

FINANCING PHOTOVOLTAIC INSTALLATIONS



2010 Fall Conference

Monday, October 25, 2010



SAN DIEGO COMMUNITY COLLEGE DISTRICT
CITY COLLEGE • MESA COLLEGE • MIRAMAR COLLEGE • CONTINUING EDUCATION



FirstSouthwest 
A PlainsCapital Company.

FULBRIGHT
& *Jaworski* L.L.P.
Attorneys at Law

Power Purchase Agreements (PPA) SDCCD Site Plans

Site	Type	Production (kWh)	Estimated Start-up Date (2010)
City LRC	Roof	140,060	September
City Harry West Gym	Roof	257,858	October
District Office Parking Lot	Carport	422,490	September
District Office Building	Roof	42,283	September
Mid-City	Roof	82,844	September
Miramar Parking Lots	Carport	1,833,468	September
Mesa Parking Structure	Carport	303,079	September
Mesa Parking Lot #1	Carport	590,870	September
Mesa Parking Lot #2	Carport	<u>848,947</u>	October
TOTAL		4,521,899	



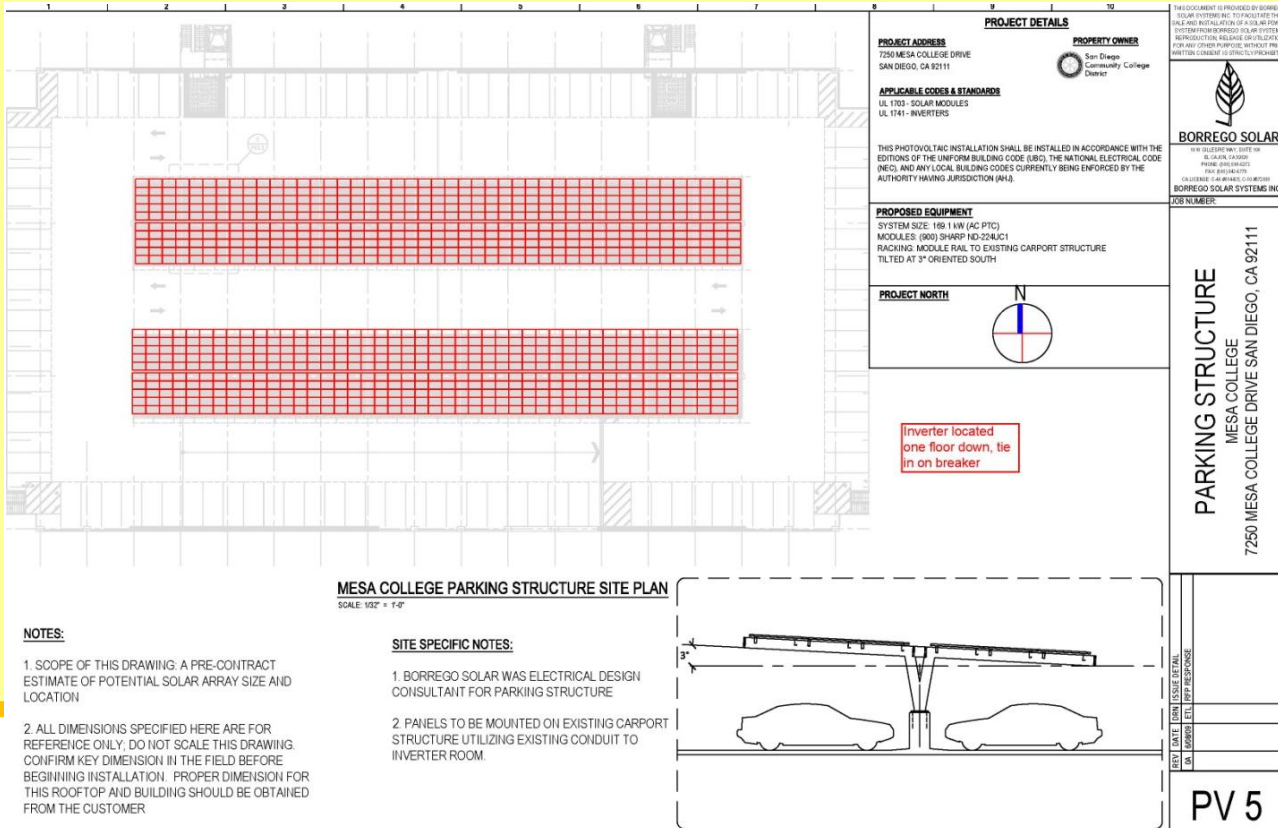
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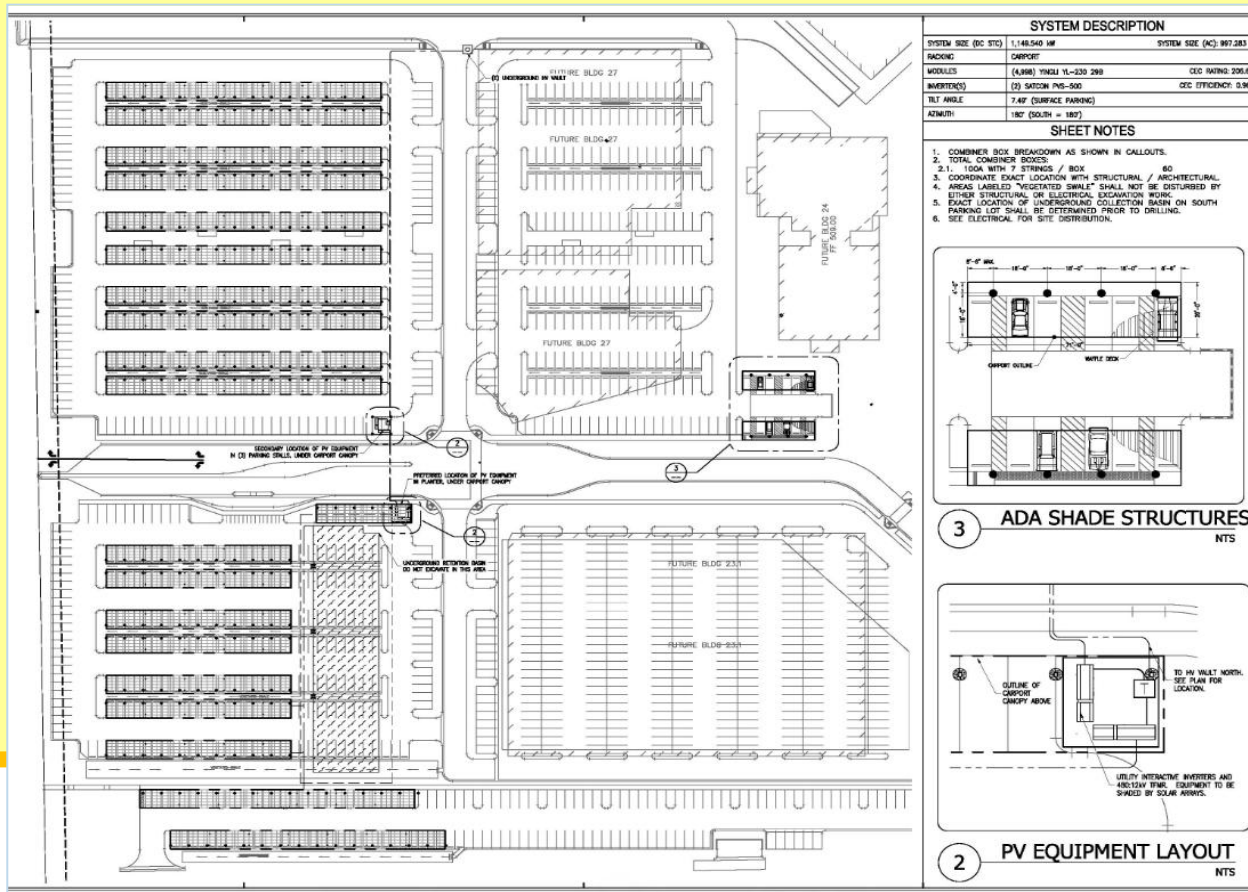
Power Purchase Agreements (PPA) SDCCD Site Plans – Mesa College

Parking Structure- 177 kW



Power Purchase Agreements (PPA) SDCCD Site Plans – Miramar College

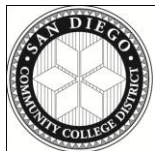
Parking Lot – 991 kW



Power Purchase Agreements (PPA) Owner's Perspective

Why Choose a Power Purchase Agreement?

