

# Webinar: PG&E and Solar

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# Webinar Goal

Review PG&E programs and resources for solar technology, for projects on both:

- Customer side of the meter
- Utility side of the meter



# Agenda

1. Overview of PG&E solar programs
2. Details and applicability of each
3. Where to go for more information

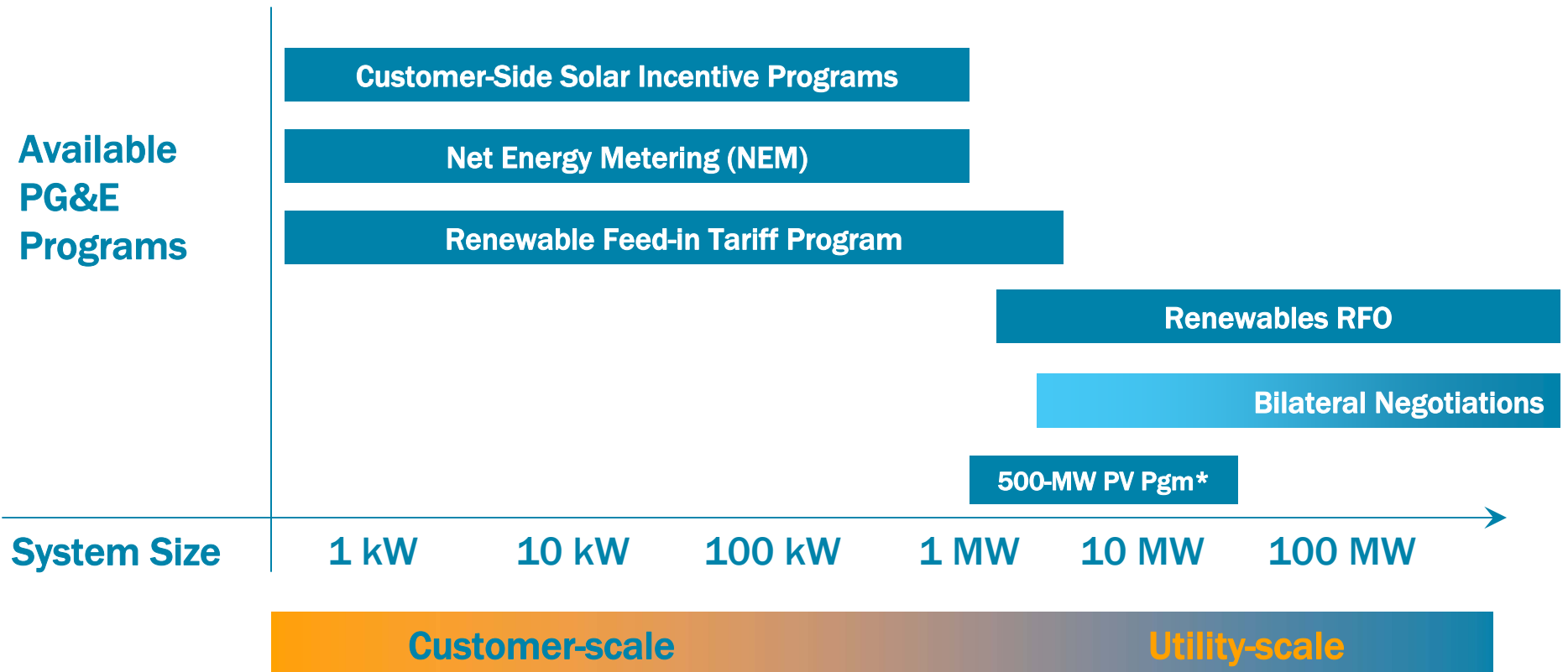


# PG&E Solar Programs: Overview



# PG&E Solar Programs

By system size

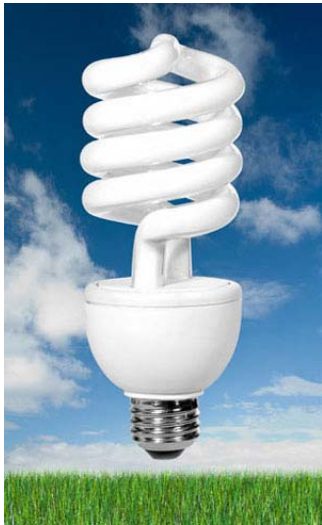


\* If approved by the CPUC



# PG&E Solar Programs: Customer-Side

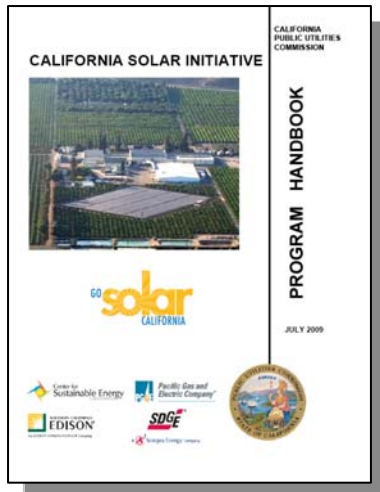
## Energy Efficiency



- Energy efficiency is typically the most **cost-effective** way to reduce your energy bill
- Energy efficiency also **reduces the size of the solar system you need**
  - Can save **\$1,000's** of dollars on the cost of the system
- An **energy efficiency audit** is required to be eligible for some customer-side incentive programs



## California Solar Initiative (CSI)



- Provides incentives for solar system installations to customers of PG&E, SCE, and SDG&E
- \$2B incentive program with a goal of 1,750 MW of installed PV capacity
- Current CSI program statistics for projects in PG&E service territory\*:
