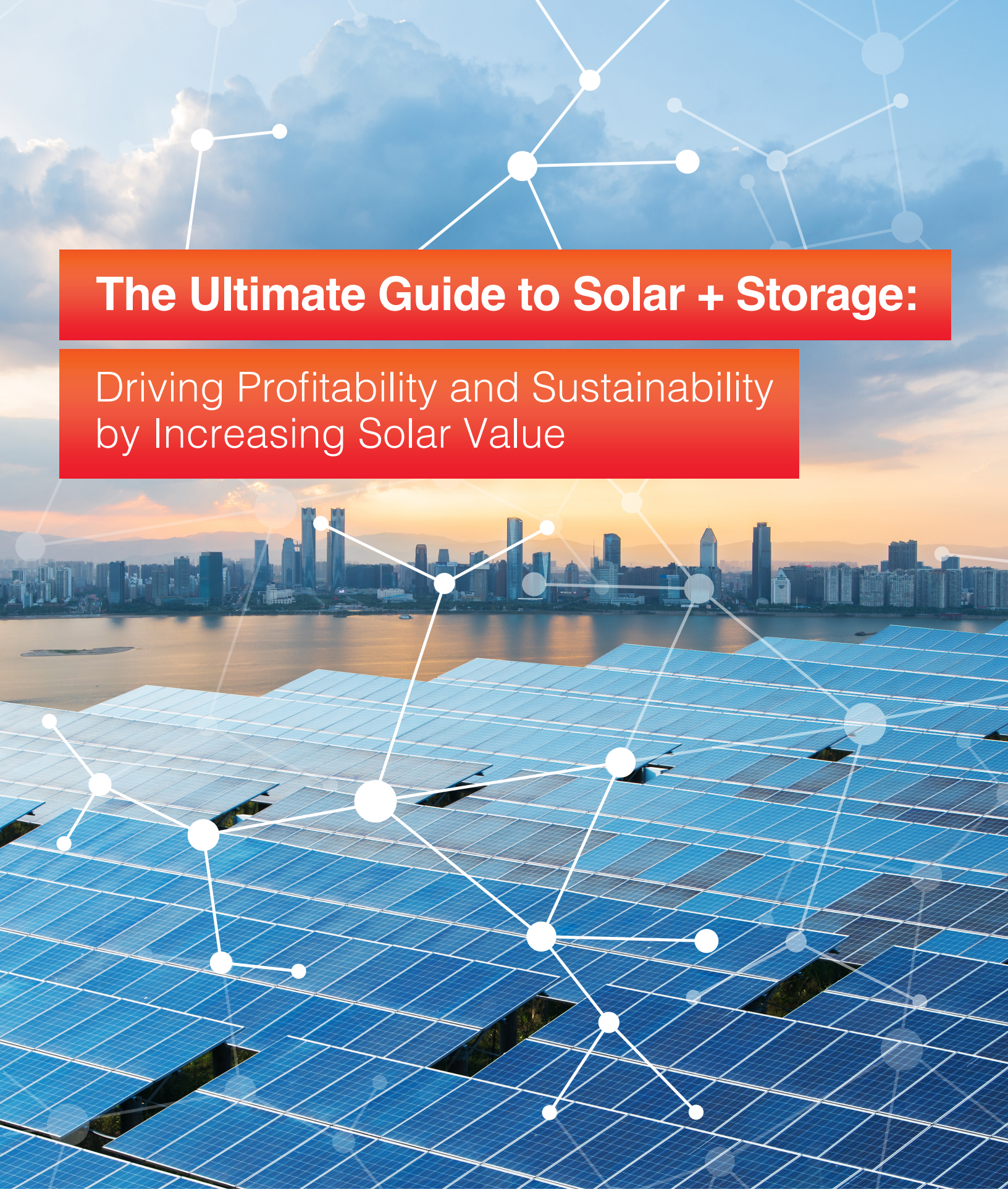


The Ultimate Guide to Solar + Storage:

Driving Profitability and Sustainability by Increasing Solar Value

stem | Energy Superintelligence™

Executive Summary

Whether you're a Chief Operations Officer, Chief Financial Officer, or Chief Sustainability Officer, you're faced with pressures from the board and customers to drive profits, increase project margins, and meet sustainability goals.

