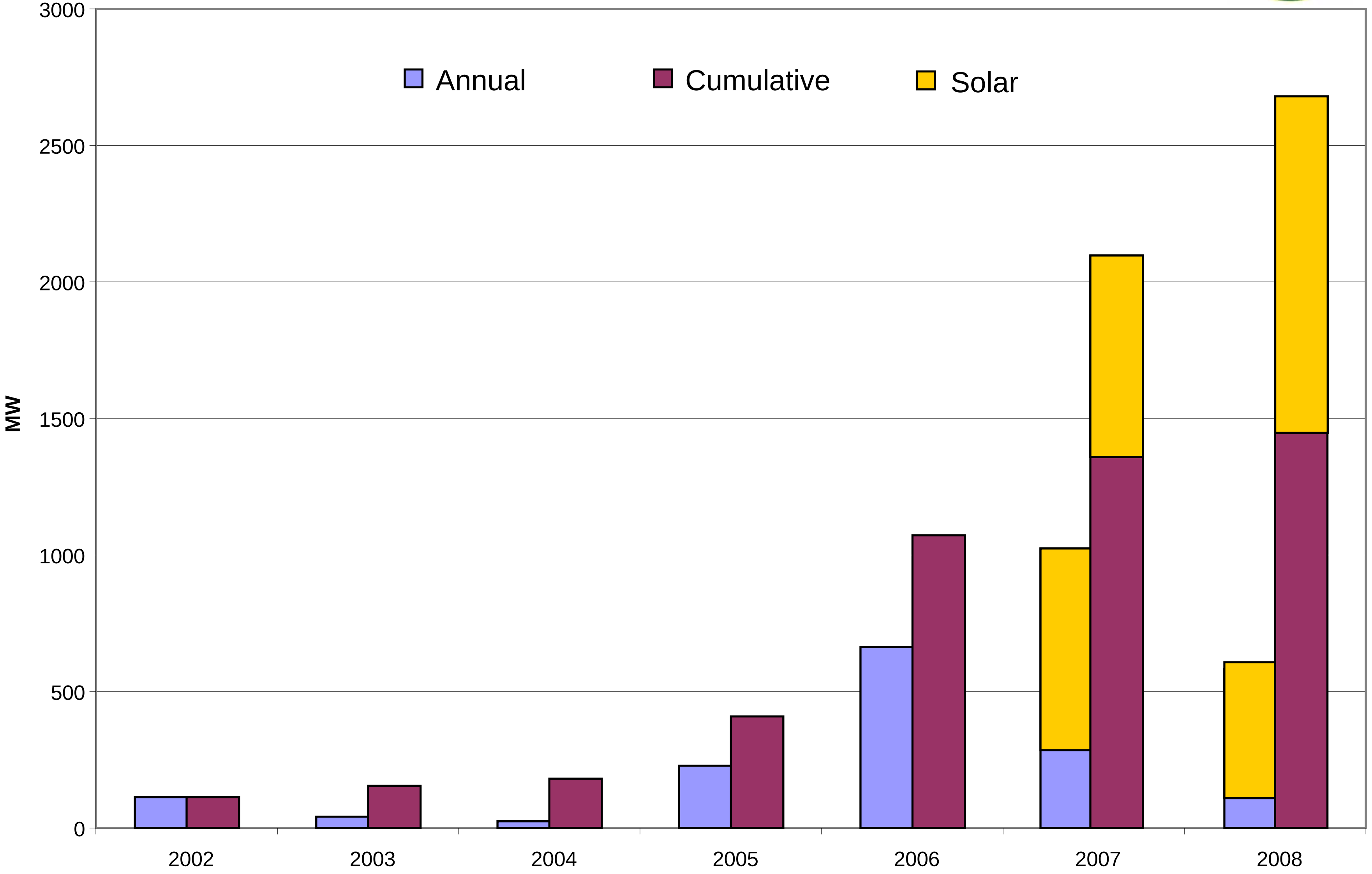
Solar Energy Technologies Program Annual Review