  - Completed projects: 13,682
  - PV capacity installed: 146,043 kW
  - Incentives paid: \$311,566,655
- Eligibility requirements
  - System must be grid-connected
  - System must be > 1 KW and < 5 MW\*\*
  - Designed to offset customer load
  - For installations on existing / new construction facilities

\* As of 11/11/09. Data source: PG&E CSI Program Statistics website: [www.pge.com/myhome/saveenergymoney/solarenergy/csi/csiprogramstatistics/index.shtml](http://www.pge.com/myhome/saveenergymoney/solarenergy/csi/csiprogramstatistics/index.shtml)

\*\* System can be up to 5 MW, but incentive is only provided for up to 1 MW.



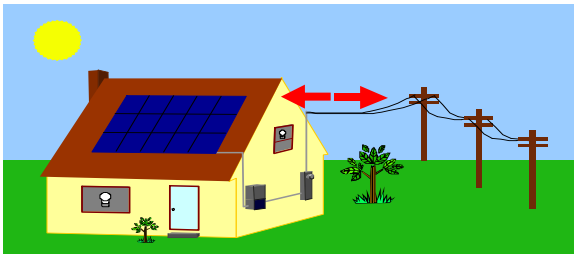
# California Solar Initiative (CSI) (cont'd)

- Incentive types and amounts

	<b>Expected Performance-Based Buydown (EPBB)</b>	<b>Performance-Based Incentive (PBI)</b>
<b>Payment basis</b>	PV system size and design (expected production)	PV system actual energy output
<b>System size</b>	< 50 kW	Any
<b>Payment frequency</b>	One time, up-front	Monthly for 5 years
<b>Incentive amount*</b>	\$1.10 - \$1.85 / kW	\$0.15 - \$0.26 / kWh

\* Values as of 10/9/09 for PG&E territory. Values vary by sector and CSI MW step. Visit [www.csi-trigger.com](http://www.csi-trigger.com) for up-to-date incentive rates.

