

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**

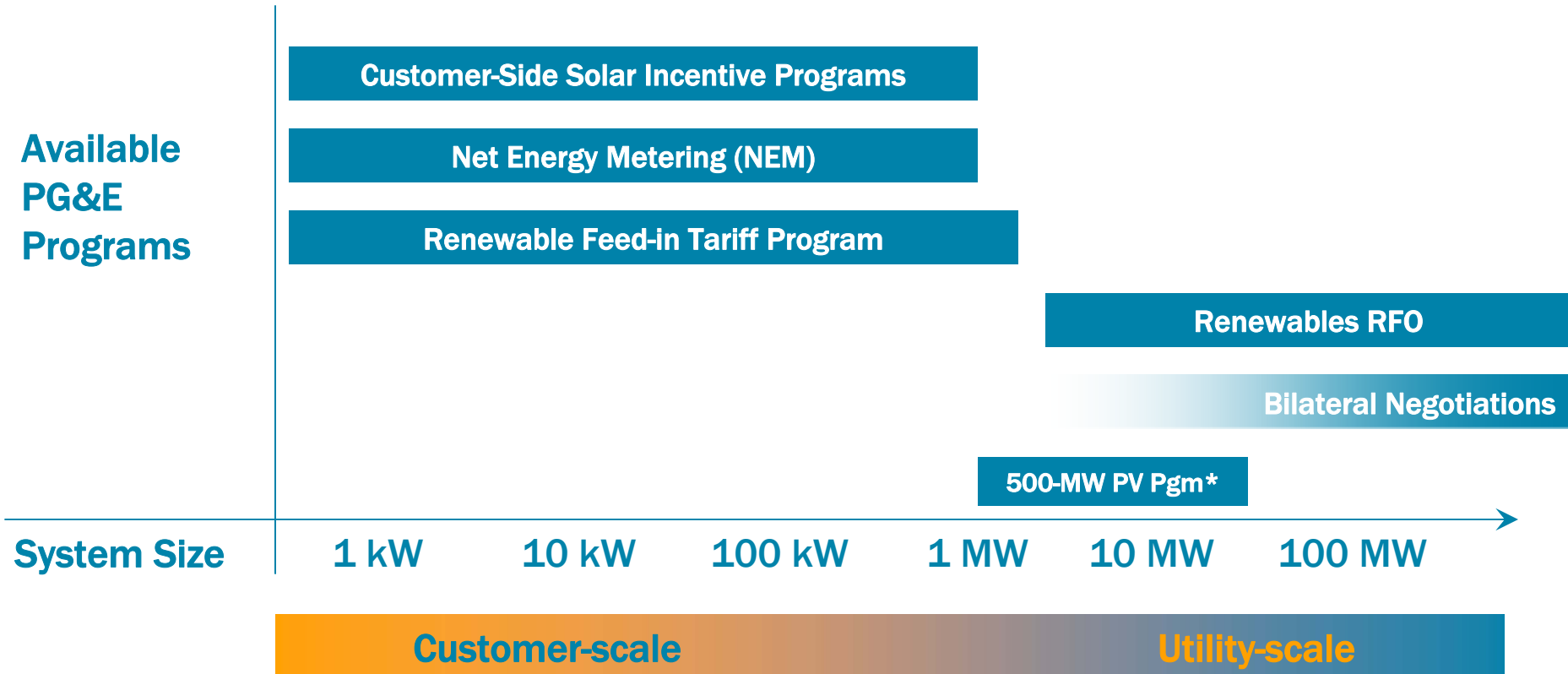


PG&E Solar Programs: Overview



PG&E Solar Programs

By system size



* If approved by the CPUC



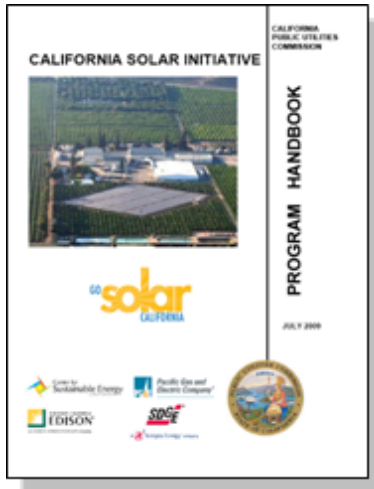
PG&E Solar Programs: Customer-Side

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: **12,958**
 - PV capacity installed: **138,962 kW**
 - Incentives paid: **\$300,342,809**
- Eligibility requirements
 - System must be grid-connected
 - System must be > 1 KW and < 1 MW
 - Designed to offset customer load
 - For installations on existing / new construction facilities

