



Customer Sited PV Carbon Claims

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■ Overview:

- US PV market growing at 35% annually over last five years and approaching retail price parity by 2015-2020
- Corporate and Government Customers want to make voluntary carbon reduction claims based on investment in On-Site PV
- On-Site PV offers unlimited long-term carbon reduction opportunity
- Voluntary carbon reduction pathway via PV is launched, *but* new carbon regulations could disrupt this market segment

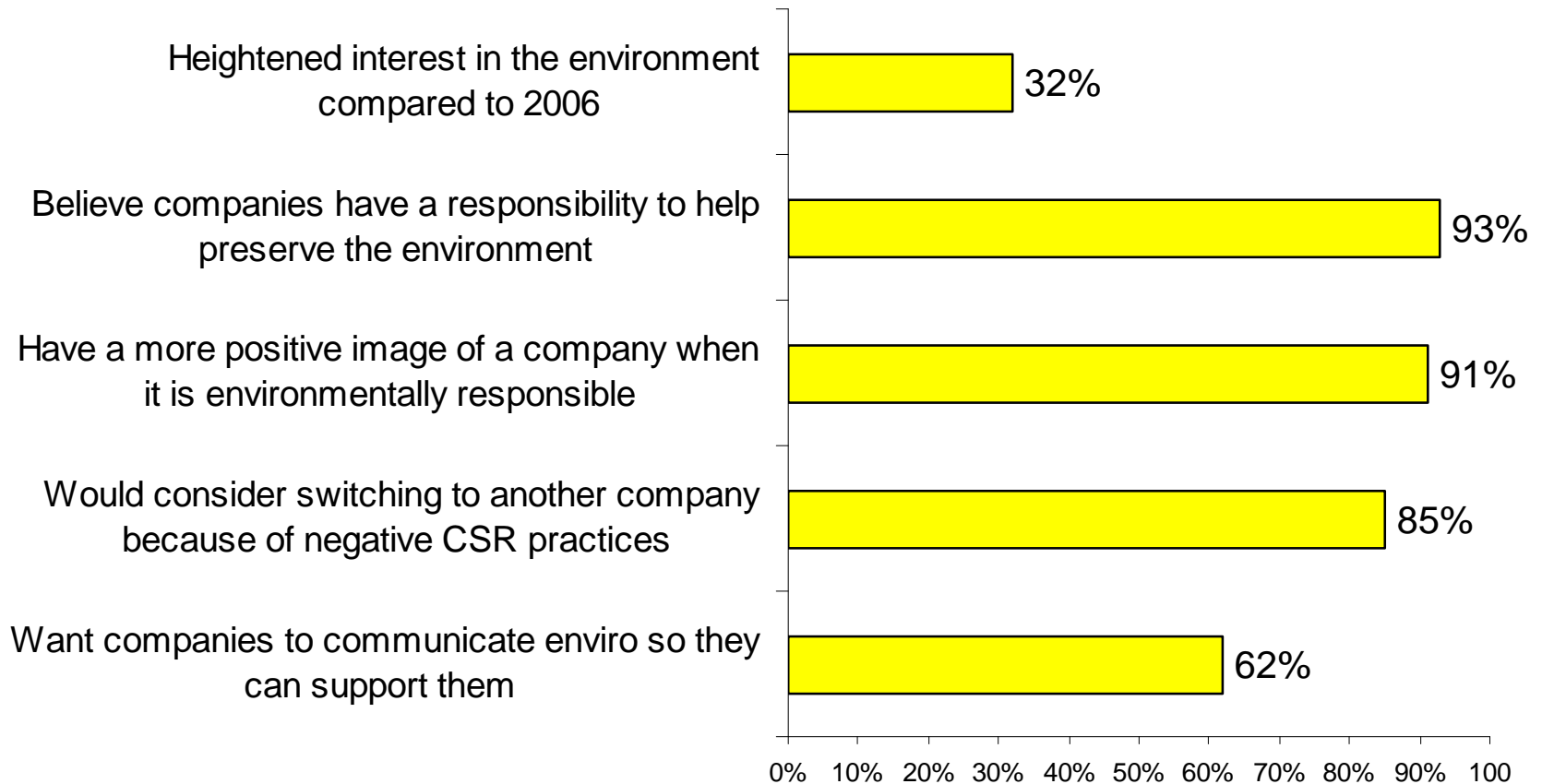
JC Penney Installs Solar Power



SunPower T10 Rendering of JC Penney's, Palmdale, CA

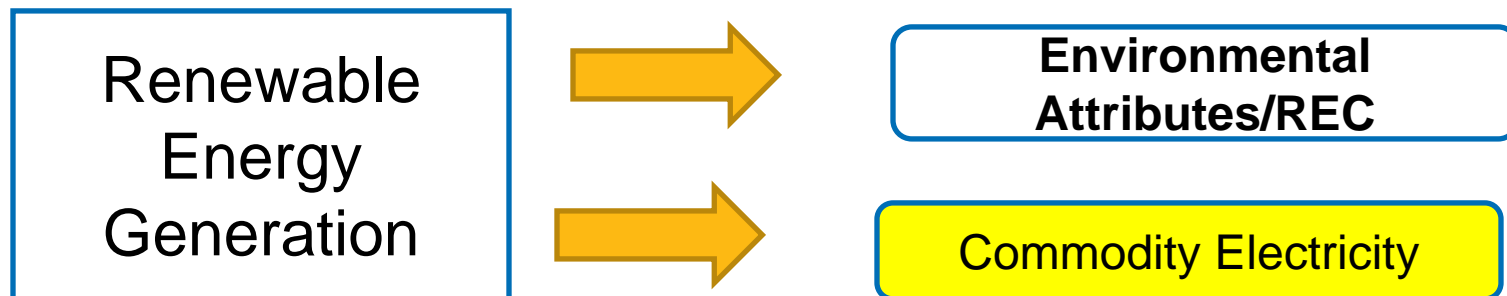
Customers Want Environmental Commitment

% of Americans who reported:



* <http://www.coneinc.com/content69.html>, 2007 Cone Consumer Environmental Survey, 1,066 adults (499 men and 567 women) 18 years of age and older. Margin of error associated with a sample size of 1,000 is $\pm 3\%$.

What is a REC? Can On-Site PV generate RECs?



- A Renewable Energy Certificate (REC) is a tradable commodity representing the **environmental attributes** of renewable power
- A REC can be sold separately from the electrons, or bundled with electricity within *regulated* and *voluntary* electricity markets
- SREC ownership is clearly identified in PV sales contract

Who Tracks REC Sales?

- Regional government registries track the creation and sale of compliance and voluntary RECs and SRECs. Registries include:
 - **PJM GATS** – Central East Coast
 - **NE GIS** – North East Coast
 - **MRETS** – MidWest
 - **ERCOT** - Texas
 - **WREGIS** – West Coast
 - **APX** – default tracking system for non-included States
- REC tracking systems issue certificates with a unique serial number for each MWh produced by qualified generators. Serial number represents the attributes of each MWh.
- Tracking systems prevent the double sale of same REC or SREC, and of environmental claims.

What (Who) Prevents Double Counting?

- **State laws** define REC ownership and attributes
- **Regional Government Tracking Registries** define sale
- **FTC** and State **PUCs** and **Attorneys Generals** regulate environmental marketing claims
- **Center for Resource Solutions (CRS)** national Green-e voluntary renewable power certification program
 - SunPower is Green-e certified

Solar Claims are Defined by SREC Ownership

- The marketing “claim” is tied to the SREC
 - **Only the SREC owner may make the claim.**
