

SEPA

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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



About SEPA

Developed by utilities to facilitate the
integration of solar electric power.

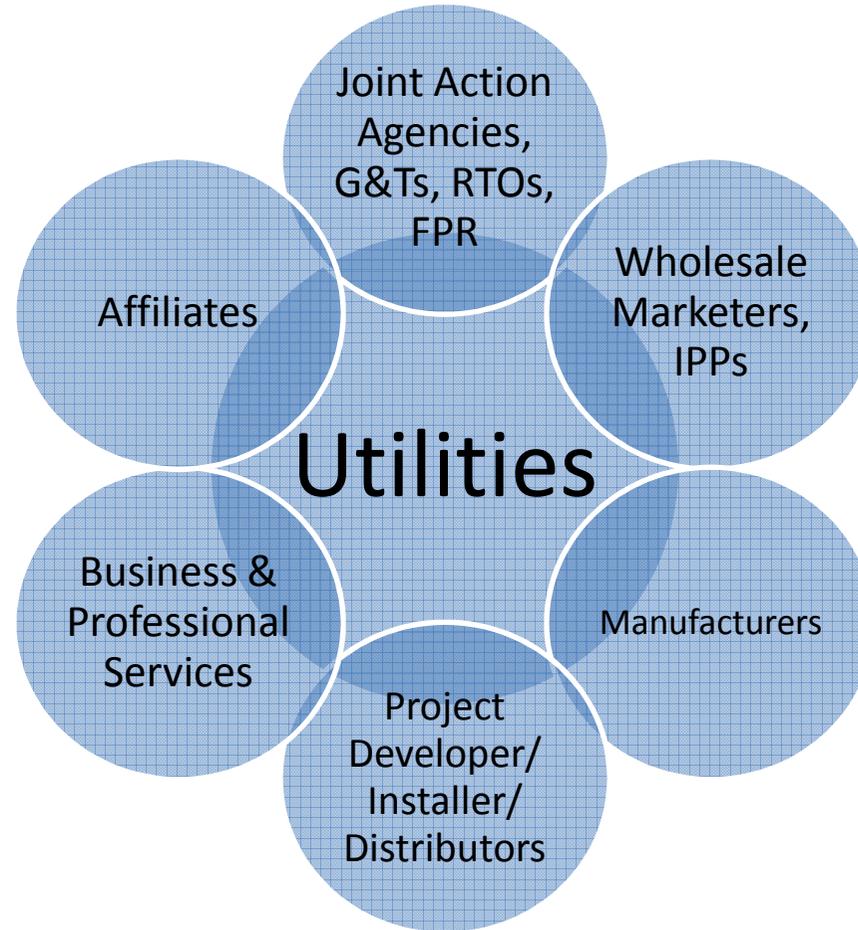
SEPA's utility members serve more than
47% of the U.S. population.