* As of 10/7/09. Data source: PG&E CSI Program Statistics website: www.pge.com/myhome/saveenergymoney/solarenergy/csi/csiprogramstatistics/index.shtml



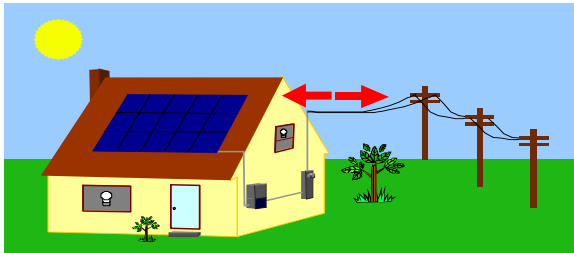
California Solar Initiative (CSI) (cont'd)

- Incentive types and amounts

	Expected Performance-Based Buydown (EPBB)	Performance-Based Incentive (PBI)
Payment basis	PV system size and design (expected production)	PV system actual energy output
System size	< 50 kW	Any
Payment frequency	One time, up-front	Monthly for 5 years
Incentive amount*	\$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 for up-to-date incentive rates.

Net Energy Metering (NEM)

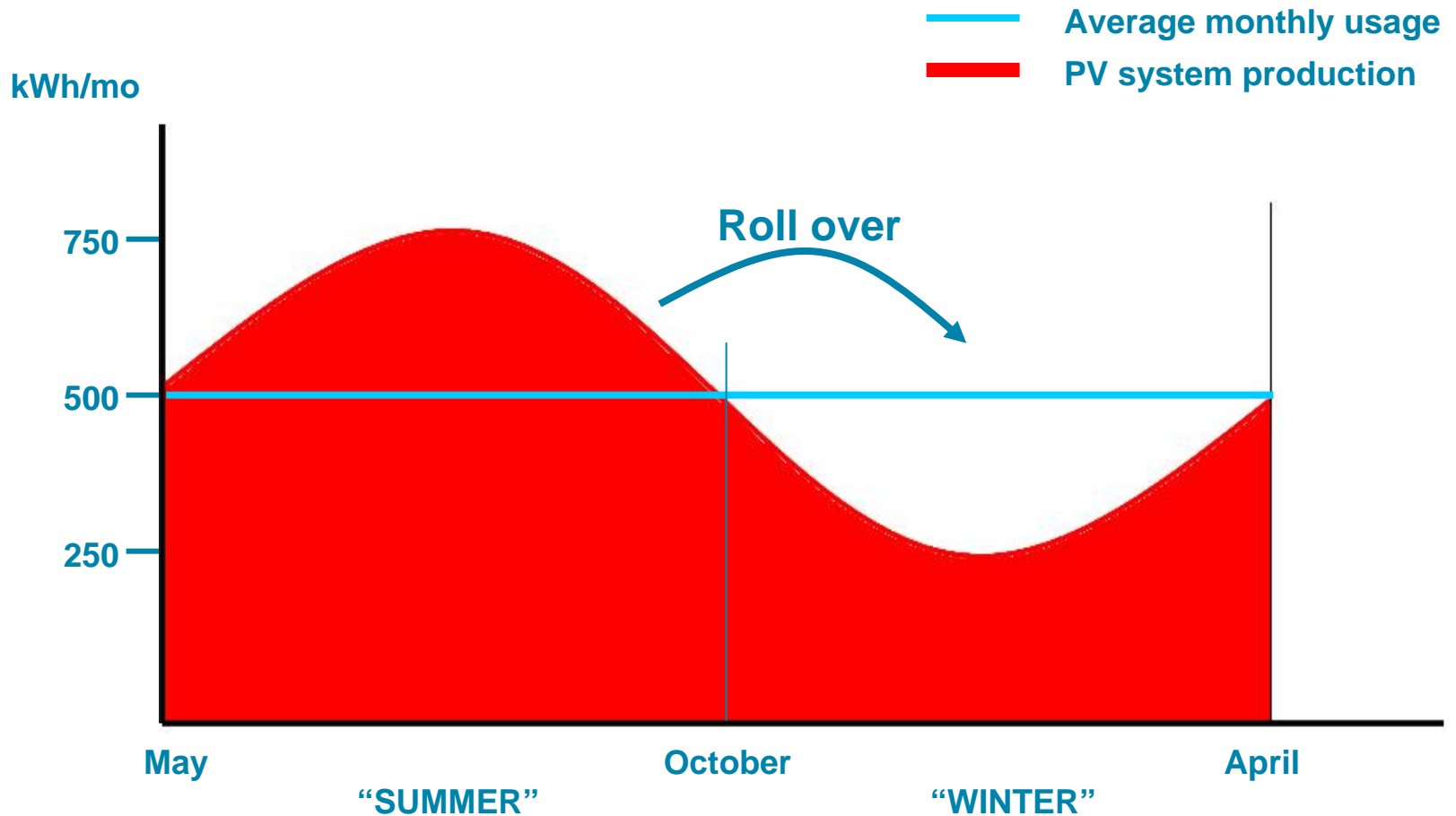


Source: Andy Black

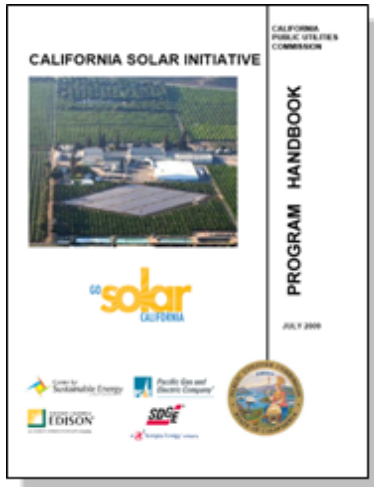
- Complements the CSI program
- Permits customer to offset the cost of electrical usage by when exporting electricity to the grid
 - Credit at retail rate
 - Grid acts as “battery”
- Credits can be carried over month-to-month
 - Annual true-up
 - CSI program requires that system be sized to facility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



Net Energy Metering (NEM) (cont'd)