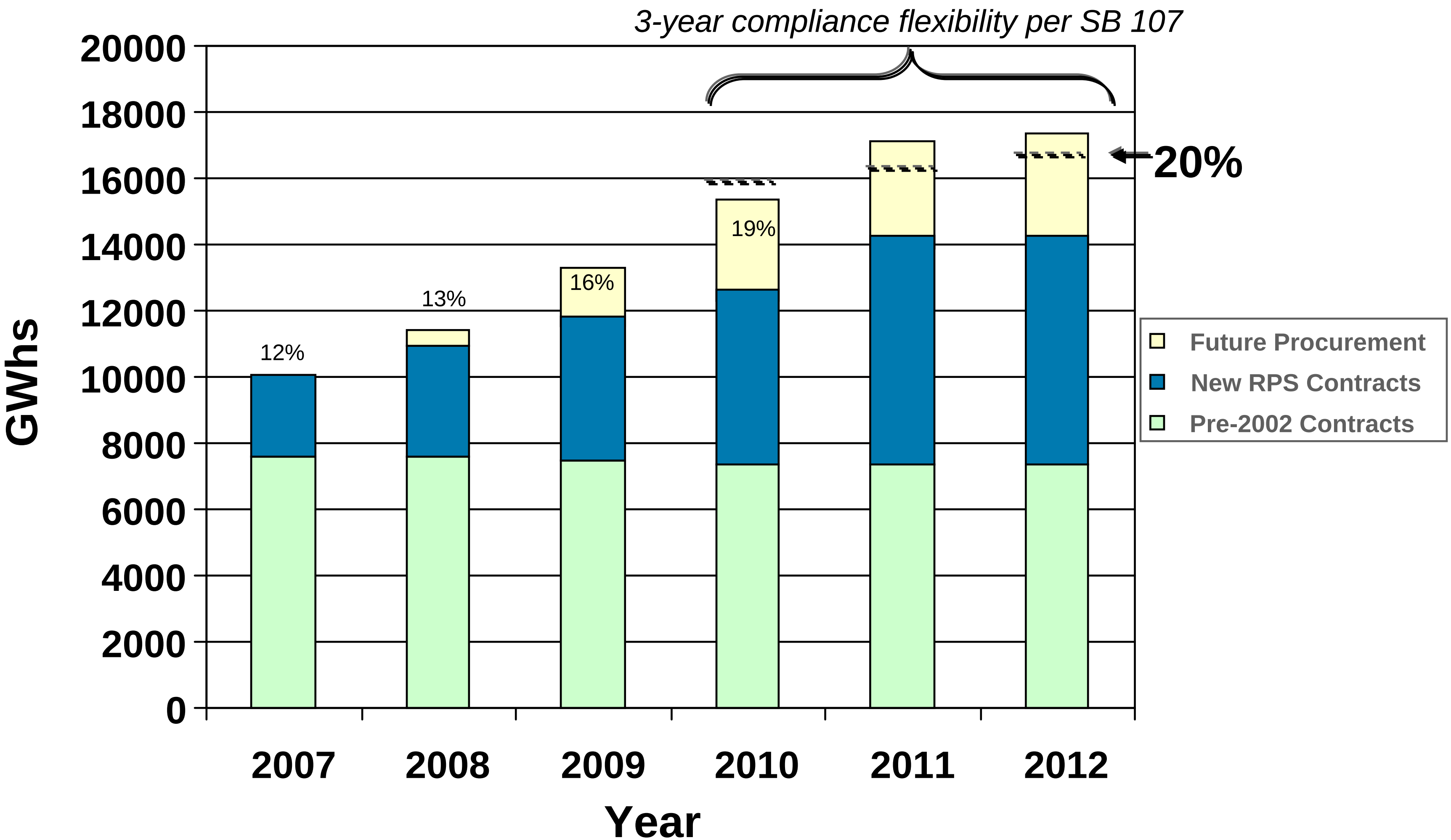
Session: Solar Market Transformation
Company: Pacific Gas and Electric Company

