



Guide to Solar Power Purchase Agreements



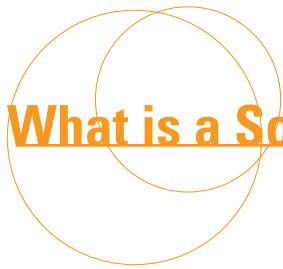
**SOLAR
POWER
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Introduction

Solar Power Partners has executed over 50 successful solar Power Purchase Agreements (PPA). Often, we find that PPAs present the best funding option to commercial entities, including businesses, institutions, and municipalities. But what is a PPA? What makes it so attractive, and why isn't everyone using it? This guide, adapted largely in part from the 2008 edition of the Rarus Institute's The Customer's Guide to Solar Power Purchase Agreements, aims to answer those questions. The Rarus Institute guide is one of the very few third-party guides in the market place, and SPP is proud to have collaborated in the creation of that edition. You can download the Rarus Institute guide at www.solarpowerpartners.com/resources.

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What is a Solar PPA?

A Solar Power Purchase Agreement (SPPA) is an alternative to financing and owning a solar electric system.

It offers you an opportunity to install solar power at your facility without paying upfront costs or worrying about system operation and maintenance. Sometimes referred to as a third party ownership model, this approach lets you focus on your core mission, while solar experts manage your energy system.

Power purchase agreements are a well-established contract mechanism. Many large corporate businesses, such as Safeway, BT (British Telecom), and Kohl's department stores, and institutions, such as airports and water districts, use these agreements for buying solar electricity. Those familiar with the power industry will find a PPA is much like the traditional "power purchase agreement," a common contract between utilities and large centralized energy plants. Because PPAs represent a good investment opportunity, major investment firms provide financing to these projects.

Benefits of a Solar PPA

■ **No upfront costs**

Solar Services Provider (SSP) provides the capital to develop the solar facility, freeing your capital for use in your core business.

■ **Stable energy costs**

Allows a long-term energy contract with defined pricing for every kWh you consume.

■ **No operations expertise required**

The system owner takes responsibility for operating, optimizing, and maintaining the system, and usually has a team in place for this purpose.

■ **Supports renewable energy and local jobs**

Offers path to meeting your green policy objectives

Challenges of a Solar PPA

■ **Complex negotiations**

Although does not any capital expenditure, could demands possibly higher transaction costs than buying system outright

■ **Administration concerns**

Ongoing administrative costs of paying separate electricity invoices, and allowing access to equipment by maintenance personnel

■ **No ownership of system**

The owner may have limited liability and limited assets, and the parties may change over time

■ **Changes to property may be prohibited**

Host customer may not be able to make changes to property that could affect the solar production

There are numerous benefits of a PPA, but you should also understand the other ways to buy solar generated electricity. They include:

■ **Cash purchase ownership (direct buy)**

Ownership requires financing up front, and the ability to monitor the system production and maintain the equipment.

■ **Lease**

In a lease-to-own financing agreement you typically make no, or little, down payment, and purchase the system with fixed monthly payments over time.

■ **Access to a green power program**

This option allows you to buy renewable electricity directly from your utility.

Both the PPA approach and system ownership offer great benefits, and some challenges. For a broader discussion of the benefits of the other methods, please refer to the Rarus Institute’s *A Customer’s Guide to Solar Power Purchase Agreements*.

Whatever method you choose, once you install solar energy generating equipment, your organization joins the growing number of wise energy consumers who generate their power from sunshine, a fuel source that is clean and always free.

	BUYING	LEASE	SOLAR PPA
Upfront capital?	Yes	Little or none	None
Performance risk?	Yes	Yes	None
System expertise required?	Yes	Yes	None
Maintenance required?	Yes	Yes	None
Purchase required?	Yes	Yes- with option to re-lease	None



Parameters for a Successful Project

The ideal PPA project involves customers who:

- Use large amounts of electricity, generally more than 200,000 kWh annually
- Control their property
- Demonstrate credit-worthiness
- Offer a minimum of 10,000 square feet of unshaded space for installation
- Are located in a region with pro-solar policies and incentives

Circumstances vary from project to project, and region to region. The preceding criteria are usually necessary for a PPA project to go forward.