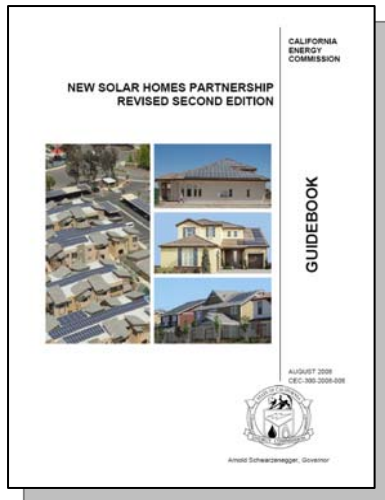


CSI Low-Income Programs



- **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
 - Declines over time

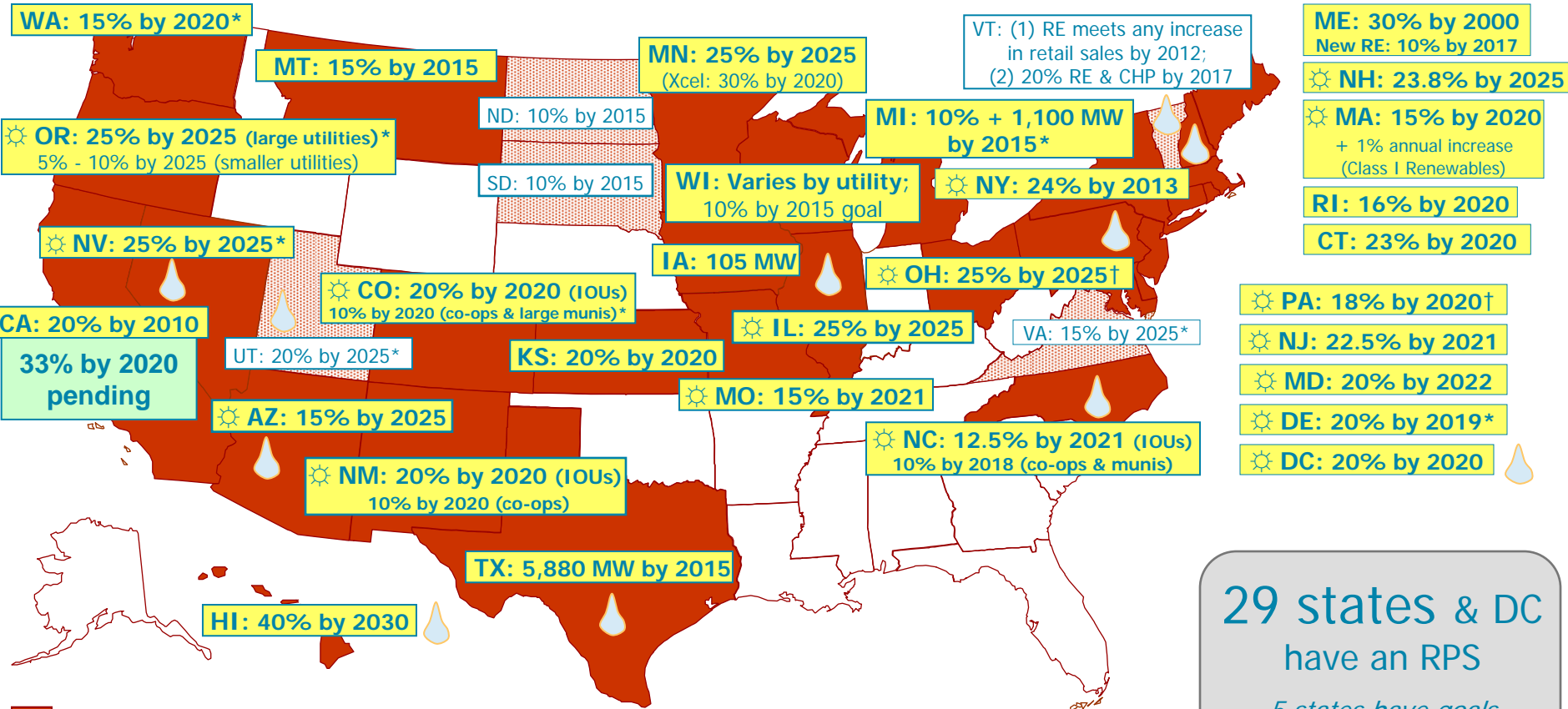


PG&E Solar Programs: Utility-Side



Renewable Portfolio Standards

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

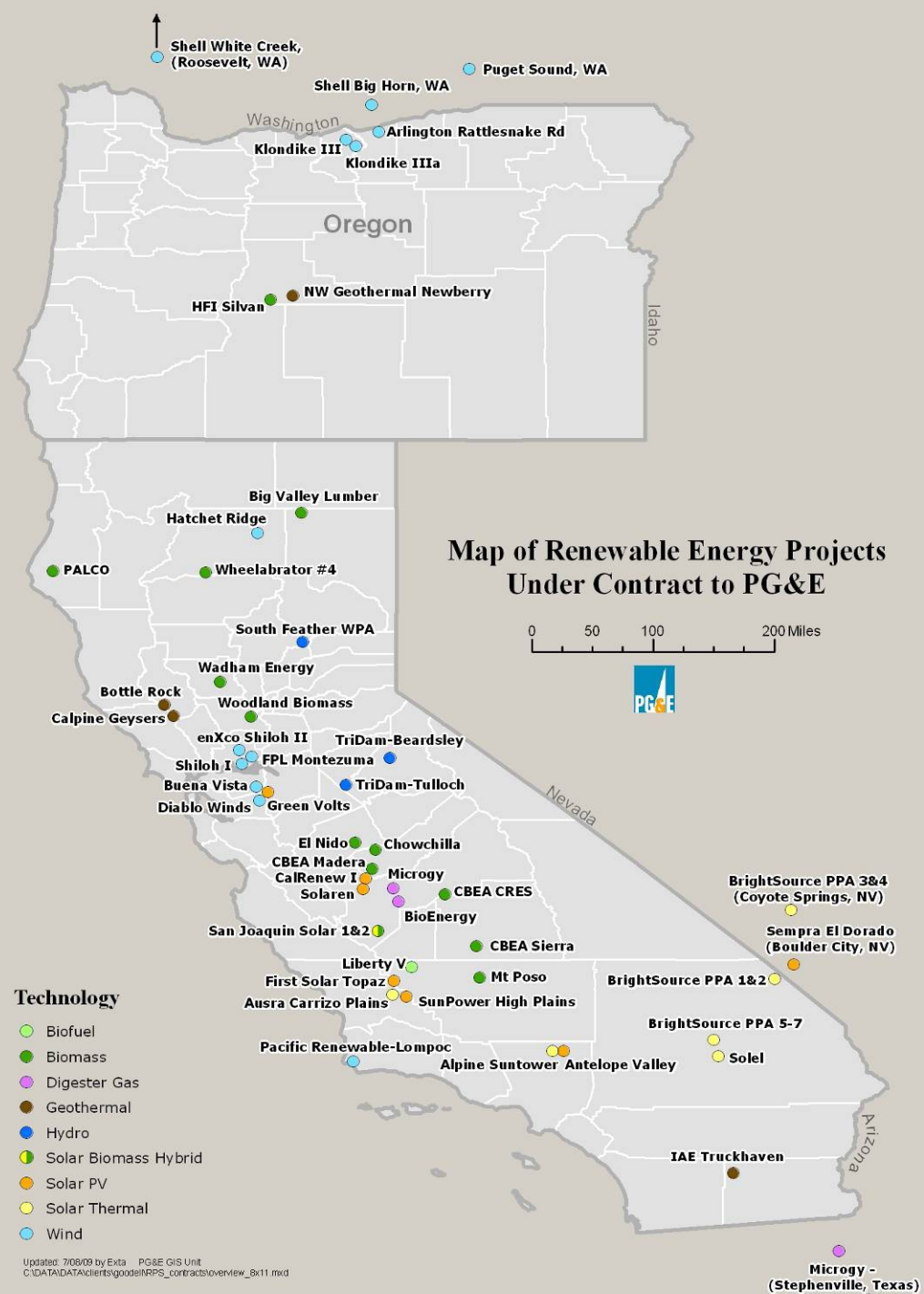
More than 20% under contract

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
Total	69	5,741

*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
- 1st 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	www.pge.com/csi	PG&E CSI resource
	GoSolarCalifornia website	www.gosolarcalifornia.org	State-wide CSI resource
	CSI Handbook	www.gosolarcalifornia.ca.gov/documents/CSI_HANDBOOK.PDF	Official CSI program rules
	Trigger Tracker	www.csi-trigger.com	Displays current incentive rates
NEM	PG&E NEM website	www.pge.com/gen	
SASH	SASH website	www.gridalternatives.org/sash	Managed by GRID Alternatives
MASH	MASH website	www.pge.com/lowincomesola	Managed by PG&E
Renewables FIT	PG&E Renewable FiT website	www.pge.com/b2b/energysupply/wholesaleelectricissolicitation/standardcontractforpurchase/index.shtml	See the FAQ document available at the website
Annual Renewables RFO	PG&E Annual Renewables RFO website	www.pge.com/renewablesRFO	RFO documents and other information
500-MW PV	CPUC Proceeding	docs.cpuc.ca.gov/published/proceedings/A0902019.htm	For tracking regulatory process

PG&E Classes	PG&E Classes	www.pge.com/myhome/saveenergymoney/solarenergy/solareducation	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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