- No initial capital cost to implement, thus it allowed the District to retain bond funding for other programming needs.
- It reduced long-term maintenance and ownership costs.
- It allowed us to take advantage of California and Federal tax incentives and accelerated depreciation schedules through third-party financing and ownership that we as a public agency could not otherwise leverage. This translates to lower electrical rates.



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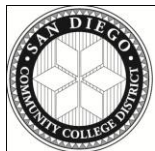
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Power Purchase Agreements (PPA) Owner's Perspective

What is a Power Purchase Agreement?

- Agreement to purchase power from a third-party provider
- Fixed term: 20 years for SDCCCD
- Pay only for what power is generated



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Power Purchase Agreements (PPA)

Top Things to Consider

1. Look carefully at your objectives. Weigh advantages and disadvantages of all options to determine what makes the most sense for your organization.
2. Identify sites prior ahead of time, factoring in long-term facilities master plans and scheduled maintenance activities (*e.g.*, roof replacements).
3. Understand and analyze current electrical loads to size your system appropriately.

Power Purchase Agreements (PPA) Top Things to Consider

4. Consider selecting through competitive process rather than direct sourcing or negotiating with a single entity.
5. Take advantage of net metering and bank kWh you don't need for future consumption.
6. Develop clear terms/conditions of your PPA and Site License Agreement and share at the time of proposal and selection.



Power Purchase Agreements (PPA) Top Things to Consider

7. Closely scrutinize the financial backing of the PPA provider.
8. Clearly identify how the system will be monitored and how billing will be performed.



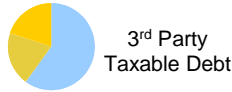


Power Purchase Agreements (PPA) Environmental Benefits

- By installing a solar system, we will be reducing global warming, mitigating natural disasters, and helping to preserve our planet.
- Over the first 20 years of production:
 - Reduce Carbon Dioxide emissions by 111,747,343 pounds
 - Equivalent to 176,169,816 vehicle miles not traveled
 - Equivalent to planting 260,817 mature trees
 - Conserve 159,751 barrels of oil
 - Reduce Nitrogen Oxide emissions by 28,501 pounds
 - Reduce Nitrogen and Sulfur Oxide emissions by 31,351 pounds
- District retains renewable energy credits.



Renewable Financing Structures

There are three basic financing structures that can be applied across technologies: (i) private developer owned; (ii) municipal owned; (iii) investor owned. Each approach has pros and cons to consider

Description	Straight (PPA / Lease)	Municipal Owned (Direct)	Muni Prepaid (PPA/Lease)
Financing Structure	Tax Equity  3rd Party Taxable Debt	Tax-Exempt Debt 	Tax Equity  Taxable Muni Debt
Muni Ownership	Subject to FMV buy-out option	Yes	Subject to FMV buy-out option
Muni Financing	No	Yes	Yes
Execution Risk	High (Structural complexity; Requires 3rd Party Financing)	Low (Structural simplicity)	Medium (Structural complexity; Financing pre-committed)
Equity Buy-Out Risk	High (IPP motivated to retain ownership)	N / A (No additional payments)	Medium (Citi not in business of long-term power ownership)
Transparency	Low	High	High
Tax Benefit Monetization	Yes	No	Yes

Federal and Local Subsidies

There are several subsidies available for the development and use of renewable energy, however, tax-exempt entities are unable to utilize the subsidies fully.

