Onsite Solar
For Business

Solar for business is top of mind among CEOs, CFOs, and COOs around the world. Commercial electricity costs are high, and they’re only getting higher. That’s why businesses across the country are turning to solar to reduce operating expenses and reinvest that savings in their business.

If your business consumes electricity – for lighting, for HVAC, for computing, or for production – solar panels can help you reduce costs with your local electric utility. By combining a modest energy storage system with your solar installation, you can increase your savings by 20-50 percent, and can move toward complete energy independence. This whitepaper tells you how.

WHO’S A FIT FOR SOLAR?

Is solar electric power right for your business? That depends on many factors. Quality candidates for onsite solar arrays and storage facilities include organizations that:

• Operate in various states like California, Hawaii, or in the Northeast, where energy is expensive and/or there are incentives to leverage
• Manage multiple locations with large, good quality rooftops, or have available land or a large parking structure adjacent to the facility
• Prioritize offsetting energy consumption at the local level
• Want customers to see their solar systems for marketing purposes
• Have a commitment to sustainability
• Have large energy load requirements
REASONS TO CONSIDER GOING SOLAR

Many expanding businesses invest in solar power and storage to help offset the added expenses resulting from their growth-related investments, such as the additional electrical demand imposed by facility expansion. Others couple solar with related infrastructure investments, such as major roof repairs or new construction. Solar can also provide branding and community goodwill benefits derived from reducing the environmental footprint of your business.

Combining photovoltaic (PV) solar systems with battery storage solutions increase your total savings. Solar panels generate electricity while the sun shines upon them but without battery storage to hold the excess energy, they cannot contribute to your energy requirements at night or in inclement weather. Nor can they satisfy “surge” demands beyond their rated output, forcing companies to buy commercial electricity to satisfy spikes caused by events such as equipment start-up. These spikes are costly because demand charges are assessed for the highest 15-minute spike in demand during the billing period, as measured at the meter. Combining PV systems with storage effectively mitigates these spikes. Energy storage has the effect of evening out the load measured by the utility meter. This is especially important in the “shoulder” hours, when sudden load spikes might result in demand charges.

Let’s explore the principal benefits of solar for business in greater detail...

COST REDUCTION

The largest single benefit of solar power for your business appears every month in your electricity bill. Solar energy provides a dramatic reduction in commercial power costs, and in locations where “net metering” is available, it may even result in revenue from excess power sold to your local utility. For example, businesses that rely on antiquated energy sources like coal or natural gas could be paying electricity costs ranging from 7 to 30 cents per kilowatt hour (kWh). Switching to solar could reduce costs to somewhere between 2 to 12 cents per kWh.

The cost reduction of switching to solar power is determined by a number of variable factors, including location, time of activity, industry, and size of facilities. Businesses that will benefit the most from switching to solar are ones with enough space to build an appropriately-sized system to cover their energy needs, enough sunlight to generate the solar power, and a load profile that requires energy at peak hours.

Solar electricity can also reduce or remove your demand and delivery charges. Utilities apply these charges to recover the costs of purchasing energy during times of heaviest load, and maintaining power lines and energy lost in the transmission system. By moving the source of your power to your site, you can avoid these added expenses. As a further “green” benefit, you eliminate energy lost to resistance in long distance power transmission lines. You may also reduce space cooling costs in your facilities through the shade that photovoltaic panels provide for your roof.

Solar energy is also remarkably scalable. It’s possible to start small with a solar array that contributes only a portion of your total energy requirements throughout daylight hours, and build it out over time to provide for all your electrical needs. And in many areas, electricity that exceeds your needs can be sold to your local utility as a revenue producer.

