

# SOLAR ENERGY TAX CREDITS

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Getting Solar Energy on Campus  
Now to Save in the Future

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# FEDERAL ENERGY TAX CREDITS FOR SOLAR ENERGY

- The principal federal incentive for developing and installing solar power are the investment tax credits designated as energy tax credits (known alternatively as “ITCs” or “ETCs”) under Section 48 of the Internal Revenue Code

# SECTION 48 TAX CREDITS

- Available, generally, for energy property using solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat (except for swimming pools), or to produce, distribute or use solar energy to illuminate using fiber-optic distributed sunlight, or qualified fuel cell property, or qualified microturbine property
- So this is primarily described as a solar energy tax credit -- Photovoltaic “PV”, Concentrated Solar Power (“CSP”) and fuel cells

# SECTION 48 TAX CREDITS

- As an investment tax credit, the solar ITC is based on the cost of the solar energy facility, not on how much electricity is produced
- In contrast, Federal tax credits for wind, biomass, geothermal, etc. are under Section 45 of the Internal Revenue Code and are based upon electricity production)

# SECTION 48 TAX CREDITS

- The ITC is generally 30% of the cost of the “facility” (which does not include ancillary aspects like transmission lines and substations, but can include a reasonable development fee)
- The ITC is generally claimed in full at the time the solar facility is placed in service
- An ITC is a dollar-for-dollar reduction in federal income tax liability

# SECTION 48 TAX CREDITS

- ITCs are generally claimed by the owner of the solar facility
- If the ownership entity includes more than one member or partner, the ITCs are shared as “profits” are shared
- Recapture possible for 5 years (the ITC vests 20% per year)

- ITCs can now reduce Alternative Minimum Tax liability (for tax years beginning after October 3, 2008)
- There is a basis reduction of 50% of ITCs claimed, which reduces depreciation losses (so, you depreciate 85% of the otherwise depreciable basis) of the solar asset

- Solar facilities are generally depreciated over 5 years (5-year MACRS)
- Facilities placed in service in 2009 can claim 50% of the total depreciation in 2009

- The Emergency Economic Stabilization Act of 2008 (popularly known as the “EESA” or the “Bailout Legislation”) extended the solar ITCs for 8 years, so that a qualifying facility must be placed in service prior to **January 1, 2017**, or ITCs are reduced from 30% to 10%
  - The relevant expiration date had been January 1, 2009 until the extension in October 2008

- So, the solar industry got exactly what it had requested in the October 2008 “Bailout Legislation”, but by then, the capital markets were in turmoil and there was insufficient appetite for federal income tax credits, as the large banks and other institutional investors which had been acquiring tax credits either had no more income tax liability to shelter or were no longer investing in illiquid investments

# THE STIMULUS PACKAGE

- So, in February, as part of the American Recovery and Reinvestment Act of 2009 (popularly known as “ARRA” or the “Stimulus Package”), the Congress attempted to add a short-term mechanism to fill the tax equity gap until the capital markets rebounded
- Under ARRA, a solar facility which commences construction in 2009 or 2010 can exchange its ITCs dollar-for-dollar for a Treasury grant

- Treasury is in the process of drafting forms and possibly regulations for the new ITC grant program, so the details are not fully known at this time
- The Treasury grants will not constitute “income” for income tax purposes
- The Treasury grants will have certain features similar to the ITC (vesting over 5 years; reducing depreciable basis by one-half of the grant taken)

- Treasury grants monetize the ITC, but do  
Treasury grants do **not** monetize the value of the depreciation, which is often of significant value to an investor which is making a tax equity investment to acquire the ITCs from a facility owner

- Also, under ARRA, if the owner of the solar facility was a governmental or tax-exempt entity, the option to exchange the ITCs for Treasury grants was not provided
- And having such an entity with any ownership, directly or indirectly, in the solar facility through a pass-through entity (such as a partnership or a limited liability company treated as a partnership for tax purposes) also disqualifies the owner from receiving these Treasury grants