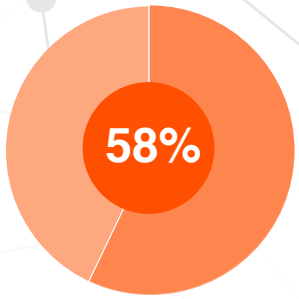
A key component in driving those successes is your energy strategy. More and more executives are turning to renewables to reduce their energy costs, elevate their brand, and improve their bottom line.

But in order to create a comprehensive energy strategy that drives key business initiatives, renewables aren't enough. Businesses need to be able to respond to changing price signals and time-based rates in real time, and onsite generation by itself doesn't give you that flexibility.

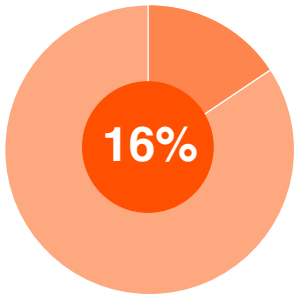
That's where AI-driven energy storage comes in.

Adding AI energy storage to solar projects increases the project value by empowering businesses to get more from their renewable assets, resulting in higher savings and lower carbon emissions. Storage also protects businesses against time-variable rates and demand charges, future-proofing operations against changing rates while opening up new revenue streams through participation in energy markets.

By adding AI energy storage to solar projects, businesses can better meet key initiatives, including managing expenses, elevating brand value through sustainability, meeting compliance requirements, managing risk, and increasing operational efficiencies. This empowers executives to better adapt to market volatility and gain competitive advantage.



Commercial solar prices have fallen by 58% since 2012 (SEIA).



Commercial solar prices have fallen by 16% in the last year (SEIA).

The Business Impact Of Solar + Storage

Energy management is critical to your bottom line, and executives focused on strategic business initiatives must coordinate both supply-side and demand-side energy tactics in order to secure their competitive advantage. Solar + storage delivers a comprehensive energy strategy for businesses looking to increase profitability, manage risk, and build on sustainability goals.

Optimizing your energy infrastructure with solar + storage impacts your business in 5 key ways:

Profitability and Competitive Advantage

Executives must cut costs wherever possible in order to gain competitive advantage and free up cash flows for other business initiatives. The money tied up in your energy infrastructure could be better used to fund projects critical to your mission as an executive and your overall business goals.

Adding AI energy storage to your solar projects accomplishes this by delivering more energy savings than solar production alone. Having the flexibility to control the timing of your solar energy consumption allows business to extract more value from the solar energy they produce.

Sustainability and Brand Reputation

Customers, investors, and other business stakeholders expect businesses to be proactive and measured in their sustainability goals. Executives must enact strategies that both decreases their reliance on fossil fuels and other non-renewable energy sources while maximizing the value of their clean energy assets.

AI energy storage allows you to consume solar energy even when the sun isn't shining. This further drives your sustainability performance metrics while elevating your brand's value.

The Business Impact Of Solar + Storage *(continued)*

Compliance Requirements

Businesses must comply with local and federal regulations. Static energy assets become liabilities as compliance requirements change.

As a dynamic or flexible asset, storage future-proofs your operations so you can better meet environmental and regulatory compliance requirements today and in the future.