# Net Energy Metering (NEM)

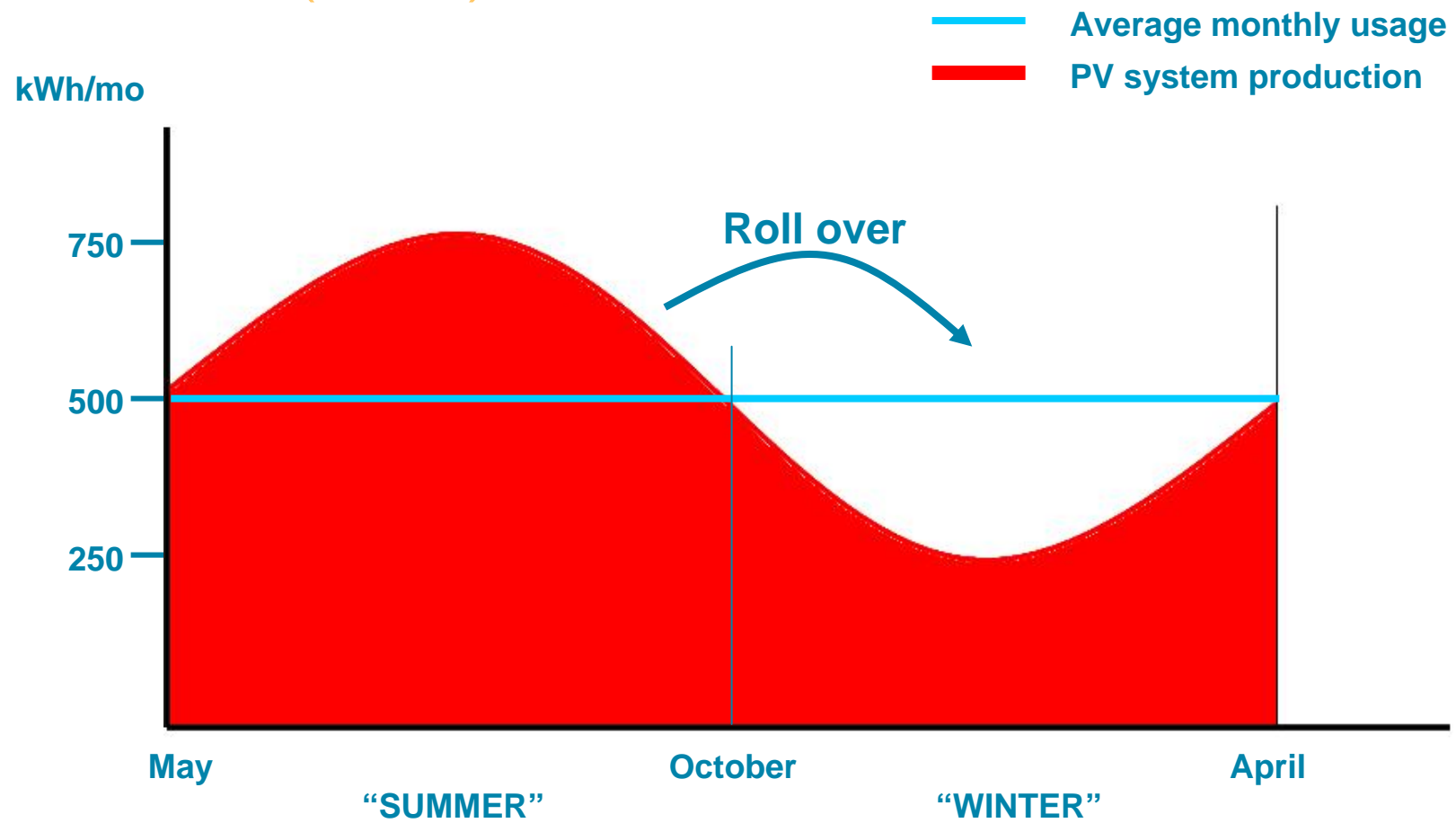


Source: Andy Black

- Complements the CSI program
- Permits customer to offset the cost of electrical usage by when exporting electricity to the grid
  - Credit at retail rate
  - Grid acts as “battery”
- Credits can be carried over month-to-month
  - Annual true-up
  - CSI program requires that system be sized to facility load (or less)
  - AB 920 requires that excess generation (kWh) be compensated (details pending)