- Since governmental and tax-exempt entities cannot take advantage of federal income tax credits, in order not to lose the benefit of the ITCs, these entities (including most higher educational institutions) must utilize alternative ownership structures
- The most common such structure involves having the solar installation owned by a for-profit entity which claims the ITCs and sells the electricity generated to the host at favorable rates

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**IPED – April 2009**

# **Financing Solar For Colleges and Universities**

**Presented By:**

**Richard Raeke**

**Director of Project Finance  
Borrego Solar Systems, Inc.**

## AGENDA

- Overview of solar advantages for colleges and universities
- Case Study: University of California at San Diego



## **Our Mission**

***Borrego Solar is solving the world's energy problems by accelerating the adoption of renewable energy. Our people are committed to excellence in every aspect of solar design and construction.***



# Why Solar Power for Universities?

- Known technology
- Reliable production
- Cost control
- Local incentives
- Financing options
- Fundraising
- Right thing to do



# Financing Options for Universities

- Solar is expensive at roughly \$7,000/kilowatt (or \$0.45/kWh)
- On a typical solar project, the federal tax incentives pay for more than 1/3, local or state incentive programs pay for 1/3 and the last 1/3 comes from debt or owner equity.
- As tax-exempt entities, universities cannot receive the federal Investment Tax Credit/Grant and bonus depreciation on a purchase.
- Universities and colleges have to look to more creative structures, such as PPAs, in order to monetize the tax credits.
- Without monetizing the tax credit, a college would have to look to another funding source, such as grants or donations to make the system economically viable.

# A Power Purchase Agreement (PPA)

- Long term agreement to purchase electricity from a third party financier (PPA Provider) – 20 year terms, predictable cost increases
- No equipment to purchase, no capital investment
- No annual maintenance expense, no asset to manage
- Customers purchase only the power produced by the system



# Case Study: UCSD

## PPA Terms

Depend on;

- Local Incentive
- Installed Cost
- System Production
- Value of RECs



- Universities can tap into fundraising or grants in order to reduce the price per kWh

- Solar can be a great centerpiece to a fundraising effort.

Donations can go to reducing operating expenses.

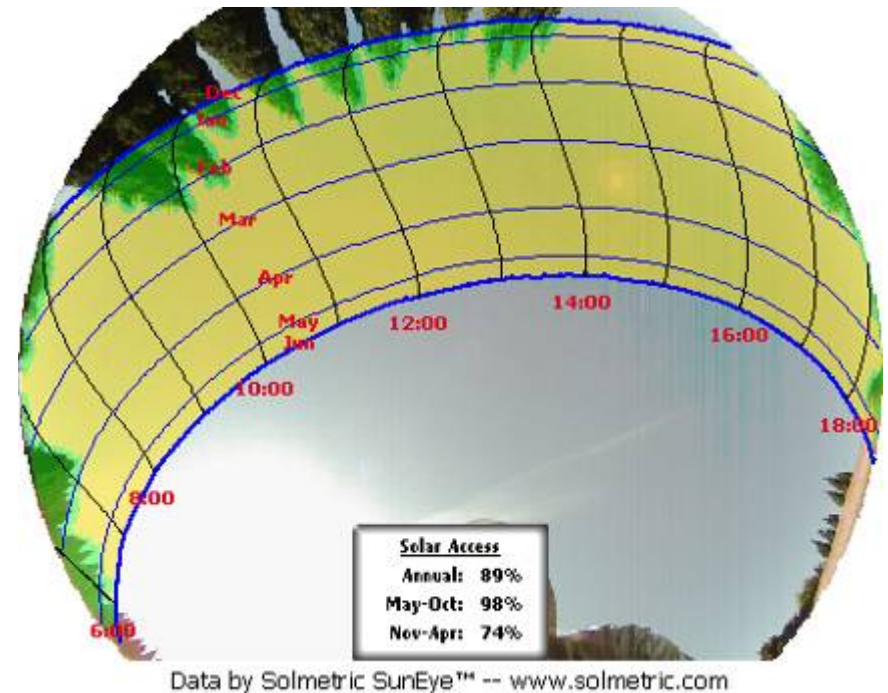
# State Solar Programs

- Solar PV works in states with viable incentive programs
  - Massachusetts – Commonwealth Solar Initiative
  - California – Production Based Incentive (PBI)
  - New Jersey – SREC program
  - Others include Connecticut, New York, Pennsylvania, Arizona, Colorado, New Mexico, Oregon and Hawaii
- Stay tuned – incentive programs are evolving

