Agenda

About SolarCity
How A PPA Works
Bringing Solar to New Customers
Solar Policy Phases and Tools
  Encourage
  Enable
  Integrate
Conclusions
About SolarCity
About SolarCity

- The leading solar service provider in the U.S.
  - More than 25,000 buildings
  - Serving 14 states nationwide—AZ, CA, CO, CT, DE, HI, MA, MD, NJ, NY, OR, PA, TX, WA, and DC
  - Installing 800 new residential projects per month

- 1,800+ Employees

- Raised $1.43 billion in structured financing

- New customer every five minutes of the workday
SolarCity Locations & Regional Operations Centers

- Headquarters
  San Mateo, CA

- Regional Operations Centers
  Deer Valley, AZ
  Phoenix, AZ
  Tucson, AZ
  Bakersfield, CA
  Berkeley, CA
  Foster City, CA
  Fresno, CA
  Lancaster, CA
  Los Angeles, CA
  Pomona, CA
  Sacramento, CA
  San Diego, CA
  Santa Ana, CA
  Denver, CO
  Parker, CO
  Hartford, CT
  Mililani, HI
  Billerica, MA
  Raynham, MA
  Jessup, MD
  Silver Spring, MD
  Cranbury, NJ
  Albany, NY
  Portland, OR
  Broomall, PA
  Dallas, TX

States served by SolarCity
How a Power Purchase Agreement Works

- SolarCity installs & maintains a solar system on your site
  - You simply “host” the system and only pay for the electricity you produce and use

- No upfront cost required and immediate payback

- Reduced electricity costs
  - New lower utility bill + PPA payment < old utility bill

- Lock in electricity rates for the next 20 years
  - Protect against utility rate escalation and uncertainty
Purchase vs. Power Purchase Agreement

Purchase System
Energy savings pay off cost of system over time

Power Purchase Agreement (PPA)
Free installation and lower rate for solar electricity than current utility rate
Bringing Solar Energy to New Customers

Solar Financing
Photo Gallery
Featured Video
Frequently Asked Questions
Solar Seminars
EV Charging Stations
Request a FREE Quote

Request More Information and a FREE Quote for Your Home.

First Name
Last Name
Email
Street Address
City / State

Affordable Solar Power

The Home Depot’s Trusted Partner
The Home Depot works only with home service professionals who meet the highest standards for experience, know-how and customer service. This month you can save $1,000 on solar power with SolarCity and The Home Depot! Use promo code FEB1000 to request your coupon.
Bringing Solar to New Customers

SolarStrong

Multiple locations nationwide
>
120,000 homes potentially
Why Solar?

- You may or may not have coal mines or gas wells. You do have rooftops.
- The most employment-intensive energy resource.
- A fixed cost resource to balance variable cost fossil.
- Private Investment to Leverage Public Dollars
- High-Reliability
- Clean
Solar Policy Phases and Tools

Encourage
- RPS
- Grants
- Tax Incentives

Enable
- 3rd Party PPAs
- Interconnection
- Net Metering
- Permitting and Inspections

Integrate
- Rate Design
- Resource Planning
- High-Penetration Analysis
Encourage

- Demand-Side Financial Incentives to Drive Customer Adoption of Solar

Tools and Evolution:
- Grants, Tax Credits, (FITs)
- RPS with solar carveout
- RPS w/o solar carveout
Encourage: It's Working

Best-in-class installed system cost (no margins)
$ per watt peak, 2011 dollars

Levelized cost of electricity
$ per kilowatt hour, 2011 dollars


SolarCity | SolarCity CONFIDENTIAL
Encourage: It’s Working

Figure 23. Capacity-Weighted Average Pre-Tax State/Utility Cash Incentives for Behind-the-Meter PV

Notes: We assume that all systems ≤10 kW are residential and all systems >10 kW are commercial, unless identified otherwise.

eetd.lbl.gov/ea/emp/reports/lbnl-5047e.pdf
Encourage

- “Last Call” for a Solar Head Start
- Beginnings of transition to Enabling policies
- Often a big-ticket Legislative item
- Federal ITC still a “given”
Enable

- “Creating Room” for New Business and Financial Models
- Adapting Regulatory Frameworks
Enable: Permitting Customer Finance

- Customers Can and Will Invest Privately
  - A Supplement To Our Current Socialized-Costs System
  - Billions of Dollars in New Clean Generation per Year

- Do Not Lose Sight of the Regulatory Compact

- A Major Corporate Asset is Being Defended
  - Government-Protected Monopolies: Patents, Trademarks, Copyrights, and Utility Service Territories
  - Each is a Bargain, None is a Right
  - Arguments on the Merits, not FUD
Enable: Permitting Customer Finance

3rd-Party Solar PV Power Purchase Agreements (PPAs)

www.dsireusa.org / April 2012

- Authorized by state or otherwise currently in use, at least in certain jurisdictions
- Apparently disallowed by state or otherwise restricted by legal barriers
- Status unclear or unknown

- UT: limited to certain sectors
- AZ: limited to certain sectors
- VA: see notes
Enable: Permitting Customer Finance

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  Raynham, MA
  Jessup, MD
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  Cranbury, NJ
  Albany, NY
  Portland, OR
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  Dallas, TX

States served by SolarCity
Enable: Permitting Customer Finance

- Assume a customer cuts 1000 kWh /year by updating the “beer fridge” in the garage.