REVENUES FROM SOLAR INCENTIVES

If you live in one of the 16 states plus Washington DC with a Renewable Portfolio Standard, then going solar may generate more than just clean energy—it can also generate cash from your utility through “Solar Renewable Energy Credits” (SRECs). SRECs are a tradable commodity that you receive by owning a solar energy system or other source of renewable energy such as wind. Solar homeowners and commercial businesses in RPS states can earn one SREC for every 1000 kilowatt hours (kWhs)
generated by their solar PV system. Because of a common state requirement known as the Renewable Portfolio Standard (RPS), utilities in 30 different states must generate a certain percentage of their energy from renewable sources, typically at least 20 percent, and can satisfy this requirement by purchasing SRECs from customers at their current market value. Over time, SRECs prices have ranged from $4 to $480 per SREC.

RESILIENCY

In addition to front-of-meter financial cost savings from solar electricity generation and storage, additional behind-the-meter benefits provide additional business incentives. One of the most significant incentives for businesses or organizations that require power 24/7 is the ability to create a solar microgrid that effectively converts your facility into an energy island, independent of utility energy providers. Constructing such an island frees your operation from the threat of power loss due to storms or other natural disasters, and immunizes you from the consequences of hacking or physical attacks targeting your area utility. You may also be able to provide shelter and other emergency resources to employees and the surrounding community.

SUSTAINABILITY AND COMPETITIVE ADVANTAGE

In today’s business climate, sustainability and competitive advantage are very closely linked (especially with a growing emphasis on environmental stewardship and reduced-carbon operations). Not only does solar energy reduce electricity costs, which frees up financial resources to re-invest in business development and innovation, but it can also earn you recognition as an industry leader in switching from fossil fuels to renewables.

Going solar can also increase your business’ attractiveness as a corporate citizen and “green” business partner. Many organizations are developing corporate sustainability goals that call for doing business with other sustainable organizations. From this perspective, your investment in solar power makes you an attractive business partner for green-minded customers, and also satisfies the demands of regulators, state and local governments, and institutional investors.

And it’s not just the obvious benefits of reduced electric costs that solar panels provide. Skillful architecture and construction can integrate these units into a complementary element of your infrastructure. One creative example is the solar carport installed at several Hampton Inn hotels, in which the panels also provide customers with shade and protection from inclement weather. The ancillary benefits available to your company are limited only by the imagination of your planners and your solar solution provider.
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SOLAR PANELS FOR SMALL BUSINESS: WHAT SHOULD I KNOW?

The principal prerequisites for adding solar electricity to your small business include a sunny site, a structurally-sound roof, and a desire to control your operating costs. Commercial solar power systems are available from a wide range of sources. In fact, the apparent simplicity of one-size-fits-all solar project kits often lures small businesses into trying to build a system themselves.

But even if you’re an engineering company with decades of experience in electrical design, you’ll always achieve the best results if you work with a reputable, knowledgeable solar energy solution provider. As in any business, industry-specific knowledge helps experienced solar power consultants optimize costs and benefits far more than a “do it yourself-er” or small-time startup could.

REC Solar is a nationwide leader providing complete commercial, public sector and utility-scale solar solutions. We offer all design, engineering, financing and maintenance services in-house, creating a simpler process and improved customer experience. Our unmatched expertise and quality are enhanced by the creativity we bring to each project.

Here are the first questions to explore:

HOW MUCH ELECTRICITY DOES YOUR BUSINESS CONSUME?

Solar panels for commercial buildings can be sized from “just enough for today” to “plenty of power for years to come.” Can energy that exceeds your needs can be sold to your local electric utility, resulting in even greater cost savings? Or would you receive greater cost-benefit ratios by storing surplus power for use during times of little sunshine?

HOW SHOULD YOU FINANCE YOUR BUSINESS SOLAR PANELS?

Commercial solar power providers offer several different business models. The best choice for your business will depend on the availability of discretionary cash, the size of the system, and the desire for fast, dramatic energy cost savings vs. a preference for lower startup costs and longer return on investment.

Many businesses choose to purchase systems outright, using available cash or business loans. Cash deals typically have a higher return on investment because they allow businesses to take advantage of tax credits and incentives, but they do require an upfront investment of capital that may not be feasible for all businesses, as well as ongoing maintenance costs.

