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- **Proven, commercially ready technology**
- **Costs are decreasing**
- **Many Northern California locations suitable for PV deployment**
- **Modular / rapid deployment capabilities**
- **Project size facilitates expedited interconnection**
- **Project size avoids transmission upgrades**
- **Dispersed implementation reduces environmental impacts**
- **More peak coincident than other renewables**

**For more information, go to [pge.com](http://pge.com)**

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**Generate Your Own Power:**

<http://www.pge.com/b2b/newgenerator/>

**Net Energy Metering:**

<http://www.pge.com/b2b/newgenerator/netenergymetering/index.shtml>

**Standard Contracts for Purchase (Feed-In-Tariff):**

<http://www.pge.com/b2b/energysupply/wholesaleelectricssolicitation/standardcontractsforpurchase/>