The PPA Structure

Your organization contracts with a solar services provider that is responsible for financing, designing, installing, monitoring, and maintaining your project. You do not pay for the installation, but instead buy the electricity the system generates. You make your payments to the solar services provider for the electricity the solar system produces, just as you now pay your utility for electricity from large central power plants. You determine the level of payment in advance, so you know what your power costs will be over the life of the PPA contract, usually 20 to 25 years. In this way, PPAs offer very different terms than utilities. With the permission of regulators, your utility increases your electricity rates at any time. Many believe that electricity rates will rise significantly as climate change legislation is adopted because most electricity in the U.S. is produced from carbon-intensive fuels, such as coal and natural gas. So it is difficult to predict your future energy costs when you buy power from a utility. PPA contracts avoid unexpected price fluctuations because the cost of the fuel is known: sunshine is always free.



Four entities play a role in your contract agreement, either directly or indirectly. To help you understand how this method works, here we outline who they are and what they do.

Solar Services Provider (SSP)

This is the project coordinator, the company that you will hire to make your project happen. An expert in financing with strong connection to investors, the SSP knows about installation and monitoring of equipment, and completes your project on time and within budget. The SSP either owns or contracts with a system installer who works with you on system design, equipment, metering, and production monitoring and maintenance.

These providers try to keep transaction costs to a minimum for the entire project so they can offer you a competitive electricity price and their investors a reasonable rate of return. With that goal, the solar services provider will offer your organization a “standard offer” agreement that describes the most common terms for your type of organization.

Some solar services providers are aligned with particular manufacturers, while others are technology neutral and work with various manufacturers. The SSP will make a priority of using the right equipment for the job.

Investor and Special Purpose Entity

The solar services provider engages financing partners. A lender, usually a bank, may fund the construction of the solar system and also provide a long term loan to the project. The investor or group of investors provides equity financing and receives the federal and state tax benefits (called “tax equity” investing). You may not work directly with the financing partners, but it is useful to understand their requirements and relationships to ensure your project has solid financial backing.

The investors and solar services provider form a special purpose entity to own the solar electricity system and allocate tax credits and other benefits and risks. A reputable solar services provider will attract stable lending and investment partners, who in turn are eager to work with host customers that have a strong credit rating. The special purpose entity is the legal entity that you will be dealing over the long-term, and it receives your payments for the solar kWh.

Typical PPA Project Timeline

Feasibility Assessment

- Identify goals and objectives
- Assess site, system, and host customer
- Determine the ideal system size and system type

Financial Analysis

- Analyze energy usage and tariff information
- Run production analysis
- Determine price and system cash flow

System Proposal

- Present proposal that outlines our findings and identifies the best solution

Feasibility
Assessment

MONTH
1-3

Proposal Acceptance

Application for state and/or utility incentives begins (SPP can assist)

Design and Engineering

- Engineering, Procurement, and Construction (EPC) agreement is drafted
- Detailed system design and site review begins

PPA/EPC Execution

- Final execution of PPA and lease contract
- EPC is signed

Construction

- Construction planning
- Documentation, including warranty

Contracting and
Development

MONTH
2-4

250 kW – 1 MW
project size:
3-6 months

1 MW or
greater: 4-9
months

Test and Commissioning

- Comprehensive system testing
- Building code inspection
- Utility grid connection approval
- Commissioning

Commissioning
and System
Operation

MONTH
4-12

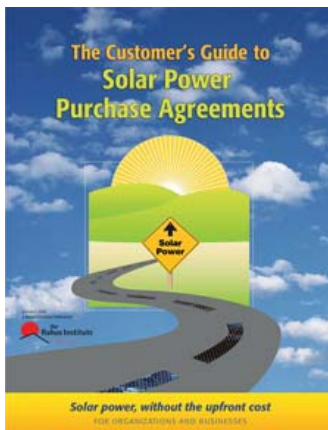
Operations, Optimization, and Maintenance

- Fine degree of performance detail through string-level monitoring
- Monthly production reports, customer access to web-based, real-time system activity
- Quick-response reactive repairs and tailored preventive maintenance regimens

UP TO 25
YEARS

Summary

The solar power purchase agreement is becoming a very popular option for buying solar electricity in the U.S. In this model a project developer, known as the solar services provider, brings an investor and host customer together to install a PV system on the host's site. The PV electricity reduces the amount of electricity that must be purchased from the local utility. The utility supports the project by connecting the solar equipment to the grid and providing credit for any solar power sent back through the meter to the grid.



For Further information, read the full text of *The Customer's Guide to Solar Power Purchase Agreements*, available at www.solarpowerpartners.com/resources

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