Risk Management

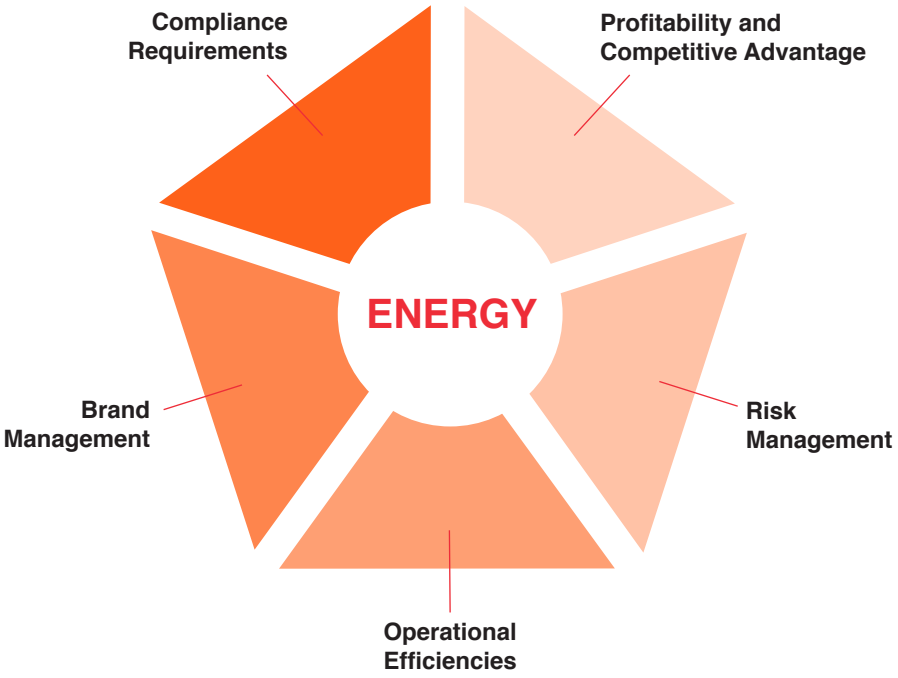
Mitigating risk is crucial to operating a business profitably and sustainably. Changing TOU rates, demand charges, and energy policies leave your business exposed to energy price variability.

Deploying AI energy storage limits exposure to price variability by allowing you to be flexible with your energy assets. This enhances your business resiliency and gives you control over your energy destiny.

Operational Efficiency

Your operations team needs to keep the lights on and operations running smoothly. Interruptions to daily operations are both inefficient and expensive, and your business needs to run without disruption or waste.

By deploying AI energy storage with solar energy, you can cut down on energy waste while gaining flexibility to use energy on your business's operating schedule.



Get More Value From Solar Investments With Energy Storage

The market for solar has grown quickly over the last decade, but ultimately, to tap into the full value of solar energy, businesses need a way to control the timing of that energy use. The best way to do that is with energy storage.

AI energy storage is the ultimate partner for solar energy - after all, the sun only shines at certain times of day. Batteries allow you to consume more of the clean energy produced by solar energy, making the value of your solar investment shine through even more.

So how does solar + storage work?

It's pretty simple: Solar energy produced during the day gets stored inside batteries for later use. When the solar production goes down in the late afternoon and time-based rates spike, businesses can draw energy from the batteries rather than paying for expensive power from the grid. Businesses can also use power from the batteries when their energy demand is highest to lower their demand charges.

AI energy storage adds value to solar investments in 3 key ways:

Increase total consumption of solar energy

Adding AI energy storage to your solar projects allows you to use more of your own clean energy instead of relying on fossil-fuel powered peaker plants that turn on during peak times. When you sell power back to the grid, you are still relying on fossil fuels later in the day. By storing excess solar power in the middle of the day to use later in the afternoon, you will further decarbonize your operations.

Another reason to increase the total consumption of solar assets is that policies and rates which currently support solar export are changing—or in some cases going away entirely. As these policies continue to evolve, it will likely become cheaper to use more of your own self-generated clean power than to export power back to the grid.

With AI and storage, you can consume more of your own solar energy and continue to meet or exceed your sustainability targets.

