

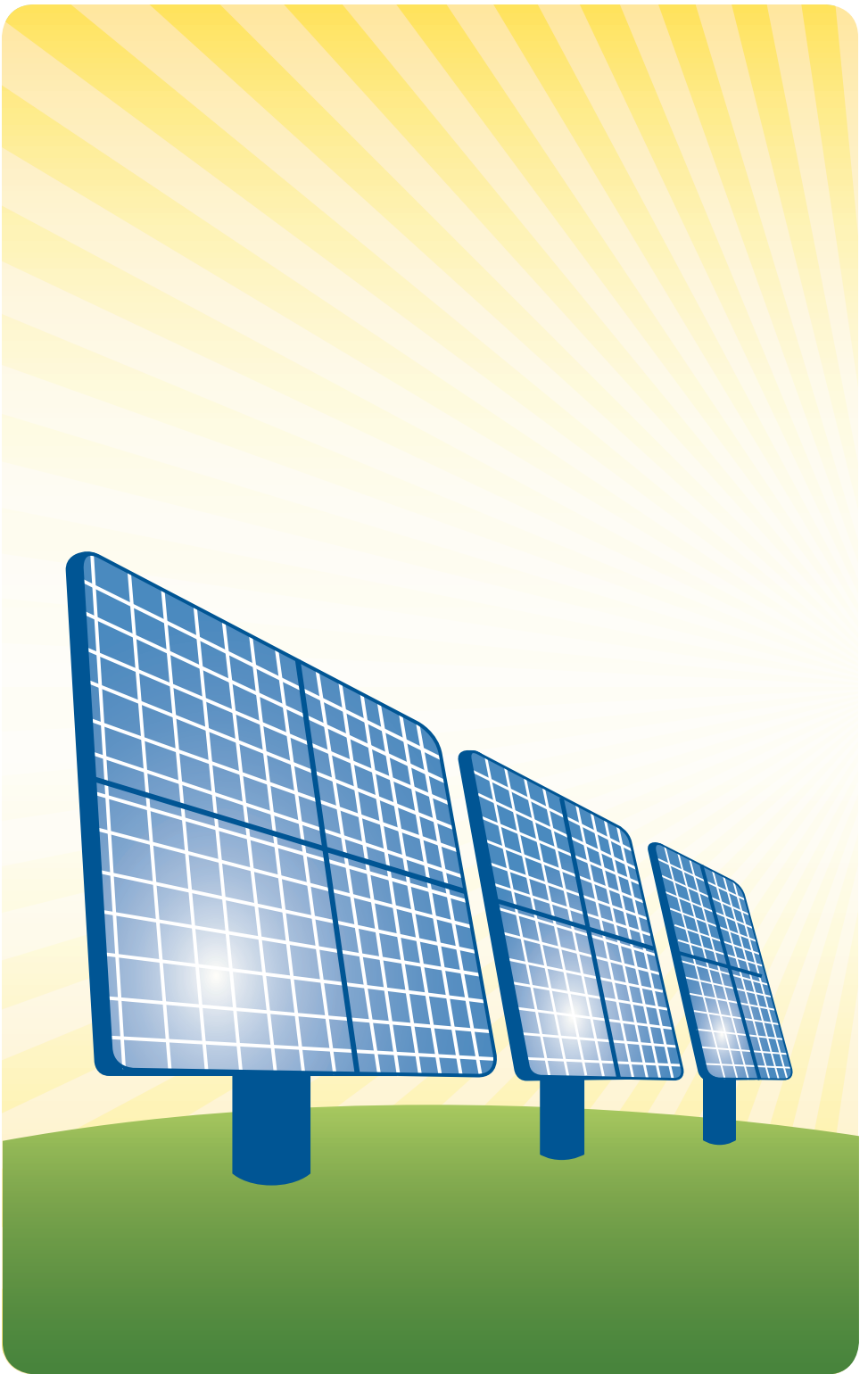


**The California Debt and Investment
Advisory Commission Presents**

Financing Solar Energy:

Public Financing Options for California's Local Governments

A Resource Guide



Introduction

Over the past ten years, California's commitment to the development, use and generation of renewable energy resources has made it a leader in the renewable resource community. Energy efficiency is the state's highest priority for meeting the state's energy needs. California has established some of the nation's most progressive renewable energy policies, with electric utility companies required to use renewable energy to produce 20 percent of their power by 2010 and 33 percent by 2020. By setting high standards the state is leading by example. A key component to meet these targets will be solar energy.