Hal LaFlash
hol1@pge.com

Aggressive Contracting for Renewables



PG&E Expects to Meet the 20% RPS Goal Under Flexible Compliance Rules

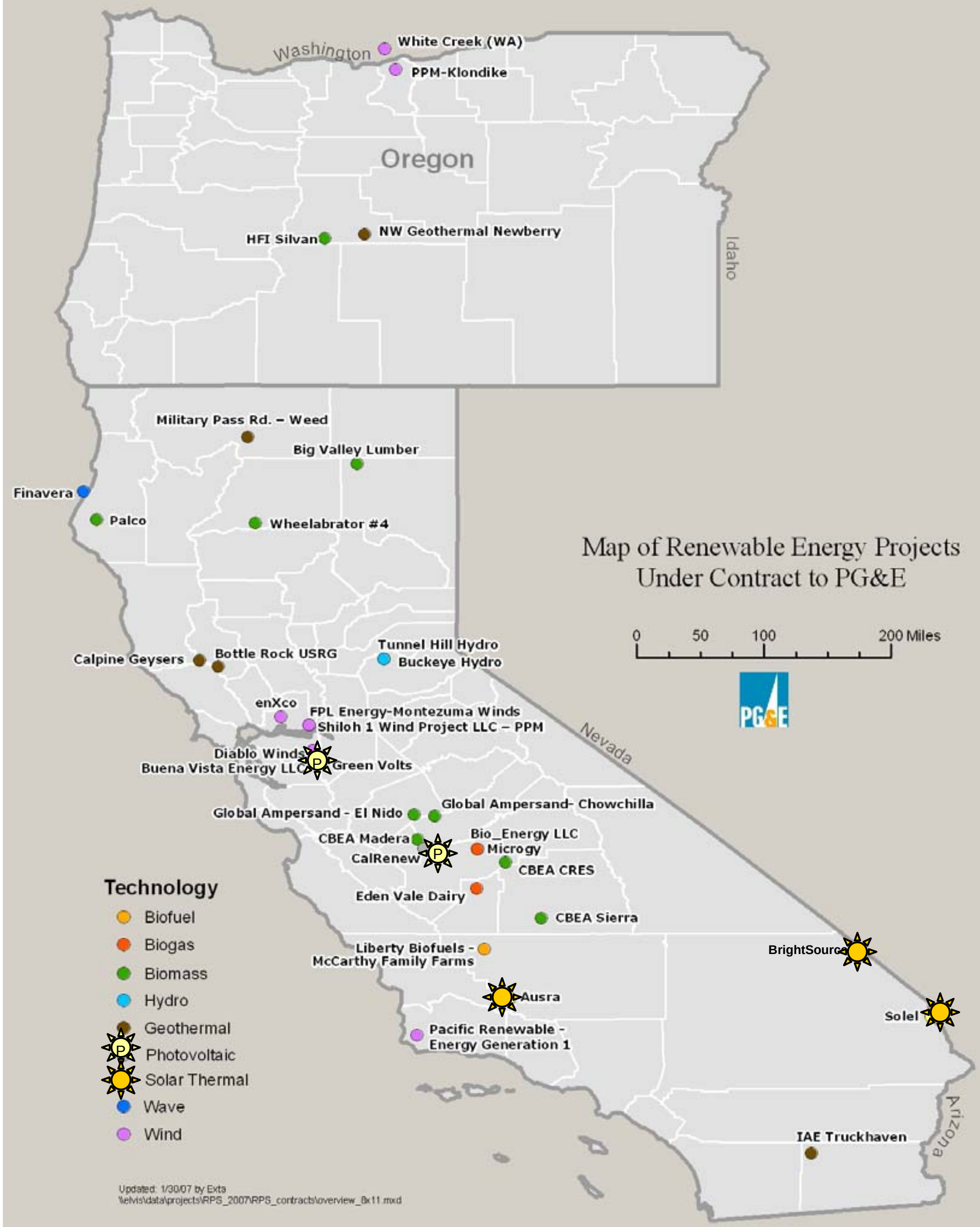


- 2008 to 2012 estimates are based on forecasted construction schedules and additional contracted resources
- Assumes that all contracts perform