Federal Subsidies

- ARRA 1603 Grant
 - 30% cash grant in lieu of tax credit available 60 days after commercial completion
 - Program currently expires on December 31, 2010 unless extended
 - Tax-exempt entities precluded from claiming directly
- Investment Tax Credits
 - 30% corporate tax credit for renewable projects Production Tax Credits
 - Solar projects placed in service before December 31, 2016
 - Other technologies before December 31, 2013 (2012 for wind)

Federal and Local Subsidies

There are several subsidies available for the development and use of renewable energy, however, tax-exempt entities are unable to utilize the subsidies fully.

Local Incentives

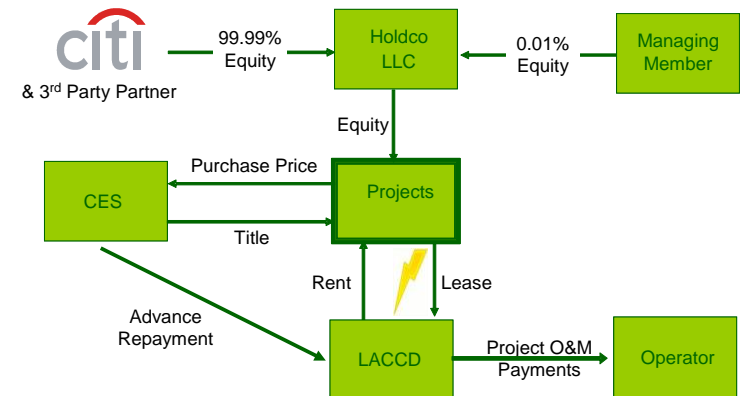
- California Solar Initiative
 - Available for projects up to 1MW
 - Performance based incentive
 - Program varies by utility service territory



Case Study: Los Angeles Community College District

Citi developed an innovative lease structure and provided financing that allowed the LACCD to efficiently leverage G.O. bond proceeds towards building PV systems across its 9 campuses

- **Citi invested in an SPE that purchased PV systems installed on LACCD facilities and then leased them back to the District under a 20 year agreement**
 - Ownership of the facilities allowed Citi to capture the 1603 Renewable Energy Grant
- **Transaction structured as a lease**
 - Treasury Department notice in early January allowed capture of cash grant even if the PV systems were leased to a municipal entity
 - Solved LADWP issue of 3rd party selling electricity within its territory (as is the case in a PPA structure)
 - LACCD prepaid a percentage of the lease, making up the 60% of the capital stack above Citi's investment
 - Initial project phase of 4.3mW includes 5 projects across 4 different campuses (East LA, Southwest, Harbor, Pierce)



Case Study: Los Angeles Community College District

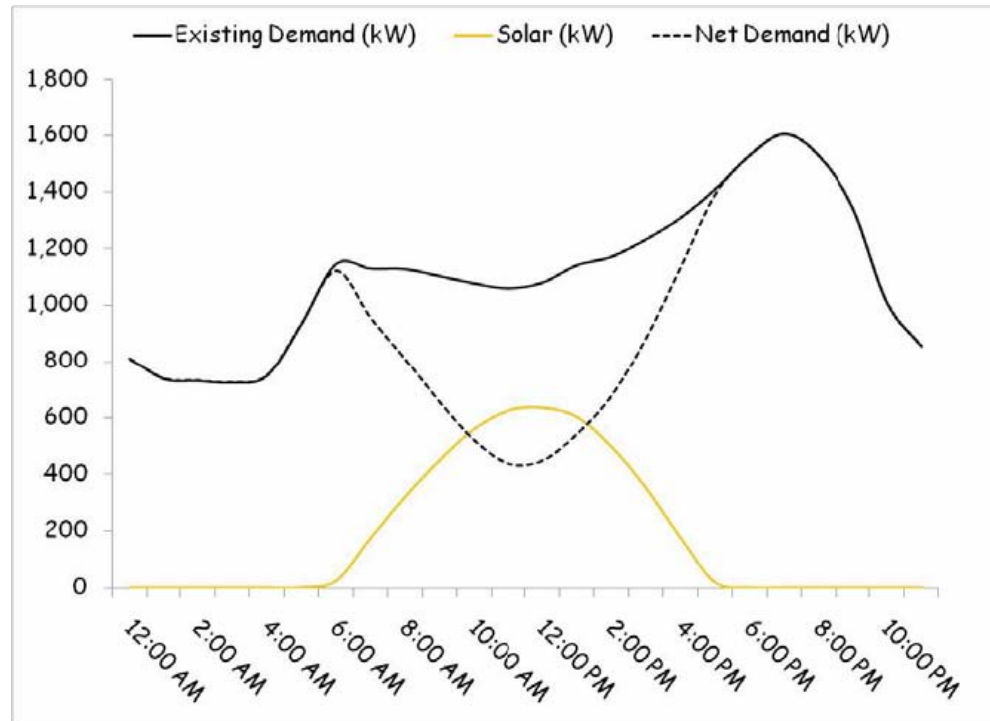
Citi developed an innovative lease structure and provided financing that allowed the LACCD to efficiently leverage G.O. bond proceeds towards building PV systems across its 9 campuses