Other organizations enter Power Purchase Agreements (PPAs), in which they partner with a solar energy provider to build and operate solar generation facilities on their property, and purchase electricity from the provider at a fixed cost that is lower than commercial rates. PPAs allow a developer to arrange for the design, permitting, financing, and installation of a solar energy system on a customer’s property at little to no upfront investment cost to the customer.

PPAs typically see lifespans from 10 to 25 years. For the duration of the agreement, the developer is responsible for the operation and maintenance of the system. At the end of the contract term for the PPA, a customer has the option to either extend the PPA, choose to have the developer uninstall the system, or purchase the complete solar PV system from the developer.

ARE YOU ELIGIBLE FOR SOLAR GRANTS AND TAX CREDITS?

Tax credits can offset up to 50% of your costs, including both the 30 percent federal investment tax credit and the Modified Accelerated Cost-Recovery Systems (MACRS) benefit, which can save you another 20% (assuming 25% tax bracket, 5-year depreciation schedule). The federal investment tax credit of 30% is available until the end of 2019,
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then steps down through 2023. Even after that date, commercial and utility installations remain eligible for a 10% credit. In addition, states, municipalities, and utilities offer incentives for installing solar panels for your small business.

Where available, these offerings can reduce your effective cost by 30% or more. For agribusinesses (such as growers, processors, vineyards, cold storage facilities, packing operations, and nurseries), benefits such as farm grants, utility-specific incentives, federal tax credits and solar financing options for agriculture can also provide substantial reductions to the cost of solar installations.

TYPICAL COSTS & PAYBACKS FOR COMMERCIAL SOLAR

Estimating the cost and time to return on investment of a solar power system for your business is impossible without details of your specific needs and requirements. This is because commercial electric rates vary from place to place, and the size of a given solar system depends on the amount of electricity you wish to produce. You will need an experienced consultant to calculate your own specific benefits. But with these limitations in mind, however, it is possible to use a hypothetical example:

• A non-profit organization in Hawaii uses an average of 2,821,600 kWh of electricity annually. Over a 30-year period, their rate of electricity is predicted to be an average of $0.261/kWh - meaning they will spend an estimated $38,064,193 on electricity over the next 30 years.

• They have the space for a 26,000 sq. ft. rooftop solar array (with a system size of 449.75 kW) that can produce 20,529,699 kWh of electricity over a 30-year period (an average of 684,323 kWh annually, roughly 24% of their energy needs.)

• In addition to reducing their energy costs, the organization can meet some of their sustainability goals with a PV system, which will allow them to avoid 15,603 tons of CO2 emissions and 4,644,728 MG of water use over the lifetime of the system.

• If they buy the system with cash or a loan, the organization will be able to take advantage of both the 30% Federal ITC and Hawaii’s state ITC of 24.5%, as well as the MACRS Accelerated Depreciation rates.

There are a variety of different financing options available for the proposed solar system, and the organization will select the option that is the best fit for their cash flow, tax appetite, and energy savings goals:

• Cash Purchase: requires 100% upfront capital investment and O&M costs for 30 years. The organization will be eligible for the 30% Federal ITC, 24.5% State ITC, and MACRS Accelerated Depreciation.
The internal rate of return (IRR) on this cash purchase is 32%, and simple payback will occur in less than 2 years.

- Bank Loan: requires 0% down, but the loan is a 7-year term at 5.00% interest and the organization is also responsible for O&M costs for 30 years. The organization will still be eligible for the 30% Federal ITC, 24.5% State ITC, and MACRS Accelerated Depreciation. This system would be cash flow positive from year one.

- Operating Lease: requires 0% down, with a 10-year lease term at 6.00% interest and a future buyout option. The organization would also be responsible for 30 years of O&M costs but would NOT be eligible for any of the tax credits or other incentives. This system would be cash flow positive from year one.