About SEPA

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

Member Composition



Utility Engagement in Solar



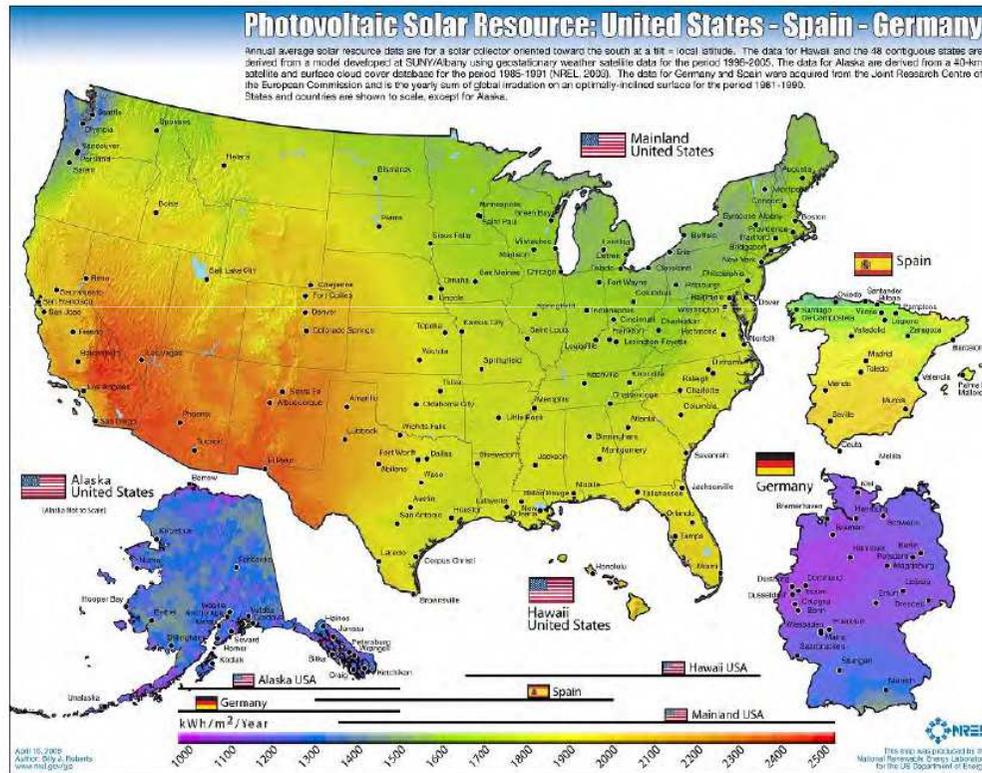
*Exelon Generation, Epuron, Conergy and Waste Management Inc.
– 3MW*



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No Utility Engagement



Utility's view

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