Public investments in renewable resources have become an accepted part of local, state and federal finance. In fact, by including renewable energy incentives in the American Recovery and Reinvestment Act of 2009 (Recovery Act), Congress explicitly recognized that energy investments can play an important role in the nation's recovery. Renewable energy resources - like solar, wind and biomass - were promoted initially for their environmental benefits of carbon-free, renewable energy generation. With the increasing (and fluctuating) prices of conventional energy resources, however, renewable energy offers economic returns that can be compared favorably to other public investments.

The Recovery Act funding represents an investment in renewable energy - and solar applications in particular - for the purpose of overcoming technical barriers, demonstrating new technologies, and supporting clean-energy jobs for years to come.

California leads the nation in solar megawatt production and the U.S. Department of Energy designated six California cities to be “Solar America Cities.” This designation recognizes innovative approaches for removing market barriers to installing solar energy and for encouraging adoption of solar energy technologies.¹ When public agencies employ green energy options, like the installation of solar photovoltaic (PV) systems, these efforts not only generate more renewable energy but serve to educate and inform the public about the potential of renewable energy.

How can a public agency invest or encourage its residents to invest in renewable energy? Aside from popular incentive programs, other financing assistance is necessary to make solar a viable option for most communities. This guide describes new and temporary federal tax-credit programs and property based financing options. Each section concludes with either a source for additional information or an example of a public agency that has implemented one of the financing options.

¹ Solar America Cities is a partnership between the U.S. Department of Energy (DOE) and a select group of cities across the country that have committed to accelerating the adoption of solar energy technologies at the local level.

California’s Solar America Cities

- Berkeley
- Sacramento
- San Diego
- San Francisco
- San Jose
- Santa Rosa

As designated by the U.S. Department of Energy

Tax-Credit Bond Programs

Passage of the Recovery Act significantly expanded available tax-credit bond programs for state and local public agencies. Under a tax-credit bond program, a public agency issues a taxable bond, and the investor receives a tax credit at a rate set by the Treasury Department.² These programs are intended to provide an interest-free loan to the public agency issuer under current market conditions; however, issuers may have to make supplemental interest payments with regularly scheduled principal payments to investors.

Each tax-credit bond program is designated for a specific purpose or type of project. All tax-credit bonds exist under temporary federal tax provisions, which can be re-authorized or extended through federal legislation. In 2008, Congress amended the tax-credit bond rules to permit tax credits to be sold separately from the related bonds; a “stripping” provision intended to increase the benefits and marketability of tax-credit bonds.

² As of January 22, 2009, the credit rate for tax-credit bonds including CREBs and QECBs will be based on the Treasury Department’s estimate of the yields on outstanding bonds with an investment-grade rating between A and BBB. Ratings are posted daily at www.treasurydirect.gov.

To expand and accelerate the development, deployment, and use of solar energy throughout the nation, the Recovery Act authorized the expansion of two tax credit bond programs to encourage investment in solar and other energy efficient projects - clean renewable energy bonds (CREBs) and qualified energy conservation bonds (QECBs).³

Clean Renewable Energy Bonds (CREBs)

CREBs are tax-credit bonds that offer qualified issuers the equivalent of a low interest loan for financing qualified energy projects for the term of the bonds. Bond holders receive a federal tax-credit in lieu of market rate interest payments. Renewable energy generation projects that qualify for CREB financing include wind, closed-loop biomass, open-loop biomass (including agricultural livestock waste), geothermal, solar, municipal solid waste (including landfill gas and trash combustion facilities), small irrigation power and hydropower. The project must be owned by a governmental body or a mutual or cooperative electric company.

³ The remaining four programs include qualified zone academy bonds (QZABs), gulf tax credit bonds (GTCBs), forestry conservation bonds (FCBs), and qualified school construction bonds (QSCBs).