RPS Contracts: 2002-2008

	#	MW
Geothermal	8	553-711
Wind	8	531
Bioenergy	14	129-154
Small Hydro	2	1
Solar	5	1,237
Wave	1	2
	38	2,453-2,636

22% RPS-eligible renewables under contract



Solar Technologies Under Contract

Parabolic Trough

Compact Linear Fresnel Reflector

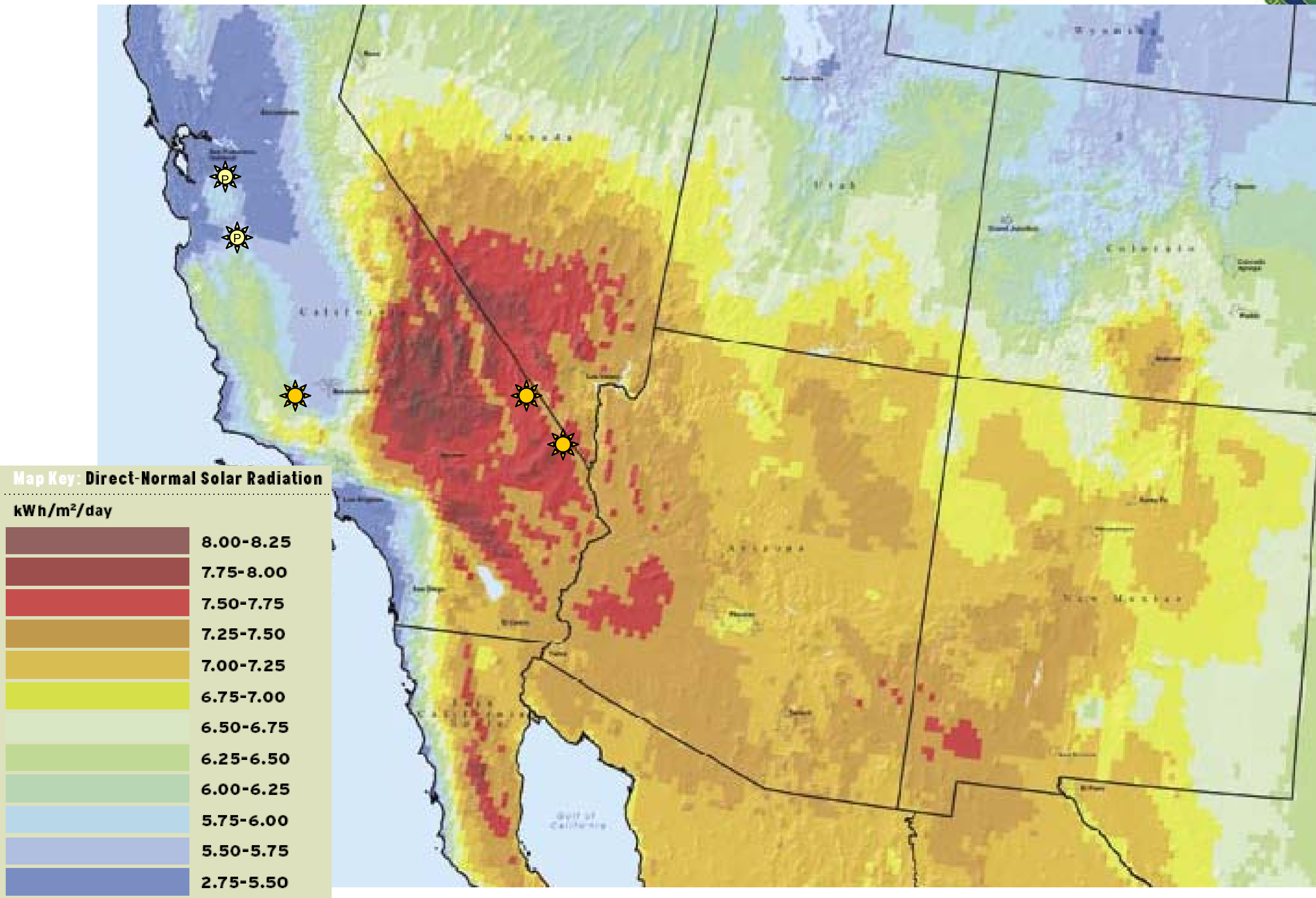
Power Tower

Dish Engine (SCE/SDG&E)