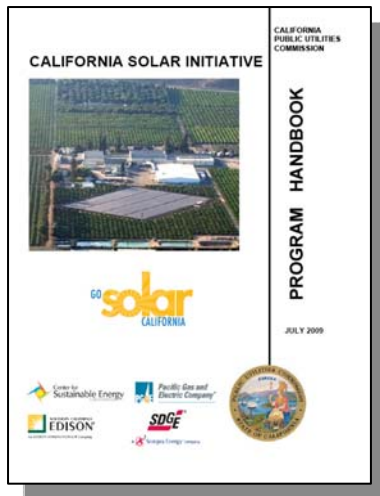


# Net Energy Metering (NEM) (cont'd)





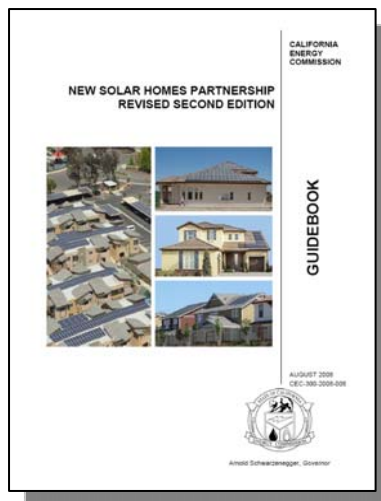
## CSI Low-Income Programs



- **Single-Family Affordable Housing (SASH)**
  - \$108M solar incentive program for qualifying affordable single-family housing
- **Multi-Family Affordable Housing (MASH)**
  - \$108M solar incentive program for qualifying affordable multi-family housing
  - PV production can be credited to tenants' electric accounts



## New Solar Homes Partnership



- Incentives for solar systems installed on new residential buildings
- Statewide goal of 400 MW
- Building must exceed Title 24 energy efficiency standards
- Incentive rate from \$2.50/W - \$3.60/W
  - Depends on efficiency of building
  - Declines over time