Allocation. Originally authorized by the Energy Policy Act of 2005, CREBs were re-authorized in the Energy Improvement and Extension Act of 2008 with an allocation of \$800 million, and further expanded under the Recovery Act with an additional allocation of \$2.4 billion.⁴ This allocation is to be distributed into three distinct groups: one-third for state, local, and tribal governments; one-third for qualifying projects; and one-third for qualifying projects of electric cooperatives. The Internal Revenue Service (IRS) will allocate the \$2.4 billion pursuant to the provisions of the Recovery Act with volume cap allocated to the smallest projects first. Issuers with previous CREB volume cap allocations will be taken into account in the allocation process. An allocation of the new CREBs volume cap is valid for three years after the date of the IRS allocation. Any unused volume cap will expire and revert back to the IRS to be distributed under processes to be established. The application deadline closed on August 4, 2009.

⁴ Codified in Section 54 of the United States Internal Revenue Code

Qualified Issuers for CREBs

- Public power providers
- Cooperative electricity companies
- Governmental bodies
- Clean renewable energy bond lenders
- Not-for-profit electricity utilities that have received a loan or loan guarantee under the Rural Electrification Act.

Costs. The tax-credit rate for the new CREBs has been reduced from the original CREB program and is 70 percent of the rate set by the Treasury Department for qualified tax-credit bonds. Costs of issuance to be paid from new CREBs proceeds are limited to 2 percent of the bond proceeds. For some transactions, cost of issuance may need to be funded with other sources.

Resource. Additional information on CREBs can be found in IRS Notice 2009-33.

Qualified Energy Conservation Bonds (QECBs)

QECBs are tax-credit bonds providing low-interest financing for issuers. First established under the Energy Improvement and Extension Act of 2008, QECBs compensate bond holders with a federal tax credit in lieu of interest.⁵ Under provisions contained in the Recovery Act, local communities can use some or all of their QECB allotment for funding municipal solar and energy efficiency projects, including capital expenditures that reduce energy consumption on publicly-owned buildings. They may also use it to implement green community programs, including funding for community solar programs, such as rebate or incentive programs or public education campaigns to promote energy efficiency.