PV/CVPV

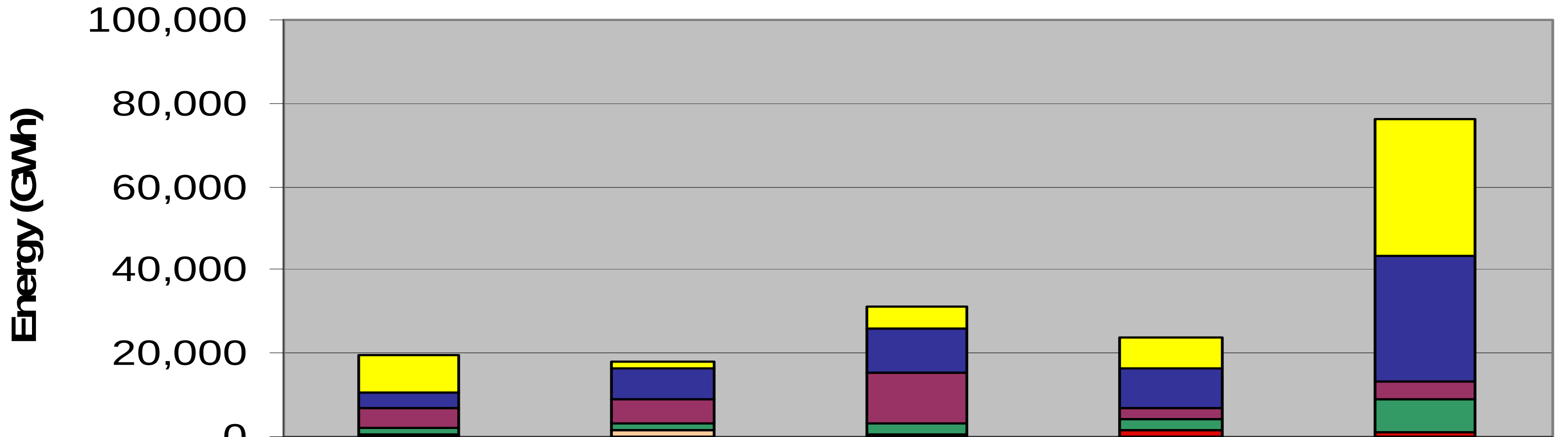
Concentrating PV

Direct Normal Solar Radiation in the Southwest: Transmission Needs?