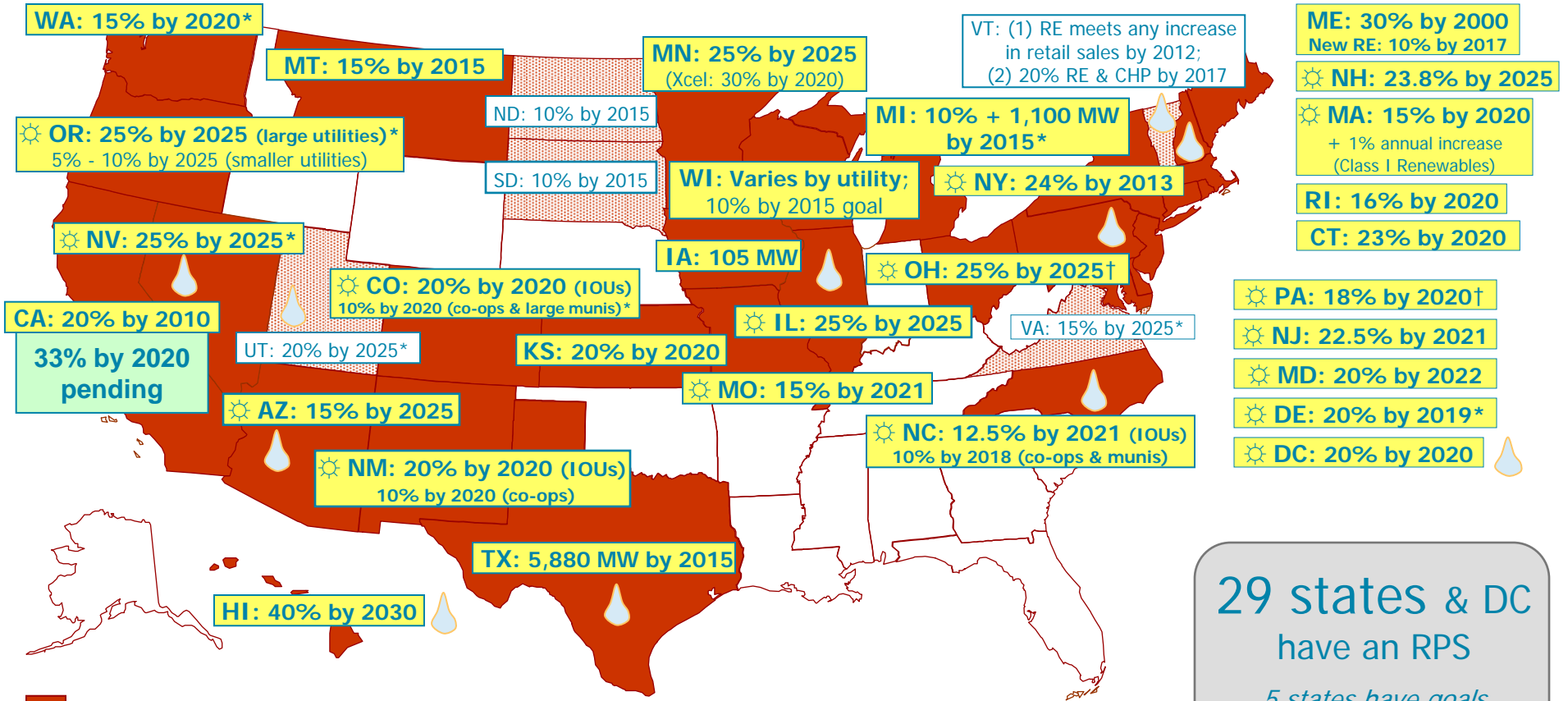


# PG&E Solar Programs: Utility-Side









# Renewable Portfolio Standards

[www.dsireusa.org](http://www.dsireusa.org) / September 2009



29 states & DC have an RPS  
5 states have goals

-  State renewable portfolio standard
-  State renewable portfolio goal
-  Solar water heating eligible
-  Minimum solar or customer-sited requirement
-  Extra credit for solar or customer-sited renewables
-  Includes separate tier of non-renewable alternative resources



# Annual Renewables Request for Offers (RFO)



- Request for Offers held since 2002
  - All California-eligible renewable resources as determined by CEC
  - Target volumes—1-2% of bundled sales (800-1600 GWh)
  - Products requested
    - As-Available
    - Baseload
    - Dispatchable
  - Delivery term
    - Seller may bid delivery term of one month up to 20 years or more
  - Project location & delivery point
    - Delivery points in CAISO control area
    - Delivery points outside CAISO control area; Seller to provide price for delivery to CAISO
  - Pricing structure



## Bilateral Negotiations



- PG&E will also accept bilateral offers between RFOs, but there needs to be a valid reason for not being part of the RFO
- Will be compared to most recent RFO offers
- May require additional time for regulatory approvals



