

Utility Solar Business Models

February 16, 2009

Julia Hamm
SEPA Executive Director

- About SEPA
- Historical Utility Solar Engagement
- Utility Solar Business Models
 - What's a 'utility solar business model'?
 - Recent examples from around the U.S.

About SEPA

About SEPA



- 501(c)3 membership organization
- Reliable source of unbiased information about solar technologies, policies, and programs
- 110 utility members
- 400 solar industry and “stakeholder” members
- FREE on-going memberships for PUCs and state energy offices

Historical Utility Solar Engagement

Utility Engagement

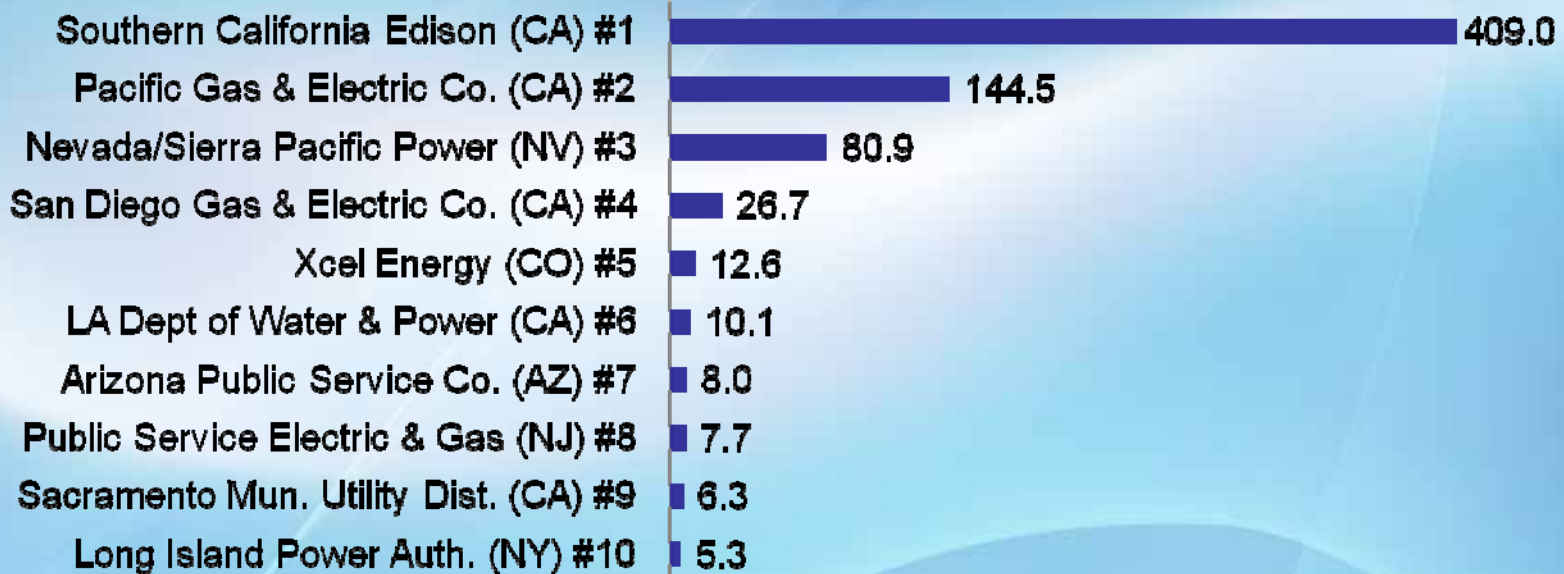


- Research and Development
- One-Off Demonstration Projects
- Facilitation of Customer-Owned PV

Top U.S. Solar Integrated Utilities



Total Solar Electric Capacity (MW-ac)