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

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



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Facilitating Customers

Shifting Paradigm

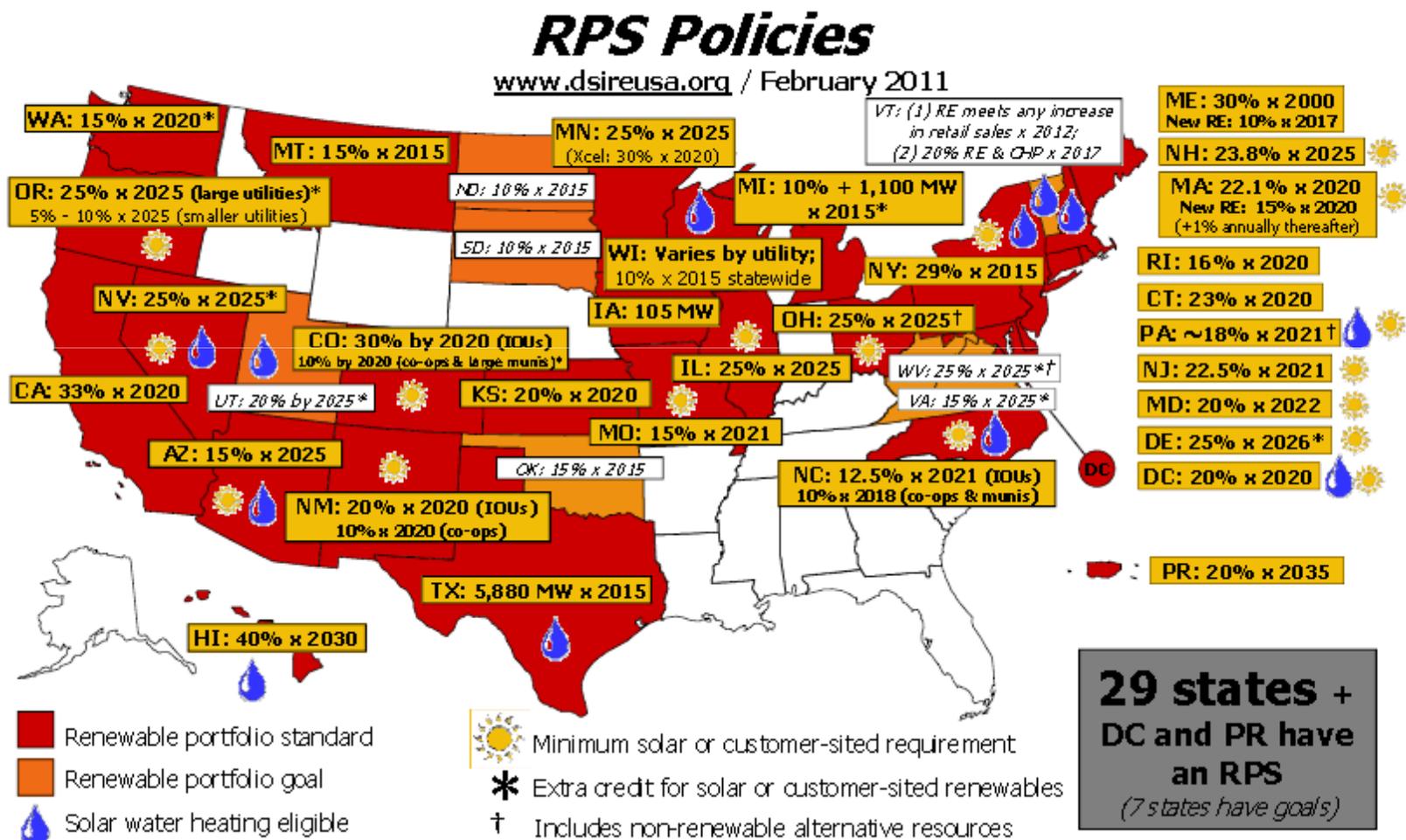
Still somewhat adversarial relationship between utility & solar industries, but...