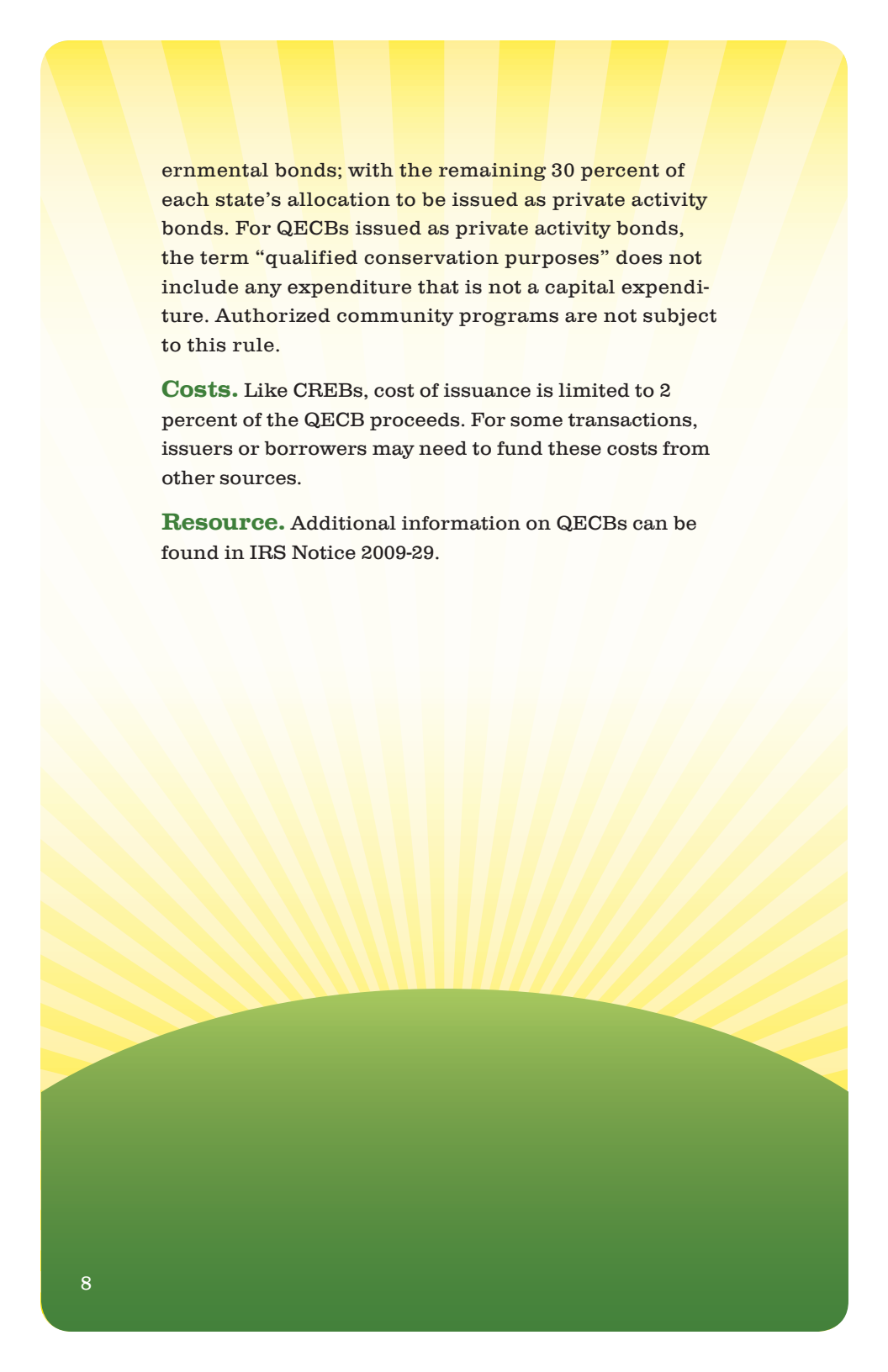
⁵ The tax credit may be applied against the bond holder's regular and alternative minimum tax liability. The tax credit amount is treated as taxable interest income to the holder of the bonds.

Allocation. The Recovery Act imposed limitations for QECBs issued after October 3, 2008 pursuant to the national bond volume cap. Allocations of QECBs were based on each state's proportional population as compared to the population of the United States; California received an allocation of \$381.3 million. Under the terms of the allocation, any California municipality or county with a population of 100,000 or more will receive a portion of the state's allocation. The state may re-allocate any unused volume cap.

While QECBs can be issued as governmental or private activity bonds, the Recovery Act restricts how much can be allocated to each use. At least 70 percent of a state's allocation must be designated for gov-

Qualified Purposes for QECBs

- Capital expenditures incurred for purposes of reducing energy consumption.
- Expenditures with respect to research facilities, and research grants to support research.
- Mass commuting facilities and related facilities that reduce the consumption of energy, including expenditures to reduce pollution from vehicles used for mass commuting.
- Demonstration projects designed to promote the commercialization of various technologies.
- Public education campaigns to promote energy efficiency.



ernmental bonds; with the remaining 30 percent of each state's allocation to be issued as private activity bonds. For QECBs issued as private activity bonds, the term "qualified conservation purposes" does not include any expenditure that is not a capital expenditure. Authorized community programs are not subject to this rule.

Costs. Like CREBs, cost of issuance is limited to 2 percent of the QECB proceeds. For some transactions, issuers or borrowers may need to fund these costs from other sources.

Resource. Additional information on QECBs can be found in IRS Notice 2009-29.

Property Based Public Financing Options

Some innovative programs have been used in California to encourage investment in solar energy systems. Both community facilities districts and contractual assessments are intended to reach property owners and assist with the upfront costs associated with the installation of a solar PV system. Another approach, known as public-private partnerships, can be used to install solar PV systems on public property and secure long-term energy rates.