- PPA: requires 0% down, with a 20-year PPA rate of $0.943/kWh with 0% escalator, and the organization will have the option to purchase the system after 20 years (incurring O&M costs for the last 10 years of the 30-year lifespan). This system would be cash flow positive from year one.

As you can see from the chart above, the cash purchase provides the lowest adjusted rate of electricity ($0.014/kWh) and therefore the most savings over the lifetime of the system, followed by the loan option($0.025/kWh), then the operating lease ($0.066/kWh), and then the PPA ($0.0943/kWh). However, the cash purchase requires 100% of the system cost to be paid upfront, which is not always feasible for businesses.

Although the PPA has the highest adjusted rate of electricity out of the 4 options, it's a guaranteed flat rate for 20 years, and is significantly cheaper than what the utility charges. The organization takes the least amount of risk with the PPA, and they can always choose to extend the PPA after 20 years or have the system removed if they don't want to purchase it for the remaining 10 years.
For this particular non-profit, the no-risk PPA was the best choice. REC Solar will design, build, and maintain the solar system for the next 20 years, and the customer will save more than $4.3M dollars in electricity over the lifespan of the system.

**STEPS FOR IMPLEMENTING COMMERCIAL SOLAR FOR YOUR BUSINESS**

Now let's put this information to work for you. We've outlined a four-step plan below for assessing and implementing a solar energy solution for your company or facility.

1. **Determine financial and sustainability goals for your business.** Start by ensuring that solar energy is a fit for your organization. Are electric utility costs a significant contributor to your operating costs? Are you located in a region with average or above-average power costs? Will “going green” raise your organization’s environmental profile among customers, regulators, and your community? Is space available on or around your facility for installing solar panels and storage equipment? The answers to these questions will help demonstrate the benefits of an investment in solar electricity to fellow decision makers in your organization.

2. **Gather the facts of your recent energy usage.** At least six months of electrical bills are essential to this process, but data for a year or more will allow you to identify seasonal peaks and valleys, as well as unusual consumption patterns such as equipment outages or unscheduled overtime. In addition, financials related to business losses resulting from previous power outages, and projections of future business expansion, will help quantify the monetary advantages of solar energy.

3. **Partner up with a commercial solar energy specialist.** Too many solar projects end in failure because customers skip this critical step. The range of vendors professing expertise span local contractors, public utilities, and recognized industry leaders. The key to your success lies in avoiding off-the-shelf solution vendors and contractors or electricians “doing solar” on the side. Even before you schedule a first meeting, get references and check prior jobs to make sure you do business with a proven, reliable partner.

4. **Last, award your business to a full-service solution provider that can handle the rest of the work for you** - from financing to system design and construction, grid connection, and maintenance. For this final and most critical step, choose a partner with strong financial backing that assures you of long-term support, and demonstrated experience building and supporting solar infrastructures of the size and complexity your business demands.

**WE MAKE GOING SOLAR EASY**

All in all, the easiest and most successful route to receiving the benefits of solar power is to work with an expert solar partner. With more than 350 megawatts of high-profile solar installations, REC Solar is the contractor of choice for engineering, procurement, and construction of solar power systems. We have saved millions of dollars for customers across the United States, including commercial enterprises, schools, municipalities, federal agencies, and other public-sector organizations.

As a 20-year veteran of solar energy system design, installation, and operation, REC Solar was recently acquired by Duke Energy Renewables, a subsidiary of one of America’s largest electric utilities. Through this relationship, you’ll reap the benefits of solar expertise combined with financial strength, lifetime dependability, and cost-saving relationships with all major component providers. This unrivaled technical and economic strength is your assurance of a high quality, low-cost self-generation system with exceptional long-term support.

Call us at **844.732.7652**, email info@recsolar.com, or visit us online at [https://recsolar.com/contact](https://recsolar.com/contact) to discuss how our expertise, flexible engagement models, and financial power can deliver significant benefits for your business.