SOME RECENT DEVELOPMENTS IN US SOLAR MARKETS
PACE and WDG

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The Vote Solar Initiative
www.votesolar.org
Scalable opportunity

- Current clearing price for wholesale distributed generation solar under $0.14/kWh
- Current solar module average selling price:
  - Now: ~$1.80/W – $1.50/W
  - 2011 projected: ~ $1.50/W – $1.25
- Significant potential for additional cost reductions in material and installation
Two Markets

• Retail
  – Generation and consumption on customer side of meter

• Wholesale
  – Generation for further distribution and sale to utility customers
Retail Market

• Behind the customer meter
• Value of generation comes from avoided utility purchase
• Incentives decline to grid parity
  – Incentives:
    • Public goods fund (CSI)
    • RECs
      – Fixed (residential AZ, CO, etc)
      – Market-based (NJ)
• Grid parity = unsubsidized market
  – CA: incentives down from $4.50/W to $0.65/W; now ~2.5% capacity basis
  – 600+ MW at 65,000 customer sites
Property Assessed Clean Energy (PACE)

www.dsireusa.org / June 2010

21 states authorize PACE (20 states have passed legislation and HI permits it based on existing law)
Current status

• FHFA/Fannie Mae/Freddie Mac effectively blocked PACE
• Direct attack on a municipality’s authority to tax – local rights issue
• **H.R.5766 (Rep. Thompson)** would provide a fix
• Expecting new Senate bill
• All eyes on lame duck session
Wholesale Market

• Generation for sale to utility
  – Renewable Portfolio Standard
  – Feed-in tariff
  – Utility PV programs
  – Competitive wholesale DG
California RPS

• Currently: 20% by 2010
  – >7 GW of solar contracts signed
    • PV, CPV and solar thermal electric
  – ~5 GW of solar contracts priced less than 20-year LCOE of gas turbine

• Executive Order: raise to 33% by 2020
  – Prop 23?
  – special legislative session?

• Multiple WDG programs
  – ReDEC Analysis: 17 GW of wholesale DG
    PV potential
Wholesale DG: Key Issues

1. How to deal with jurisdictional issue?
2. How to set the price?
3. Cost control: capped or uncapped?
   1. If capped, how to pick winners?
   2. How to ensure only viable projects are selected?
4. Drive down price and cost?
Jurisdictional Issue

- FPA gives FERC exclusive jurisdiction over wholesale sales
- States are preempted from setting wholesale power rates that exceed utility avoided cost
- Petition for Declaratory Order at FERC: EL10-64-000, EL10-66-000
  - Price at avoided cost
  - Create new requirement, price set by market (competitive bid)
  - Avoided cost + marginal difference covered by REC or tax benefit
California Feed-in Tariff #1

- 500 MW statewide
- Projects <1.5 MW
- Priced at MPR (20 year LCOE of a combined cycle gas turbine)
- Nominal uptake
  - 9 PV contracts in PG&E territory in 2009
CA Feed-in Tariff #2

• Sacramento Municipal Utilities District
  – 100 MW feed-in-tariff
  – All renewable technologies eligible
  – Projects up to 5 MW
  – Pricing based on time-differentiated avoided cost
  – Modeled on PV production, comes out around 14 cents, 20 year LCOE
  – Sold out first day— all PV (projects may or may not be daisy-chained)
  – Also have retail policies--rebates for DG, SolarShares
CA FiT# 3: SCE Standard Offer Contract

• Up to 20 MW system size, eligible to all renewables, priced at MPR
• Sold out; 140 MW of PV in 20 MW increments
• 2008 MPR: with TOD, ~$0.15/kWh
• 2010: Moving to competitive solicitation, 250 MW annually
CA Feed-in Tariff #4: SB 32

- 750 MW state-wide, POU and IOU
- Systems up to 3 MW
- Value-based price setting: MPR + TOD + environmental compliance cost + value of offsetting peak demand on distribution circuits.
- Other ratepayers must be ‘indifferent’
- Rulemaking not yet begun
Utility PV Programs

• Southern California Edison
  – 500 MW split between utility and independent solar developers, all in 1-2 MW sized installations (90% rooftop)

• Pacific Gas and Electric
  – 500 MW; 1/2 utility-owned, 1/2 PPA
  – Project size 1-20 MW, over 5 years

• San Diego Gas and Electric
  – ~100 MW; 76 MW IPP, 24 MW utility-owned

• Total: 1.1 GW over 5 years
CPUC Proposed Program

- 1 GW pilot
- Systems up to 20 MW
- Utilities to conduct at least 2 solicitations a year
- 3 categories of product: baseload, peaking as-available, intermittent as-available.
- Development deposit and contract timeline
- Standard, non-negotiable contract
Keys to Successful WDG Program

• Make it legal
• Big/broad enough for biz growth
• Equitable standard contracts to facilitate financing
• Strong mechanisms to weed out non-viable contracts
• Synch interconnection/contracting
When there's a huge solar energy spill, it's called a "nice day."

Pass the NY Solar Jobs Act