Community Facilities Districts

Currently, the Mello-Roos Community Facilities Act of 1982 authorizes a community facilities district to finance the purchase, construction, expansion, improvement, or rehabilitation of certain facilities, including, among others, child care facilities, undergrounding of water transmission and distribution facilities, and the cleanup of hazardous materials.

California's charter cities can amend and use Mello-Roos financing to enable property owners to install solar PV electric systems on their buildings and pay for the improvements over 20 years through a special tax levy on their property tax bills. SB 279 (Hancock), currently pending in the Legislature, would enable "general law" cities to use community facilities districts to finance the installation of solar panels.⁶

⁶ The status of this bill can be tracked at www.leginfo.ca.gov.

Example. Prior to passage of AB 811 (Levine) in 2008, the City of Berkeley established the Berkeley FIRST, a solar financing program authorized under the Mello-Roos Community Facilities Act of 1982.⁷ Since Berkeley is a “charter city,” it amended its municipal code to be able to use Mello-Roos financing for this purpose. The city established a city-wide community facilities district, the Sustainable Energy Financing District, to enable property owners to install solar PV electric systems on their buildings and pay for the improvements over 20 years through a special tax levy on their property tax bills. Property owners may choose to participate in the district and pay for the cost of their own project, as well as their share of the fees associated with program administration, as a line item on their property tax bill. The first round of financing has been fully subscribed at \$1.5 million.

⁷ A Mello-Roos Community Facilities District raises money through special taxes that must be approved by 2/3rds of the voters within the district. The district is formed to finance major improvements and services within the district which might include schools, roads, libraries, police and fire protection and ambulance services. The taxes are secured by a continuing lien and are levied annually against property within the district. Servicing the debt becomes the obligation of property owners in that district, and is transferable to future property owners until the debt is paid in full. Mello-Roos assessments are itemized on property tax bills.

Contractual Assessments (AB 811)

In 2008, the Governor signed AB 811 (Levine) into law and authorized all cities and counties in California to designate areas within which property owners may enter into contractual assessments to finance the installation of facilities to distribute renewable generation, as well as energy efficiency improvements. The facilities and improvements must be fixed to the property owner's residential, commercial, industrial, or other real property. Cities and counties have used this legislation to establish loan programs that provide property owners low-interest loans to finance energy upgrades secured by contractual assessment agreements with property owners. These contractual assessments become a line item on a property owner's property tax bill. Eligible upgrades include installation of distributed generation renewable energy sources or energy efficiency improvements that are permanently fixed to residential, commercial, industrial, or other real property. Contractual assessments can not be used to finance the purchase or installation of appliances that are not permanently fixed to the real property.

Funding AB 811 Programs. Cities and counties can fund AB 811 loan programs by using the general fund, issuing municipal bonds, partnering with a utility to get financing or setting up private financing. Another possible resource to fund AB 811 programs is the California Energy Commission's Municipal Financing District Program, which was created to assist cities, counties and groups of cities and counties in implementing or continuing their own financing district program.

Example. The City of Palm Desert established the Palm Desert Energy Independence program pursuant to the legislation. Palm Desert’s program is now in its third round of financing, funded with money from the city’s general fund and redevelopment agency.

Public-Private Partnerships

Public-private partnerships (P3s) are another method to finance public-sector solar efforts. A public agency enters into power purchase agreement with a private partner that will provide solar power at fixed cost to the public agency over the life of the partnership (typically 15 to 25 years) in exchange for the public agency hosting a solar PV system on a publicly owned or leased building.⁸ This financial arrangement allows the host customer to receive fixed-rate and often lower cost renewable energy, while the private partner acquires financial benefits such as tax credits that are not available to a public agency, as well as income generated from the sale of electricity to the public agency.