- **Through the transaction, LACCD was able to:**
 - Capture federal incentives and still maintain operational control of the project
 - Directly benefit from independently negotiated developer guarantees & upside of electricity production
 - Receive a fixed price buyout option for the projects based on the fair market value at inception
 - Efficiently leverage its existing G.O. bond proceeds to build more PV projects

Understanding Utility Costs

- **Permits estimation of savings from solar**
- **“Large users” have both time of use charges and demand charges**
 - **Utility’s variable cost for producing kilowatt hours**
 - **Demand charges cover fixed costs in generating capacity**
 - **The latter may amount to more than 35% of a utility bill**

Impact of Solar Facilities on Demand for a Typical College in Summertime



- **Note peak demand unaffected**
- **Savings may deviate from average**
- **Risk of shifts in cost to demand changes**

Discounted Cash Flow Analysis

- **Characteristics of Net Present Value (NPV) analysis**
- **Elements of Discount: Time value of money and risk**
- **New projects should start with a positive NPV**
- **Elements of positive cash flow:**
 - **Future energy savings**
 - **Incentive payments**
 - **Sale of Renewable Energy Credits (RECs)**

Discounted Cash Flow Analysis (continued)

- **Factors impacting anticipated cash flows and NPV:**
 - Immediate energy savings
 - Changes to future energy prices
 - Assumed discount rate

Limitations of NPV Analysis

Example NPV Sensitivity Analysis for PPA (1 MW, in \$000s)

Discount Rate = 6%

Discount Rate = 7%

		Annual % Increase in Rates						Annual % Increase in Rates			
		4.0%	5.0%	6.0%	7.0%			4.0%	5.0%	6.0%	7.0%
Energy Savings per kWh (t = 0)	\$0.10	-2,399	-1,985	-1,495	-913	Energy Savings per kWh (t = 0)	\$0.10	-2,518	-2,174	-1,769	-1,291
	\$0.12	-1,763	-1,267	-679	19		\$0.12	-1,957	-1,545	-1,059	-484
	\$0.14	-1,127	-548	138	952		\$0.14	-1,396	-915	-348	322
	\$0.16	-492	170	954	1,885		\$0.16	-835	-285	363	1,129
	\$0.18	144	889	1,771	2,818		\$0.18	-274	345	1,073	1,935
	\$0.20	780	1,607	2,587	3,751		\$0.20	287	974	1,784	2,741

- **Good financial models allow for numerous assumptions and explore a wide range of values, but cannot anticipate all future variations in conditions**

Financing Options for Solar Projects

- **Municipal debt structures will be discussed by Lisel in the following segment**
- **Private corporate/Power Purchase Agreement (PPA) or lease structure**
 - Equity financing driven by tax credits, etc.
 - Equity investors making profits
 - Off-balance sheet to district
 - Equity flip structure
 - Lease structure, where utility does not allow PPA

The Work of Financial Advisors on Solar

- **A specialty**
- **Needs additional skills, compared to bond financial advisors, such as:**
 - Ability to communicate with engineers
 - Understanding of local utilities (both private and municipal)
 - Familiarity with tax credits **C** not a customary concern for districts
- **Choices among fee arrangements**
 - Professional contract exempt from formal bidding
 - Choice of contingent (higher?) or pay-as-you-go fees (lower?)
 - Solar transactions are less likely to close than traditional municipal debt.