Cumulative through December 2007

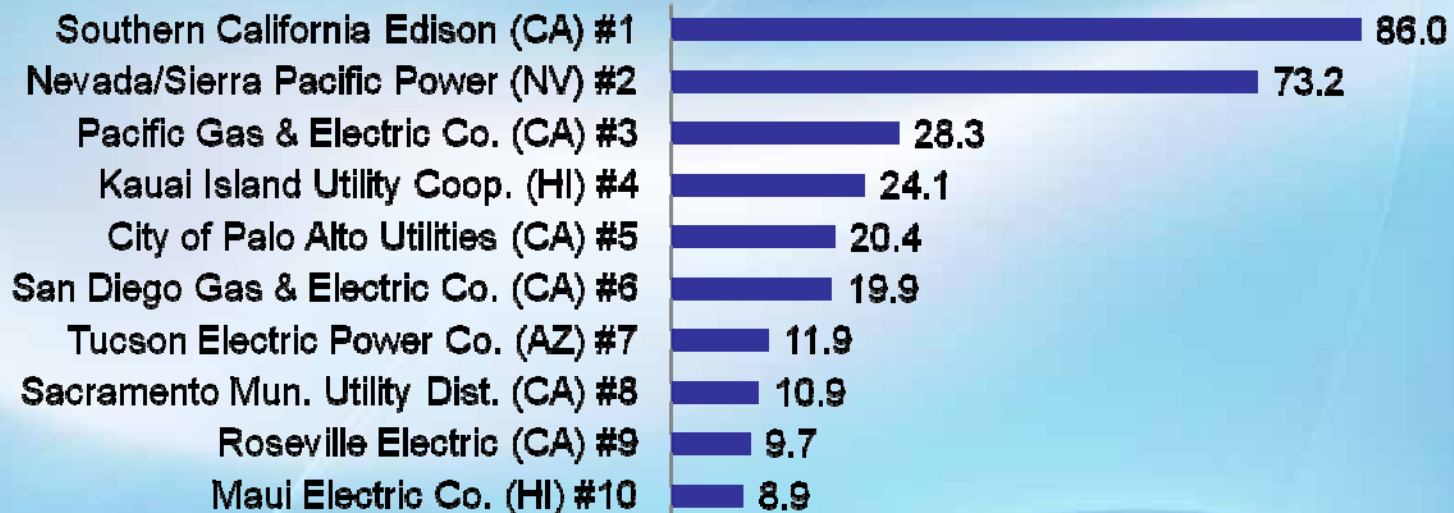
Source: Solar Electric Power Association

CONFIDENTIAL

Top U.S. Solar Integrated Utilities



Solar Electric Capacity Per Customer (Watts-ac/customer)



Cumulative through December 2007

Source: Solar Electric Power Association

CONFIDENTIAL

Startling Facts



- 97% of all U.S. solar generation is in 10 utilities' service territories
- 50% of all photovoltaic installations are in PG&E's service territory

Utility Solar Business Models

What's a 'utility solar business model'?

- A promising utility solar business model –
 - creates value in the energy marketplace
 - enables the utility to capture part of that value
 - will sustain itself over time

- It must serve multiple stakeholders –

OWNERS

- IOU shareholders
- POU community

CUSTOMERS

- participants
- non-participants
- protected groups

SOCIETY

- IOU regulators require it
- POU officials represent it

- Cost-effectiveness is the key
- Win/win/win is the goal

What's a 'utility solar business model'?

- Business model elements include -
 - utility roles
 - buy output • acquire projects • develop projects
 - own assets • provide services • incentivize others ...
 - others' roles
 - provide a site • sell &/or install equipment • develop projects
 - provide maintenance • buy or aggregate output ...
 - economic impacts
 - value streams & magnitudes • cost/benefit allocations
 - project & aggregate impacts ...
 - regulatory treatment
 - ratebase • revenue impacts • incentives ...

Why it's timely to look at them

- Climate change is accelerating
- Solar technology is maturing
- Solar costs are dropping
- RPS requirements are proliferating
- Utility generation options are narrowing
- Tax changes expand utility solar options
- Utilities need new business models to deliver 21st-century resources

Multiple Business Model Options



- 2008 SEPA study identified 13 solar business models under consideration by various utilities
- “Utility Solar Business Models: Emerging Utility Strategies & Innovations” available for free download at www.solarelectricpower.org
- Phase II of the study is now beginning

Business Model Categories

- 13 models fall into 3 categories
 - Utility ownership of solar assets
 - Utility financing of solar assets
 - Utility purchase of solar output

Ownership Examples from Around the U.S.



- **Utility Ownership of Distributed PV**
 - **Proposals for rate based programs – examples:**
 - Southern California Edison (250 MW rooftop)
 - San Diego Gas & Electric (77 MW ground mounted)
 - Duke Energy (10 MW combination rooftop and ground mounted)
 - PSE&G (120 MW combination including rooftop, ground mounted and pole-mounted)
 - **Various siting options**
 - Commercial customers' rooftops
 - Utility property (buildings, substations, street lamps, poles, etc)
 - Government facilities & schools
 - Affordable housing developments

Ownership Examples from Around the U.S. – Continued



- Utility Ownership of Community Solar Equipment
 - Utility owns and sells “shares” to customers
 - Virtually net-metered
 - Makes solar an option for renters, those who can’t afford a full residential system, etc
 - Largely municipally driven currently (SMUD, City of Ellensburg, City of St. George) but under consideration by many IOUs

Financing Examples from Around the U.S. – Continued



- **Utility Loans to Customers**
 - Grant loans to residential & commercial customers for the cost of solar installations
 - Loans repaid in the form of cash or RECs
 - Cost of program is included in rate base
- **Feed-in Tariffs**
 - Long-term fixed price contracts with customers for renewable generation feed into the grid
 - Cost burden shared by all customers
 - Gainesville Regional Utilities, HECO, Public Service of New Hampshire all implementing or considering

Thank you!



Julia Hamm

Executive Director

202-559-2025

jhamm@solarelectricpower.org

Solar Electric Power Association

www.SolarElectricPower.org