A power purchase agreement enables a public agency to realize the benefits of solar energy, including meeting

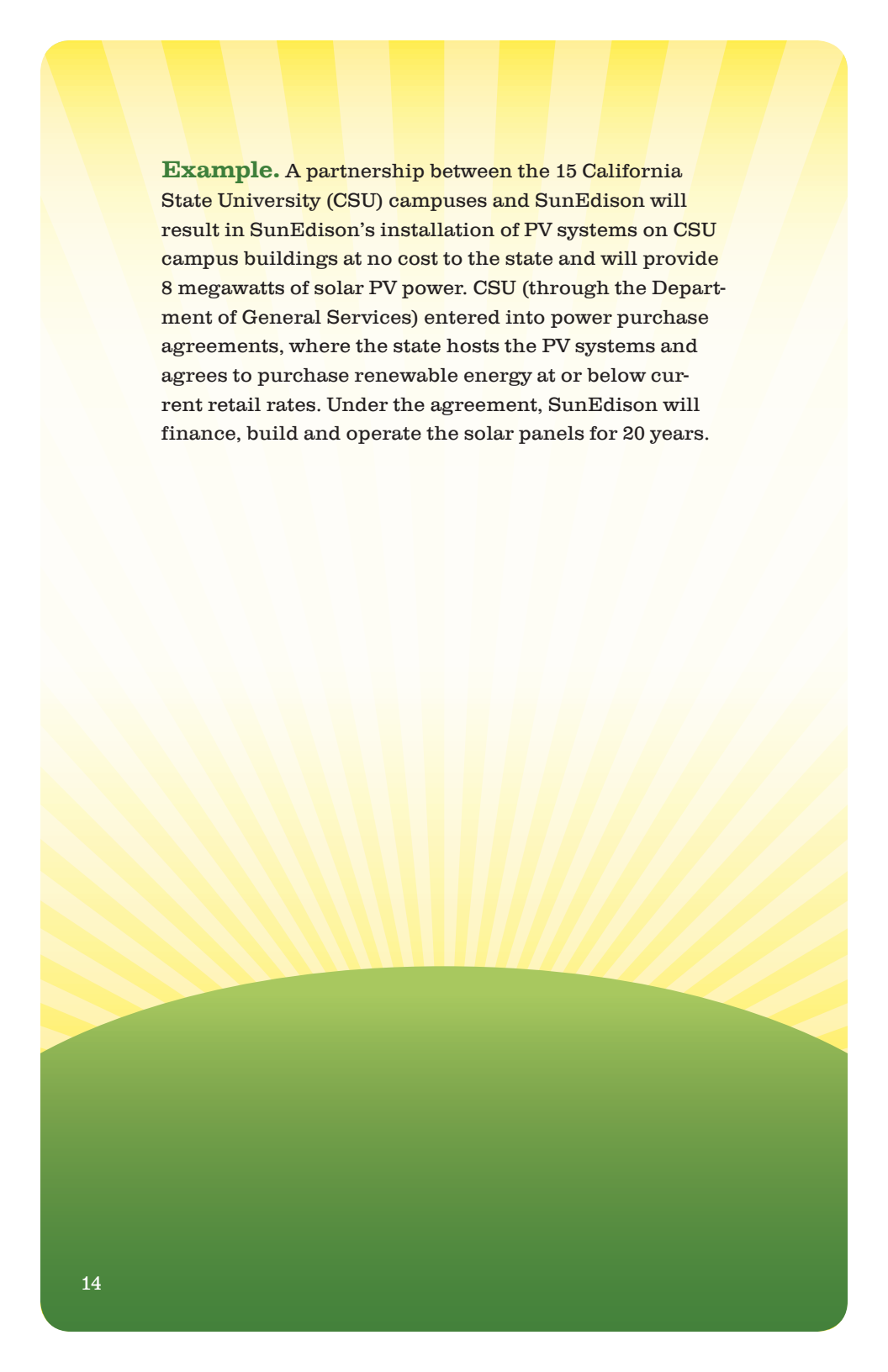
⁸ In a power purchase agreement, there may be several private partners, including solar services provider, the system installer (if not the solar services provider), the investor who provides equity financing and receives any federal and state tax benefits and/or the utility that will link to the system to bring it to the grid.

renewable energy targets without having the associated risk with of the solar system, such as high up-front capital costs, system performance risk, and complex design and permitting processes. In purchasing, operating and maintaining the solar system, the private partner assumes all the risks and responsibilities of ownership. At the end of the power purchase agreement a public agency can either purchase the solar system at fair market value or extend the power purchase agreement.

