



Selling Solar with RECs

California Solar Forum

San Diego Regional Energy Office
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Who is 3 Phases Energy?

UTILITY PARTNERSHIPS

**Utility Green Power
Program Design and
Management**

GREEN CERTIFICATES

**Retail and Wholesale
Sales of Green
Certificates & CO2
Credits**

GREEN DIRECT

**Direct Access
100% Renewable Retail
Electricity Sales**

GREEN ONSITE & DEVELOPMENT

**Project Development
Daylight Savings PPA**



What is a Renewable Energy Certificate (REC)?

- a “REC” or “certificate” or “green tag” is assigned to each MWh at the point of renewable energy production
- The result is 2 marketable commodities:
 1. Electricity (MWh)
 2. Renewable Energy Certificate (REC)
- Depending on the market, the REC can be sold “bundled” together with the electricity, or split and sold “unbundled” separate from the electricity

Green Energy = Electrons + REC



Renewable Energy Certification

Certification by Green-e® provides Product Quality and Consumer Protection.



- Nation's leading symbol for renewable energy certification
- Provides standards for consumer and environmental protection
- Developed through stakeholder-driven national discussion
- Quality Assurance through Annual Verification Audit
- Recognizes best practice programs and builds consumer confidence in renewable energy

State Renewable Portfolio Standards are verified and/or audited by state agencies.



Variants on Solar REC (SREC) Markets

1. Non-RPS States **\$-**
 - Low/no incentives
 - SRECs can be sold into voluntary national markets only
2. RPS States where RECs do not trade for compliance **\$+**
 - e.g. California
 - Voluntary state and local markets
3. RPS States where RECs trade for compliance but no solar carveout **\$\$**
 - e.g. Texas
 - SRECs must compete with other, often lower priced RECs
4. RPS States where RECs trade for compliance, with a solar carveout **\$\$\$\$**
 - e.g. New Jersey, Colorado, Nevada
 - Compliance market
 - High Premium for Solar RECs



Capturing Value from Solar RECs in California

1. Sell them to a Green-e[®] certified reseller (e.g. 3 Phases Energy, Sterling Planet, Renewable Choice, etc.)*
2. Become a Green-e[®] certified reseller. Buy/sell for your own account.
3. Register your supply with a REC broker
4. Donate them or exchange for value-in-kind (event “green” sponsorship, other services, etc)
5. Retain “green” attributes and retire them on your own behalf

*If premium demand the estimated value is **\$10 per SREC (MWh)**

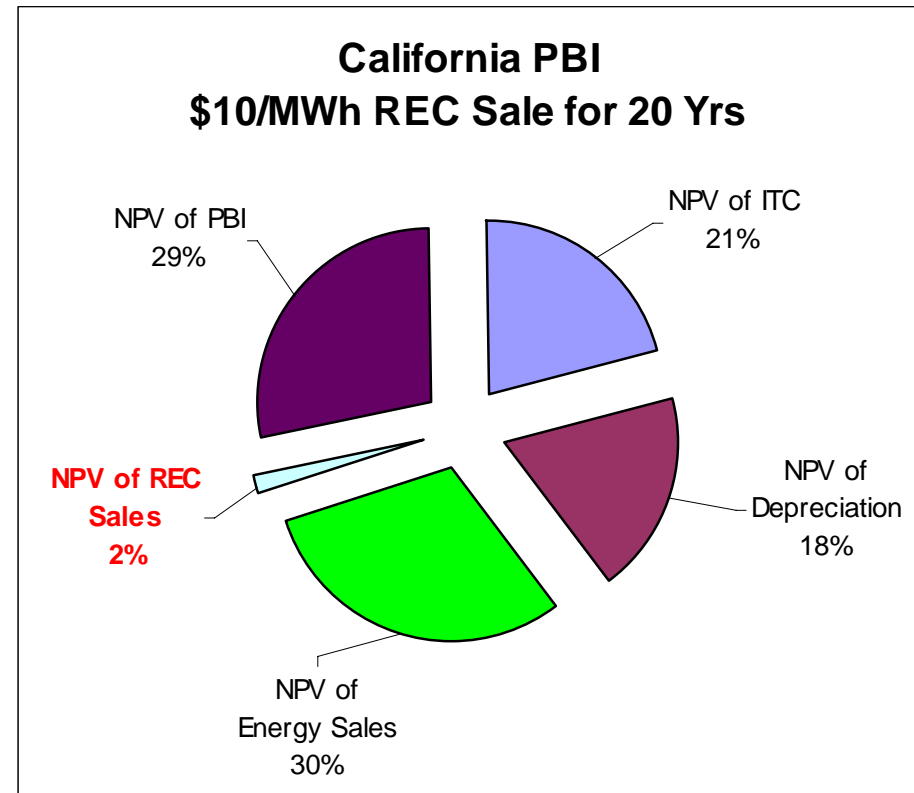
*If no/low demand, estimated value is **\$1-\$2 per REC (MWh)**