# Diverse Portfolio of Contracts

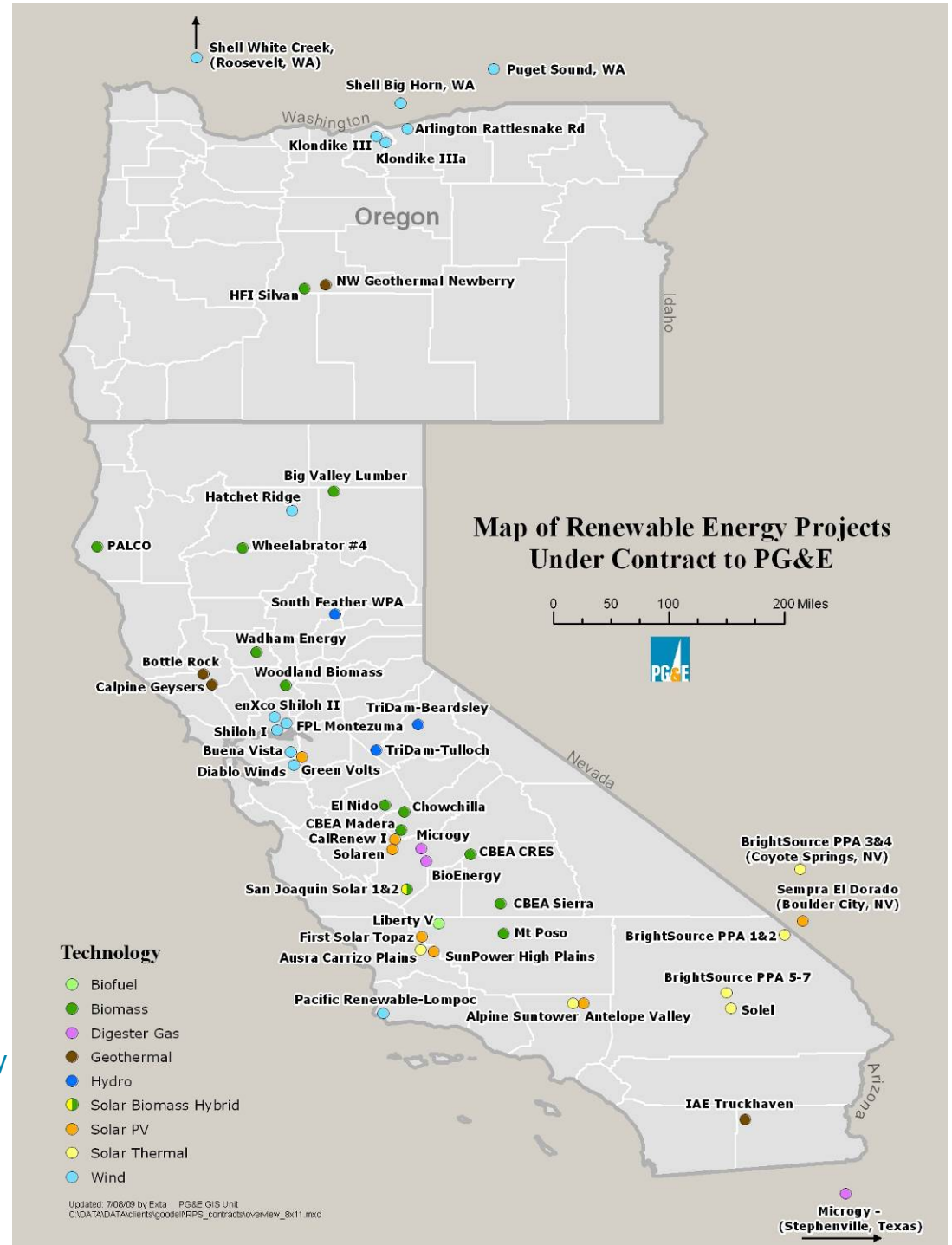
More than 20% under contract

PG&E has signed 69 RPS\* contracts totaling more than 5,000 MW since RPS became law in 2002

	#	MWs
Geothermal	9	587
Wind	17	1,423
Bioenergy	19	212
Solar PV	8	1,255
Solar Thermal	10	2,132
Solar/Biomass	1	107
Small Hydro	4	23
Wave	1	2
<b>Total</b>	<b>69</b>	<b>5,741</b>

\*Does not include small renewable generator PPAs

\*\*Map only includes terminated PPAs to the extent they contributed to RPS target

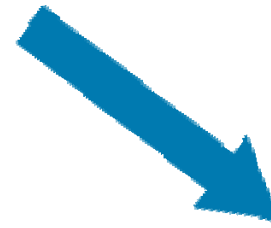




# PG&E 500-MW PV Program

## Integrated Utility/IPP Solar Program

(Filed on 2/24/09; Anticipating CPUC decision in Q1 2010)