 - The owner or host side of the hardware may not make a claim unless it buys and retires the SREC
 - Claims and SRECs are conferred via the sales contract

- Follow the money (\$\$):
 - **The buyer of the SREC is “solar-powered”**
 - **The buyer of the SREC may claim “carbon reductions”**

So... What Can Customers Claim?

- If customer owns and retires the SREC
 - **Appropriate to make specific carbon claim**
 - *We're Solar Powered!*
 - *This solar facility will reduce more than XX pounds of CO₂ emissions annually*
 - *This is equivalent to saving X trees, powering Y homes, etc...*



Solar and Carbon Customer Education Displays

- Live website links zero energy PV to carbon reduction
- Visual display makes solar benefits REAL for the general public



Customer sells the SRECs to Third Party: Sample Marketing Claim

- Customer “hosts” solar facility
- Any media claim about carbon reductions must include a prominent disclaimer, such as:
 - ***The renewable energy credits associated with this solar generation have been sold to a third-party and all environmental attributes associated with this solar generation are credited to that third party.***

Customer sells the SRECs to Utility under RPS: Sample Press Statement

- General statement about helping the State meet renewable and environmental sustainability goals.
- Statement regarding tons carbon reduced by PV system, but attributed to state carbon reduction goal
- Specific statement regarding who owns RECs and carbon emission reduction.

What happens to voluntary on-site PV carbon claim if RECs not converted to allowances Post-Cap?

- Customer can not claim carbon reduction because emission reduction benefit ascribed to electric system
- Customer actions no longer accelerate or maximize carbon reduction
- Reduced customer incentive to invest in on-site PV if not able to claim or contribute to carbon reduction benefit
- SREC value loses value in voluntary market, can only be sold in RPS markets that accept unbundled RECs.

Macy's Dedications (Sept 2007-April 2008)

- Strong employee excitement
- 200+ attendees-per-event
- Extensive press & media response, including:
 - ABC/CBS/NBC and other local affiliates
 - BusinessWeek, Forbes, CNN Money, Boston Globe,
 - SF Chronicle, San Jose Mercury News, MSN, AOL News, RetailNet
- Positive community goodwill and exposure
- Ongoing public speaking opportunities



PV Momentum – Part of a Market Based Solution?