Relative Value of the SREC in a California Solar Project

- 1 MW, PPA financed project
- California PBI (2007)
- SREC price of \$1/MWh for 20 years

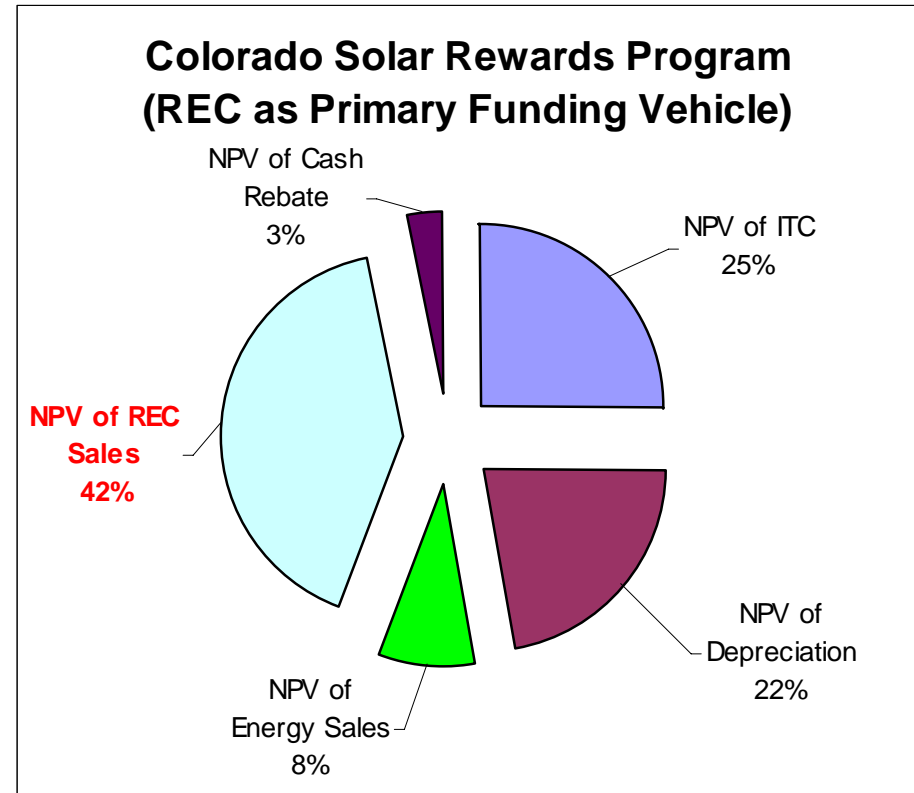
REC Sale can assist with maintaining cash flows to project, and reduce PPA rate to customer





Solar RECs as Primary Financing Vehicle (e.g. Colorado)

- 20-year SREC contract from Xcel Energy
- SREC price is competitively bid
- Includes small additional rebate for Xcel customers
- Higher cash flow good for project finance





Issues involving SREC Ownership

- SREC title belongs to the system owner unless specifically transferred
- Customers should always know who has title to the SRECs and for how long
- Need to exercise care in making “Green Energy” claims
- Sold SRECs can be replaced by non-Solar RECs to maintain offset levels
- Supply/Demand imbalance creates an SREC buyers’ market in CA
- Difficult to sell RECs from projects <100kW. Rise of REC Aggregators?
- What will be the impact of future regulatory changes? AB32? Others?



Challenges to Using SRECs in Financing Solar Projects

- **Contractual Issues (Non-compliance markets)**
 - Long term contracts are extremely hard to come by
 - Uncertainty about ownership
 - Uncertainty about compliance/voluntary market demand
 - Uncertainty about future market prices
 - Creditworthiness of offtaker can be a concern
 - Transaction cost can exceed the benefit of sale
 - Difficult for most residential and small commercial systems <100kw
- **Funding Offset Issues**
 - Incentive programs may consider SREC income as offsets (CA)
- **Compliance Issues**
 - REC price ultimately capped at penalty level for non-compliance w/ RPS
 - High in NJ, low in WA
 - State PUC or legislature may change the game



Thank You

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