2

Addressing time-variable rates and demand charges

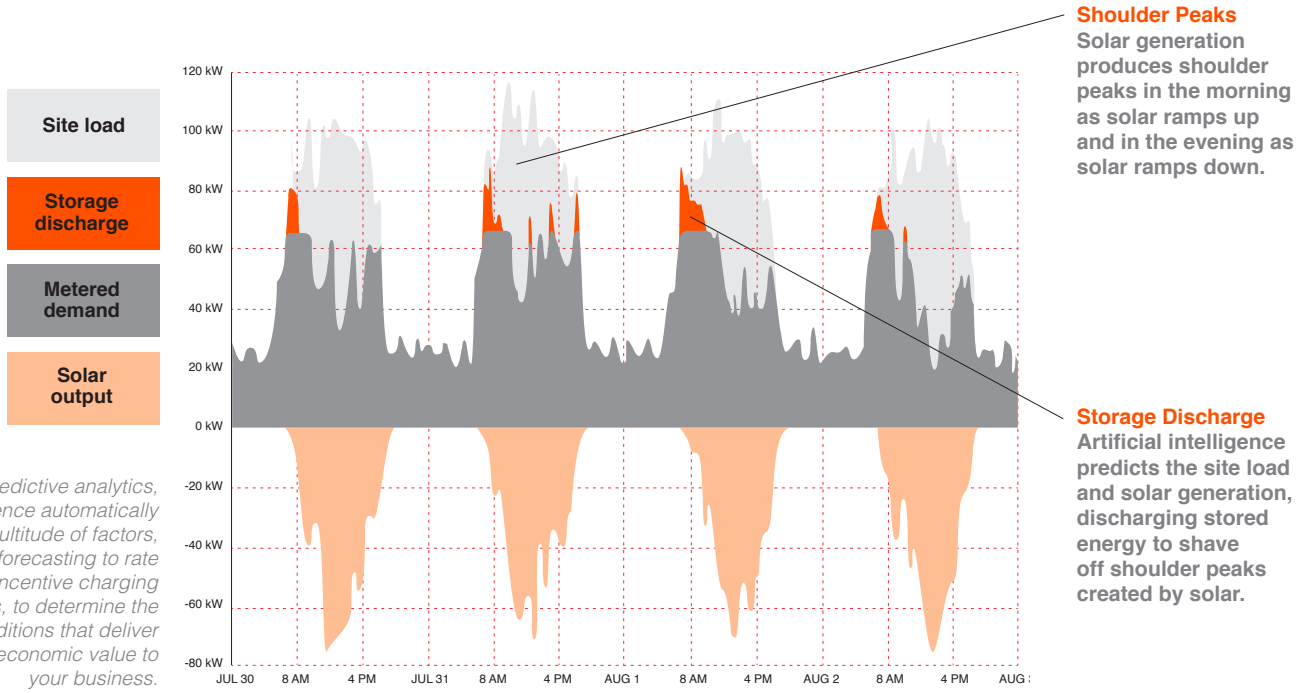
Energy rates and solar policies are in flux, posing a major threat to new solar projects. One major pricing trend—that utilities across the country are adopting—is an increasing emphasis on time-variable rates and demand charges.

For an average commercial energy user today, 60% of energy spend is based not on *how much* energy you use, but *when* you use it.

In California, for example, utilities have changed the timing and price of TOU rates in a way that diminishes solar project economics unless developers pair solar with energy storage.

In addition, utilities have also increased demand charges by more than 100% across the last decade. That means businesses are getting charged more for their peak energy usage each month—and if those peaks occur when time-based rates are highest, it can mean a huge energy bill, and can impact the savings from solar energy.

Solar energy alone does not address the most expensive demand peaks, which now with the new rate structures often occur in the late afternoon when solar production drops. By employing both solar and AI energy storage, businesses can reduce not only energy charges, but also address demand peaks that may occur when solar output goes down.



Using predictive analytics, artificial intelligence automatically analyzes a multitude of factors, from load forecasting to rate tariffs to incentive charging requirements, to determine the operating conditions that deliver maximum economic value to your business.

3

Future-proof against changing rates while accessing new revenue streams

During the same period in which energy storage experienced incredible growth, the solar industry witnessed radical threats to existing solar economics due to changing policies and rates. Around the country, Net Energy Metering (NEM) and other market rates and programs have changed substantially over the last few years and will continue to change in the years ahead.

- Hawaii ended its net metering policies and replaced them with new policies such as a self-supply program (which restricted export) and a smart export program (which requires storage installation).
- In California, NEM 2.0 imposed new fixed charges on monthly bills, which are due to change again in 2020 under NEM 3.0. The new TOU rates in California are expected to evolve further.
- In New York net metering has been replaced with an innovative compensation mechanism called the Value of Distributed Energy Resources (VDER), which considers the value of when and where electricity is provided to the grid.

Complementing solar projects with AI energy storage today future proofs against these changes by allowing you to dynamically store power from solar to use when rates are highest. AI-driven storage responds automatically to shifting rates, protecting against potential rate, regulatory, and financial changes.