### 250 MW UOG

- 100% Utility Owned
- Typically 1-20 MW in size
- Estimated weighted average cost cap of ~\$4,275 / kW DC
- PG&E to hold competitive solicitations for equipment and services
- 2MW Pilot in 2009, 25MW in 2010

### 250 MW PPA

- 100% PPA
- 1-20 MW in size
- Proposed price for 2010 RFO of \$246/mwh, subject to Time-of-Day delivery adjustment
- PG&E to hold RFOs annually
- 1<sup>st</sup> RFO in 2010



## Renewables Feed-in Tariff

- Offers payment for net generation by renewable resources
- Renewable generators up to 1.5 MW have been eligible
- SB 32 recently signed lifting the size to 3 MW (details pending)
- CPUC staff is developing a version with a higher limit
- Standard form contract
- Price (\$/kWh) has been based on the Market Price Referent (MPR), adjusted by a time of day (TOD) factor
  - 2009 MPR for 20-yr contract: \$0.11/kWh
  - TOD factor varies from 0.66 to 2.04
- SB 32 requires CPUC to develop price considering environmental benefits (details pending)
- CPUC staff's proposal may include market-based price



# Renewable Energy Credits (RECs)



# Renewable Energy Credits (RECs)

- RECs are associated with the “green” component of electricity from renewable sources
- RECs are presently traded in voluntary markets
- REC owner depends on PG&E program

PG&E Program	REC Owner
CSI	Customer
MASH/SASH	Customer
NSHP	Customer
Renewable FiT	Customer / PG&E (exports)
Renewables RFO	PG&E
500-MW PV Program	PG&E



# PG&E Solar Programs: Information Resources



# Information Resources

Program	Resource	Link	Notes
CSI	PG&E CSI website	<a href="http://www.pge.com/csi">www.pge.com/csi</a>	PG&E CSI resource
	GoSolarCalifornia website	<a href="http://www.gosolarcalifornia.org">www.gosolarcalifornia.org</a>	State-wide CSI resource
	CSI Handbook	<a href="http://www.gosolarcalifornia.ca.gov/documents/CSI_HANDBOOK.PDF">www.gosolarcalifornia.ca.gov/documents/CSI_HANDBOOK.PDF</a>	Official CSI program rules
	Trigger Tracker	<a href="http://www.csi-trigger.com">www.csi-trigger.com</a>	Displays current incentive rates
NEM	PG&E NEM website	<a href="http://www.pge.com/gen">www.pge.com/gen</a>	
SASH	SASH website	<a href="http://www.gridalternatives.org/sash">www.gridalternatives.org/sash</a>	Managed by GRID Alternatives
MASH	MASH website	<a href="http://www.pge.com/lowincomesola">www.pge.com/lowincomesola</a>	Managed by PG&E
Renewables FIT	PG&E Renewable FiT website	<a href="http://www.pge.com/b2b/energysupply/wholesaleelectricissolicitation/standardcontractforpurchase/index.shtml">www.pge.com/b2b/energysupply/wholesaleelectricissolicitation/standardcontractforpurchase/index.shtml</a>	See the FAQ document available at the website
Annual Renewables RFO	PG&E Annual Renewables RFO website	<a href="http://www.pge.com/renewablesRFO">www.pge.com/renewablesRFO</a>	RFO documents and other information
500-MW PV	CPUC Proceeding	<a href="http://docs.cpuc.ca.gov/published/proceedings/A0902019.htm">docs.cpuc.ca.gov/published/proceedings/A0902019.htm</a>	For tracking regulatory process

<b>PG&amp;E Classes</b>	PG&E Classes	<a href="http://www.pge.com/myhome/saveenergymoney/solarenergy/solareducation">www.pge.com/myhome/saveenergymoney/solarenergy/solareducation</a>	Free classes available on a multitude of solar and solar-related topics
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# Thank you!

## Your thoughts?

- Suggestions for future content?
- Opinions on content and delivery?
- Topics to emphasize or de-emphasize?
- How can we provide a better service?



**Feedback is welcomed!**

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