Solar for Businesses

Getting Started with Solar

June 10, 2015
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Our Mission:

Accelerate the transition to a sustainable world powered by clean energy
What We Do

Information Resource &
Expert Implementation Partner

Energy Programs
Technical Assistance
Training & Education
Areas of Expertise

- Building Performance
- Clean Transportation
- Distributed Generation
- Energy Efficiency
- Energy Storage
- Renewable Energy
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• Along the same lines, this is an informational workshop designed for homeowners. If you are in the energy efficiency or solar market, please refrain from pitching your products or services in this workshop.
California Solar Initiative

Current Status

Achieved
86.8 MW, 29 MW reserved commercial solar systems currently installed

Wait List
12.279 MW on the Wait List ($6,683,571)

Goal
96 MW of solar photovoltaic installed
What’s a Watt?

1 Light Bulb

= 100 Watts (W)

10 Light Bulbs

= 1,000 Watts (W) or 1 Kilowatt (kW)
If you keep 10 bulbs turned on for 1 hour...

1 Kilowatt \times 1\text{ Hour} = 1\text{ Kilowatt-hour (kWh)}
Watts your electricity use?

energywave.sdge.com

Registration is easy! You simply need to supply your SDG&E account number, your gas or electric meter number, and your 5-digit zip code.

These items can be found right on your monthly statement. We will update you on any future enhancements to the site through e-mail.

Use the first 10 digits of your account number without spaces.

Account Number: 

Meter Number: 

Zip Code: 

Email Address: 

Register
Watts your electricity use?
Reduce Before You Produce!
Solar PV Terminology

- **Photo** = light, **voltaic** = produces voltage
- **DC**: Direct Current (produced by solar panels)
- **AC**: Alternating Current (used in the home)
- **Efficiency**: Measure of how much of the sunlight is converted to electricity (%)
- **Capacity**: Total amount of power that a system produces
How does solar PV work?

[Diagram of a house with solar panels on the roof, connected to an inverter and meter, with lines leading to the home power/appliances and a utility service line.]
PV Terminology

- Cell
- Module / Panel
- Array
Inverters change DC electricity from panels to AC electricity for use in your home or business.
Solar is not just for rooftops
What is Net Metering?
Changes to Net Energy Metering

• New NEM rules by 2017 or when SDG&E reaches 5% (607 MW) market penetration for solar
  • 3.28% as of May 2015
  • 209 MW remaining
  • SDG&E expected to reach 5% by early 2016

• CPUC is currently working on new rules
  • www.sdge.com/clean-energy/overview/overview
System Sizing

12 month electricity consumption (kWh) / 1,700 kWh (average annual production of 1 kW in San Diego) = # of kW that would offset your energy use

**Remember: this will offset 100% of your annual energy use**
CSE’s Commercial Rate Analyzer

Step 1: Select Your Current Tariff
AL TOU

Step 2: Use your online or paper bill to enter the following energy usage data
(Exclude commas in data entries)

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<th>Month</th>
<th>On (kWh)</th>
<th>Semi (kWh)</th>
<th>Off (kWh)</th>
<th>On (kW)</th>
<th>Max/NC (kW)</th>
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Annual Energy Consumed (kWh):

671,981

http://energycenter.org/california-solar-initiative/business/rate-analyzer
Step 3: Adjust the PV System Size (kw AC) by scrolling or typing in the wheel

- Estimated Costs prior to Solar ($/year): $2,194,376
- Estimated Energy Generated from Solar (kWh/year): 389,776
- Estimated Costs after Solar ($/year): $174,912
- Estimated Annual Utility Savings ($/year): $2,019,464
- Tariff: DG-R
- Savings ($/kWh): 5.18

http://energycenter.org/california-solar-initiative/business/rate-analyzer
CSE’s Commercial Rate Analyzer (continued)

http://energycenter.org/california-solar-initiative/business/rate-analyzer

PV System Sizing Optimization

- Annual Savings Per Production ($/kWh)
- Annual Savings ($)

System Size (kW)

http://energycenter.org/california-solar-initiative/business/rate-analyzer
Virtual Net Metering

Conventional solar systems on individual meters
Virtual net metering system, a percentage of the solar electric system power can virtually be assigned to individual meters.
Net Metering Aggregation (NEM-AG) allows for generation from one or more systems to be shared with many meters.

- The meters and parcels must be solely owned, leased, or rented by the NEM-AG customer.
- The parcels must be the same, adjacent or contiguous.
Find your Financing
How much does solar cost?

Average cost of commercial PV System

$2 - $5 / Watt (AC)

Your system size (in kilowatts)

= Approximate Cost

- Federal Tax Credit

(Average cost of commercial PV System)
California Solar Costs

The average cost per Watt of solar has dropped 61% since 2007

$9.81/Watt Q1 2007

$3.80/Watt Q4 2014
Federal Tax Credit

• 30% of the total system cost
• One-time credit, but may be carried over
• Available through 2016
• Available for both photovoltaics (PV) and solar water heating systems

Talk to your tax professional!
Purchase Options

- Cash Purchase
- Loans
- PACE Loan
  - Property Assessed Clean Energy
  - Financed through your property taxes
PACE in San Diego

- PACE is available in all San Diego County municipalities
- Multiple PACE providers

energcenter.org/pace
Third Party Options

• **Lease**
  • Fixed $ per Month
  • May be pre-paid or monthly

• **Power Purchase Agreement (PPA)**
  • Fixed $ per kWh produced by system
  • Customer buys *all* power produced by system
Find your Contractor

1. Find solar contractors at:
   - http://californiasolarstatistics.com/
   - www.gosolarcalifornia.ca.gov

2. Contact a minimum of 3 contractors and ask for quotes

3. One of the following active licenses is required:
   - A – General Engineering Contractor
   - B – General Building Contractor
   - C10 – Electrical Contractor
   - C46 – Solar Contractor
Online Resources

- [www.energycenter.org](http://www.energycenter.org) – CSE Website
- [www.csi-epbb.com](http://www.csi-epbb.com) - CSI Program Incentive Calculator
- [www.csi-trigger.com](http://www.csi-trigger.com) - CSI Statewide Trigger Point Tracker
- [www.gosolarcalifornia.ca.gov](http://www.gosolarcalifornia.ca.gov) – CPUC and CEC
- [www.cslb.ca.gov](http://www.cslb.ca.gov) – Contractor State License Board
- [www.bbb.org](http://www.bbb.org) – Better Business Bureau
- [www.yelp.com](http://www.yelp.com) - Customer Reviews
- [www.californiasolarstatistics.com](http://www.californiasolarstatistics.com) – CSI Program Data
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