# Case Study: UCSD

## Design Considerations

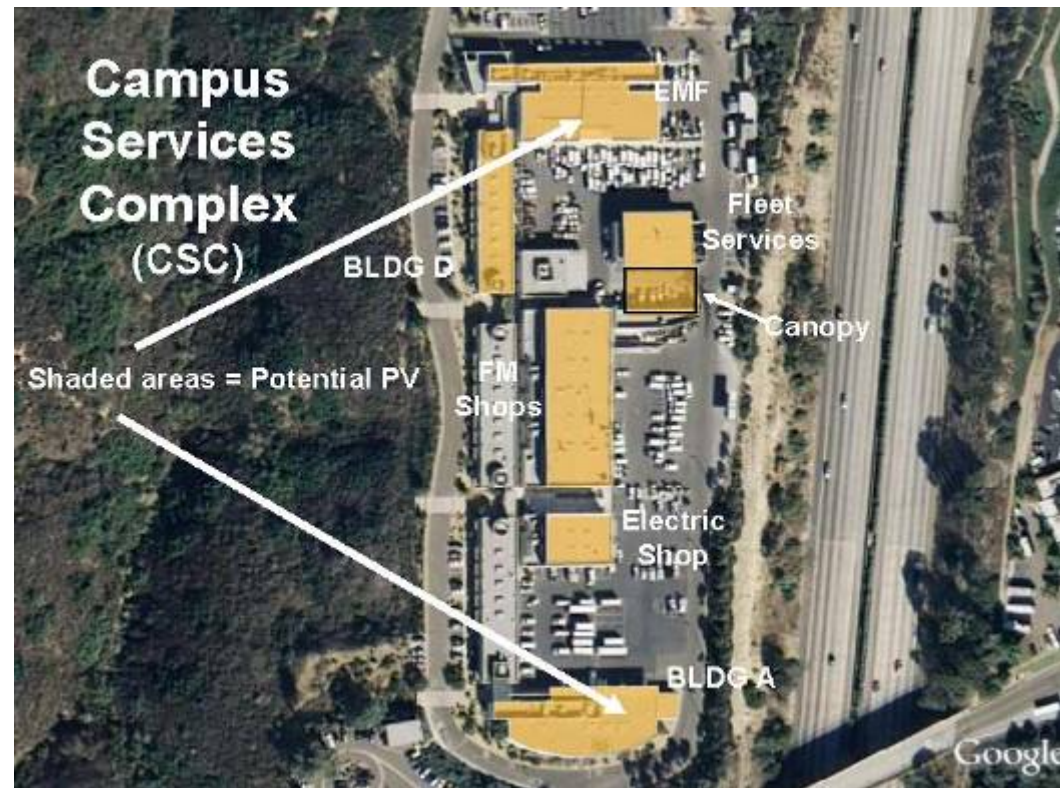
- NEC Article 690
- Grounding
- Stringing
- Shading
- Temperature & voltage
- Wind speed – exposure category
- Access and weight
- Revenue Grade Monitoring
- Aesthetics



# Case Study: UCSD

## Site Evaluation

- Customer preferences
- Electricity consumption
- Cost per kWh
- Available space
- Meter location
- Trenching
- Conduit runs



Generate Change. Choose Solar.

## Case Study: UCSD



### Standard Roof Mounts

Generate Change. Choose Solar.

# Case Study: UCSD



Generate Change. Choose Solar.

# Case Study: UCSD



Completed array

Generate Change. Choose Solar.

# Case Study: UCSD



## Prefabrication of arrays

Generate Change. Choose Solar.

# Case Study: UCSD Carport Construction



Crane day

Generate Change. Choose Solar.

# Case Study: UCSD



Carport construction

# Case Study: UCSD



Generate Change. Choose Solar.

# Case Study: UCSD



Generate Change. Choose Solar.

# Solar for Colleges and Universities

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