- Assume their neighbor cuts 5000 kWh / year by putting in solar panels.

- Is the second customer raising everyone’s rates?
  - If using fewer kWh from the utility is bad, why is energy efficiency?

- In fact, solar energy in many ways saves all other ratepayers money – it produces most during the hot Summer afternoons when the grid is most stressed and power is most expensive.
Enable: The Regulatory Compact

- The grid as a “natural monopoly” where the market fails.
  - The government must step in to prevent this monopoly from abusing its power.
  - Government sets prices.

- Should the government extend these protected monopolies into other businesses, by banning competition?

- Where does the limit lie?
  - “What happens between two consenting adults, behind the meter”
  - Safety, reliability and interconnection are the state’s business
  - Banning competition is not.
Enable: Remote Ownership / Community Solar

- One Central Plant, Many Dispersed Customers
  - Generally with some
  - Renters, Shaded Roofs, etc.

- Fair “Tolls” For Use of The Grid
  - Traditional Ratemaking Exercise

- See: Colorado, Utah (SB 12), California (SB 843), DC
Integrate

THESE ARE SOME OF THE PROJECTS THE INDUSTRY IS WORKING ON ... WORK FOR THE FUTURE! SINCE THE DEMAND FOR ELECTRIC POWER IS ALWAYS INCREASING, WE HAVE TO PLAN AHEAD TO SATISFY THAT DEMAND!

GOSH, THAT MUST TAKE A LOT OF MONEY!

LOCAL ELECTRIC TRANSMISSION SYSTEM

HOW ELECTRICITY IS PRODUCED

THE BOILER, FIRED BY FOSSIL OR NUCLEAR FUELS, TURNS WATER (GREEN) TO STEAM (YELLOW) WHICH SPINS THE STEAM TURBINE END OF THE TURBO-GENERATOR SHAFT, ROTATING GENERATOR MANUFACTURES ELECTRIC ENERGY (BLUE).

THROUGH AN EFFICIENT TRANSMISSION AND DISTRIBUTION SYSTEM, ELECTRICITY IS BROUGHT TO HOMES AND BUSINESS ESTABLISHMENTS.
Integrate: Solar is a Reliable Resource

- If 1 solar kW hurt reliability (needed 1 backup kW, ) “capacity value” would be **negative 100 percent**.
- If 1 solar kW didn’t hurt or help, “capacity value” would be **zero percent**.
- If 1 solar kW knocked out the need for 1 backup kW, “capacity value” would be **positive 100 percent**.
- In PJM market, it is **positive thirty-eight percent**.
- In Colorado, it is **40%**.
Integrate: Solar is a Reliable Resource

- 24? 7? 365?

Please Note:
We depend on the users of Roadtechs.com for the outage dates shown below. If you can provide updated outage info, please click on the "Change" link for the unit you are updating.

Click here to add a new plant to the list
Click here to download the list in a spreadsheet compatible CSV format

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<th>IF</th>
<th>Country</th>
<th>Owner</th>
<th>Burn Type</th>
<th>Manual Mile (miles)</th>
<th>Typical Uptime Length (days)</th>
<th>Typical Cutoff Length (days)</th>
<th>Estimated Change Start Date (mm/dd)</th>
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Integrate: Solar is a Reliable Resource

Wind Power Graph

The amount of wind power generation connected to the PJM grid continues to increase, enhancing the opportunities to harness its renewable power. However, because wind is an intermittent resource it requires its own forecasting and monitoring methods to plan for its reliability.

This graphic chart displays both instantaneous power and forecasted power for every five minutes and it is updated hourly. The data is measured at each wind farm every minute and then is aggregated for this tool. Dispatchers use this display to monitor trends in wind power production.

last updated: 12:59 PM EST
Integrate: Solar Deployment On Purpose

- Solar Can Now be a Real Part of Any Resource Plan
- The Grid is a Network, and the Grid Owner Should Be Paid
  - For all, and *only*, their investment and service

- Public Service and Public Utilities Commissions Will be The Leaders
- We Need to Import Some Insights on the Grid

- Jurisdictions to watch: HI, PR,
Conclusions

- The states who encouraged solar early have a significant lead...and even as their incentives ratchet down, their markets continue to be sustainable
- ...but state public money is “ratcheting out” of the industry.
- Low or no cost free market “enabling policies” are the new horizon...
- ...and many of these can be executive branch decisions.
  - PPA authorizations
  - Interconnection and Net Metering Agreements
  - Community Solar
- Commissions Are Having to Revisit the Fundamentals
- Huge Opportunities Exist