Participation in RPS solicitations is accelerating statewide

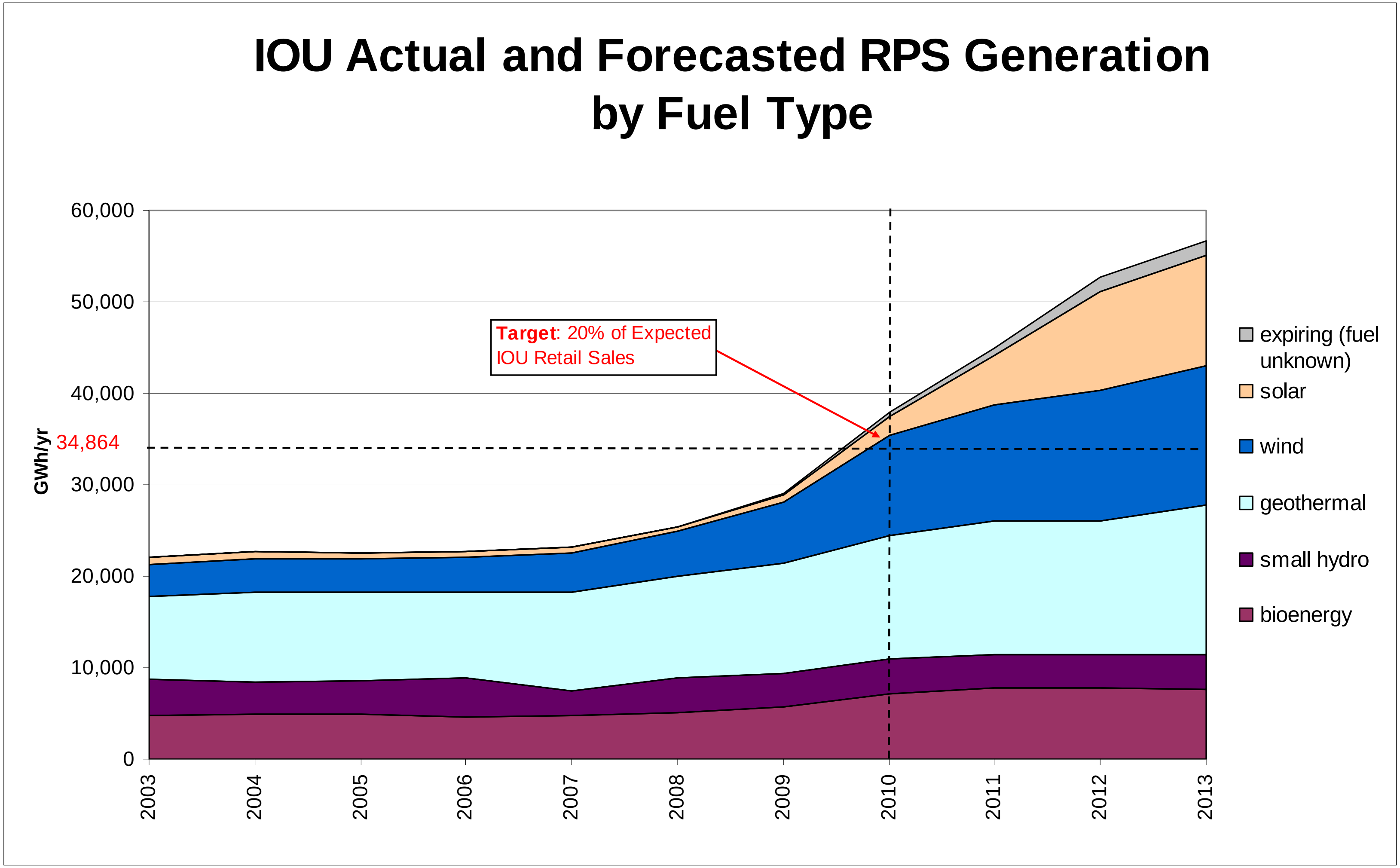
RPS Bids by Fuel Type



	2003 RFO	2004 RFO	2005 RFO	2006 RFO	2007 RFO
Solar	8,808	1,725	5,278	7,484	33,046
Wind	3,959	7,406	10,479	9,339	29,990
Geothermal	4,747	5,841	12,263	2,514	4,027
Biomass	1,470	1,635	2,403	2,694	8,186
Biogas	349	1,220	272	245	15
Small Hydro	107	14	200	49	0
Other	0	105	208	1,413	996

Source: CPUC Energy Division Report to California Senate Energy, Utilities and Communication Committee, February 26, 2008

RPS Generation Statewide by Fuel Type



Source: CPUC Energy Division Report to California Senate Energy, Utilities and Communication Committee, February 26, 2008

PG&E's 2008 RPS Solicitation Schedule

Date	Event
Ongoing	Participant may register online at PG&E's website
March 7, 2008	PG&E issues Solicitation
March 14, 2008	Deadline for Participant to submit non-binding Notice of Intent to Bid and reservation for Bidders' Conference
March 17, 2008	Bidders' Conference
May 12, 2008	Deadline for Participants to submit Offer(s)
June 6, 2008	PG&E notifies Commission that bidding is closed
July 1, 2008	PG&E notifies Shortlisted bidders and requests bid deposit
July 15, 2008	PG&E submits final Shortlist to Commission and PRG
July 29, 2008	PG&E submits report on evaluation criteria and selection process; Independent Evaluators submit preliminary reports
2Q or 3Q, 2008	CPUC issues Market Price Referent ("MPR")
By Dec. 31, 2008	PG&E and Participants negotiate and execute Agreements subject to Regulatory Approval; PG&E submits Agreements for Regulatory Approval

Major Challenges to Achieving 20% Actual Deliveries in 2010

Critical Needs

1. Multi-year extension of federal Investment Tax Credit (ITC), Production Tax Credits (PTC) that expire at the end of 2008
2. Multi-year extension of the state Property Tax Abatement (PTA) that expires in 2009 (legislative bill currently held in Senate Revenue and Taxation Committee).
3. Transmission upgrades that can be developed and operational by 2010.
4. Expedited permitting approvals/compliance with California Environmental Quality Act deadlines (12 months) for facility project development for contracted projects.
5. Developer performance consistent with contract requirements.
6. Greater availability of renewable equipment.

Looking Forward

Future research needs:

1. Cooling for solar thermal plants
   1. Dry cooling for Rankine cycle
   2. Brayton cycle (gas turbine) development
2. Thermal storage
3. PV tracking systems
4. Continuation of cell, module, and balance of system cost reduction programs
5. Best practices analysis of worldwide installation techniques (labor costs must come down, not just hardware costs)