The opportunity to deploy PV on public buildings is tremendous. According to the Energy Information Administration's (EIA) Commercial Buildings Energy Consumption Survey, there were approximately 574,000 state and local government-owned buildings in the United States in 2003; representing approximately 12 percent of the total number of all nonresidential buildings in the country. The majority of solar capacity added to the grid in California over the past few years was from power purchase agreements.

Solar Based P3s Overview

- Private partner purchases, installs, and manages a solar electric system to be hosted by a public agency.
- Public agency secures a long-term contract fixed-rate cost for power derived from system.
- Public agency does not have up-front capital requirements.
- Private partner assumes risk associated with the PV system, including maintenance work.

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Example. A partnership between the 15 California State University (CSU) campuses and SunEdison will result in SunEdison's installation of PV systems on CSU campus buildings at no cost to the state and will provide 8 megawatts of solar PV power. CSU (through the Department of General Services) entered into power purchase agreements, where the state hosts the PV systems and agrees to purchase renewable energy at or below current retail rates. Under the agreement, SunEdison will finance, build and operate the solar panels for 20 years.

Milestones in California's Solar History

- 1982** The first photovoltaic (PV) megawatt-scale power station with a 1-megawatt capacity system developed by ARCO Solar goes on-line in Hesperia, California.
- 1982** Solar One, a 10-megawatt central-receiver demonstration project in Daggett, California begins operation. Solar One was designed by the federal Department of Energy, Southern California Edison, LA Dept of Water and Power, and California Energy Commission.
- 1983** ARCO Solar dedicates a 6-megawatt photovoltaic substation in central California, the facility supplies the Pacific Gas & Electric Company's utility grid with enough power for up to 2,500 homes.
- 1984** The Sacramento Municipal Utility District commissions its first 1-megawatt PV electricity generating facility.
- 1986** Luz Industries opens the world's largest solar thermal facility in Kramer Junction, California. The solar field contains rows of mirrors that concentrated the sun's energy onto a system of pipes circulating a heat transfer fluid. The heat transfer fluid produces steam, to power a conventional turbine to generate electricity.

- 1993** Pacific Gas & Electric installs the first grid-supported PV system. The 500-kilowatt system located in Kerman, California is the first “distributed power” effort.
- 1996** Assembly Bill 1890 deregulates the state’s investor-owned electric utilities and creates incentives for grid-tied PV systems under the California Energy Commission’s Renewable Energy Program.
- 1996** Solar Two, an upgrade of Solar One, demonstrates how solar energy can be stored efficiently and economically so that power can be produced even when the sun isn’t shining. Operating until 1999, Solar Two fosters commercial interest in power towers.
- 1997** Senate Bill 90 implements the provisions of AB 1890 and directs the activities of the Energy Commission relating to renewable energy.
- 2000** Senate Bill 1345 directs the Energy Commission to develop and administer a grant program to support the purchase and installation of solar energy and selected small distributed generation systems. Solar energy systems include solar energy conversion to produce hot water, heat swimming pools, and provide battery backup for PV applications. The state’s budget crisis ends the program.

- 2000** In September, the legislature adopts the Reliable Electricity Service Investments Act (RESIA). The legislation, Assembly Bill 995 and Senate Bill 1194, mandates the state's three investor-owned utilities to collect \$135 million annually for 10 years beginning in 2002 to support the Energy Commission's Renewable Energy Program.
- 2001** Home Depot begins selling residential solar power systems in three of its stores in San Diego, California. A year later it expands sales to 61 stores nationwide.
- 2001** Powerlight Corporation installs the largest rooftop solar power system in the U.S., a 1.18 megawatt system (consisting of three acres of PV panels) at the Santa Rita Jail in Dublin, California.
- 2004** Governor Schwarzenegger announces the Million Solar Roofs program.
- 2006** The California Public Utilities Commission and the Energy Commission develop the framework of California Solar Initiative program.
- 2007** The Go Solar California initiative launches and includes two new solar incentive programs.
- 2008** AB 811 authorizes cities and counties to designate areas where property owners may use their assessments to finance facilities to both distribute renewable generation and improve energy efficiency.



CDIAC

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