- 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



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Meeting Solar Goals or Requirements

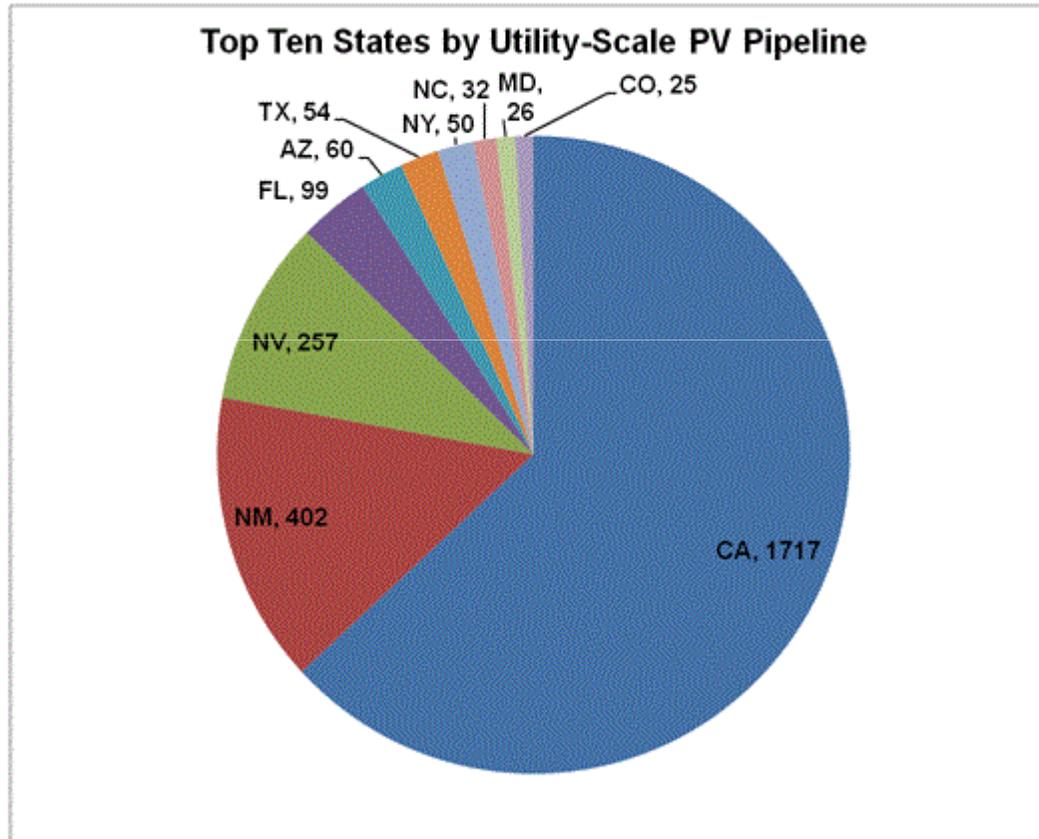




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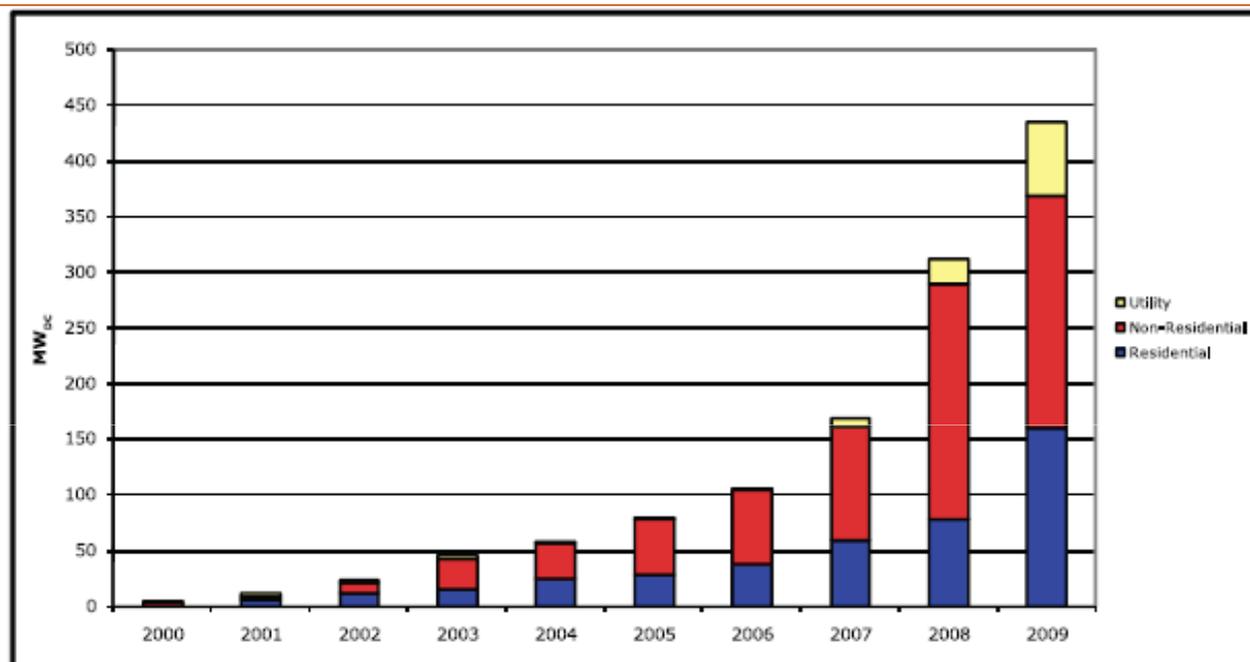
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Solar Carve-out Pipeline



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

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



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Utility Solar Business Models

Ownership

Energy Purchases

Financing



Utility Financing Model - PSEG

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 (WMECO)

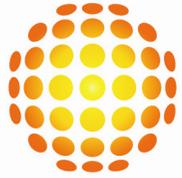
- Proposed under Mass. Green Communities Act (GCA)
- 6 MW approved, landfill, brownfield, large commercial & government buildings, & public - high visibility sites.
- ~1% increase for all customer classes combined, initially about 65¢-88¢/month for
- Residential customers, declining thereafter

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.



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