Financing Options for Photovoltaic Installations

- Community college districts in California may borrow in only three basic ways
 - Tax and revenue anticipation notes
 - General obligation bonds
 - Certificates of participation/vendor lease-purchase arrangements
- Each one of these can provide funding for solar panels, with restrictions



Tax and Revenue Anticipation Notes




- Installation costs of solar panels can constitute part of the district's cash flow deficit for a fiscal year, increasing the permitted principal of tax-exempt tax and revenue anticipation notes (TRANs)
- Advantages include very low-cost financing of progress payments
- The disadvantages are:
 - Any take-out financing must be completed before the TRANs set-aside dates, or else the district needs to find other funds for those payments; and
 - Even with take-out financing, the district will likely be on the hook for interest on the TRANs, and their costs of issuance are sunk



General Obligation Bond Proceeds

➤ In the abstract, general obligation bonds (G.O. bonds) may be used to pay progress payments on solar panels

➤ However:

-  (1) Solar panels must have been on the district's Proposition 39 project list; or, if the district issued bonds under Proposition 46, be installed in such a way as to constitute fixtures under California law; and
-  (2) There are restrictions on using tax-exempt G.O. bonds to fund facilities used by, for example, Southern California Edison; and
-  (3) Even with taxable G.O. bonds, it is not appropriate for a district to pay for a facility that will be owned, even temporarily, by a for-profit entity.

Certificates of Participation or Vendor Leases

Always available for districts who have unencumbered real property available

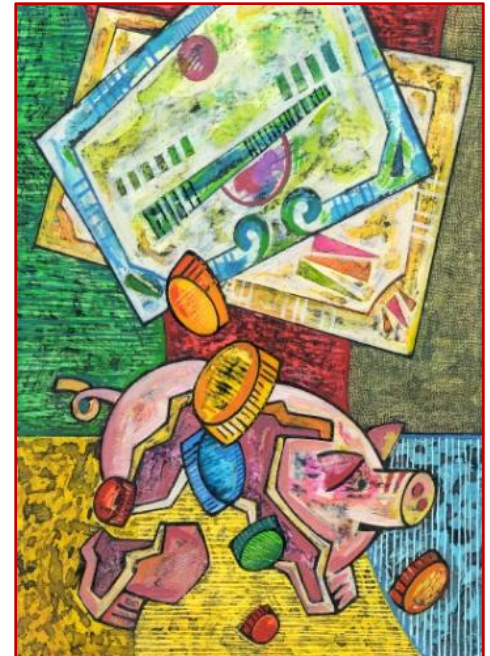
- If intention is to do private financing of solar project, then certificates of participation (COPs) need to be taxable
- Without private interim ownership, no tax incentives are available
- If the district intends to own and operate from the inception, it may issue tax-exempt COPs



Certificates of Participation or Vendor Leases

(continued)

- Necessary if G.O. bonds are not available, either because (1) the project list did not include solar; or (2) there is nothing left on the authorization; or (3) the district cannot access bond authorization because of drop in assessed valuation/rise in tax rate (Proposition 39 only)
- May be short-term, if there is a private financing take-out anticipated
- May be structured to match the term of the private financing



Combining Taxable COPs or Solar Equipment Lease with Taxable G.O. Bonds

- For districts which can access their Proposition 39 G.O. proceeds and have solar facilities on their project lists:
 - District may issue COPs or enter into solar equipment lease
 - District may pay lease payments from taxable G.O. proceeds
 - The G.O. proceeds may be escrowed for additional security
 - At the end of the private ownership period, the district may pay the purchase or option price from tax-exempt G.O. proceeds

QUESTIONS?

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