Helping Utilities Make Smart Solar Decisions

Utility Barriers

Key issues facing deployment of utility-scale solar PV plants.

Sandra Burton
Regional Director
March 8 – 9, 2011
Brookhaven National Lab
Developed by utilities to facilitate the integration of solar electric power.

SEPA’s utility members serve more than 47% of the U.S. population.
About SEPA

- Formed in 1992 as the Utility Photovoltaic Group
- Educational non-profit organization
- Provides unbiased solar information
- Peer-to-Peer Interaction
Member Composition

Utilities

Joint Action Agencies, G&Ts, RTOs, FPR
Affiliates
Wholesale Marketers, IPPs
Manufacturers
Business & Professional Services
Project Developer/Installer/Distributors
Helping Utilities Make Smart Solar Decisions
Utility Engagement in Solar

None  Managing Customers  Facilitating Customers  Meeting Solar Goals or Requirements  Developing Utility Solar Business Models

Exelon Generation, Epuron, Conergy and Waste Management Inc. – 3MW
No Utility Engagement

Utility’s view

• No solar resource in my service territory
• Too small and too expensive
• Lineman safety
• Intermittent and unpredictable
No Utility Engagement

Barriers to solar

- Solar and utility in adversarial relationship
- Complex interconnection process
- Costly and unnecessary requirements (insurance, disconnects, metering)
- Balanced vs. best interconnection and net metering regimes
Managing Customers

Utility’s view

- Solar activity largely driven by value of PR and looking “green”
- Focus on one-off demonstration projects
- Considered an R&D activity
- Minor facilitation of customer-owned PV

Source: SEPA 2010
Barriers to solar

• Solar and utility still in adversarial relationship
• Islanding issues stir safety concerns
• Allowable system sizes below economies of scale
• Expensive novelty product for wealthy customers that may have negative rate impact on non-participants
• Solar looks like revenue robbing DSM product
Facilitating Customers

Shifting Paradigm
Still somewhat adversarial relationship between utility & solar industries, but...

• Increased customer demand drives improved interconnection process
• Utilities no longer question whether to consider solar but rather how and how much
• Solar industry is beginning to recognize the value of utilities as partners
• Declining cost of solar begins to reach grid parity in some service territories

Source: SEPA 2010
Meeting Solar Goals or Requirements

RPS Policies
www.dsireusa.org / February 2011

29 states +
DC and PR have an RPS
(7 states have goals)

Source: DSIRE

Helping Utilities Make Smart Solar Decisions
Solar Carve-out Pipeline

- 2,722 MW operational by 2014
- California accounts for 1,717 MW of utility scale solar or 63%
- Nevada & New Mexico 659 MW

Source: SEPA 2010
Developing Utility Solar Business Models

- Rapidly growing market with new focus on utilities
- Larger project sizes drive economies of scale
- Shift to revenue generating technology

**Barrier:** Commission’s need education on solar benefits for utilities so utilities have cost recovery and return

Source: SEPA 2010
Utility Solar Business Models

- Ownership
- Energy Purchases
- Financing
PSE&G

**Solar Loans**
PSE&G is offering ~$250MM in loans to finance solar system installations (totaling 81MW) on homes, businesses, Municipal buildings.

**Solar 4 All.**
PSE&G is investing $515MM to construct, own and operate 80MW in solar installations.

NJBPU Ruling

- The investment for which they can earn a return is the actual loan
- Cost recovery is allowed on administrative costs
Southern California Edison

- Filed with CPUC 3/27/08; final decision issued 6/18/09.
- 250 MW utility owned on leased customer roofs
- $3.85/W Avg capital cost + 1%ROR, (O&M, lease, etc – CPUC review
- IPP bids capped at $260/MWh levelized cost of energy that SCE estimates for its utility-owned PV projects

Western Massachusetts Electric Company (WMEOC)

- Proposed under Mass. Green Communities Act (GCA)
- 6 MW approved, landfill, brownfield, large commercial & government buildings, & public - high visibility sites.
- ~1% increase for all customer classes combined, initially about 65¢-88¢/month for
- Residential customers, declining thereafter
Florida Power and Light

- Legislated 110 MW investment by any FL IOU
- DeSoto PV- 25MW, Martin ST-75MW, Space Ctr PV - 10MW
- Project costs reported to be $173.5M for DeSoto; $476.3M for Martin; $78.9M for Space Center.
- Environmental Cost Recovery clause, 83¢/1,000 kWh initially, 31¢ over 25 years of operation.

National Grid

- Mass. Green Communities Act sets 20% by 2020 RPS goal; permits electric or distribution utility to build, own & operate
- 4.9 MW: MWAC: 1.3, .62, 1.0, 1.2, .75
- $5.43–7.17 /W — 25–35¢ /kWh over 25 year life
- Initial bill impact for typical 500kWh residential customer est. at 11.3¢/mo.; 5.7¢/mo. over 20 years.
Helping Utilities Make Smart Solar Decisions

Sandra Burton
Regional Director
sburton@solarelectricpower.org
202-379-1637