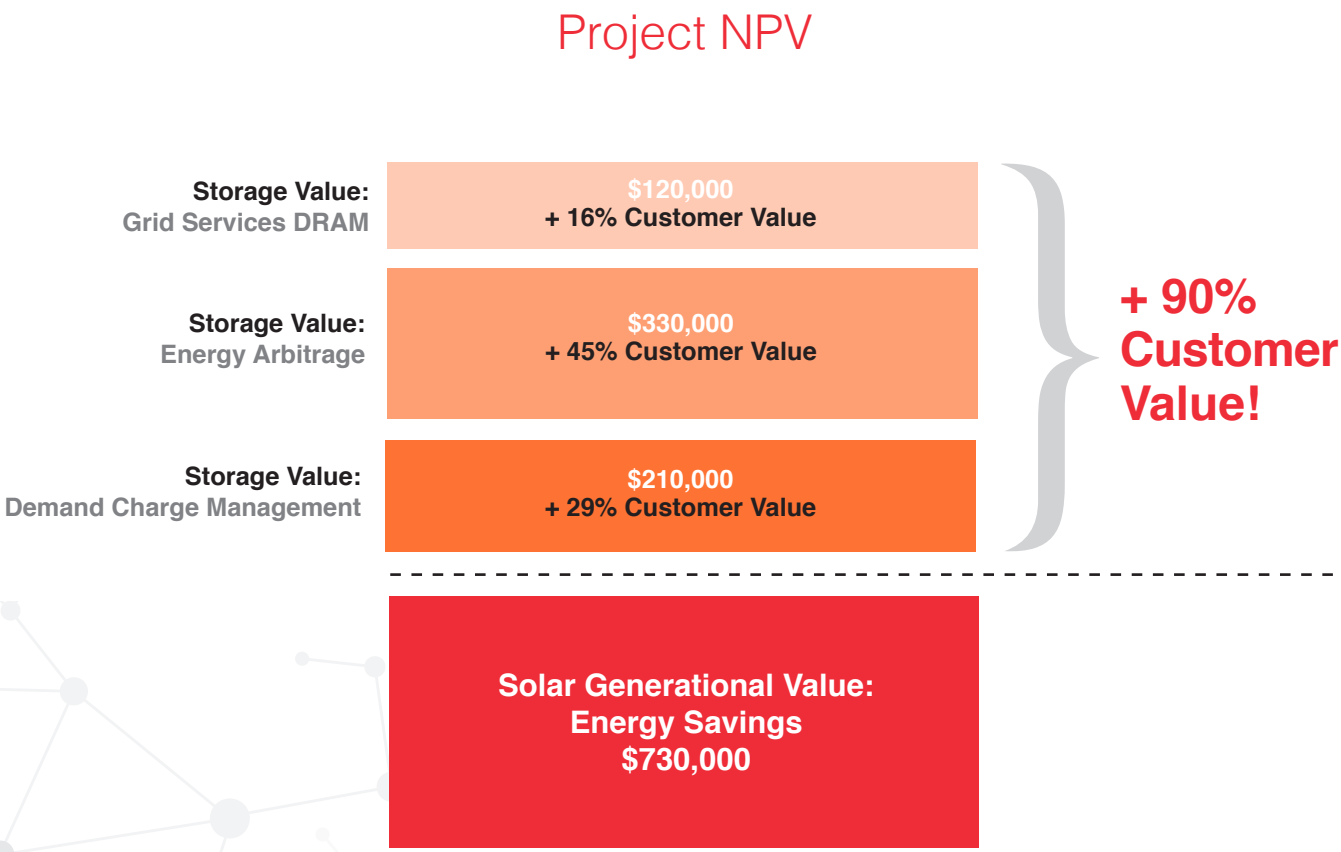
AI energy storage also enables your solar assets to monetize new revenue streams, such as additional Investment Tax Credit (ITC) incentives, wholesale market programs such as the Demand Response Auction Mechanism in California, and other grid service programs that are available today and will be opening up in the future. AI is an essential tool for turning solar and storage into dispatchable assets that can participate in energy markets, creating revenue through the extra solar energy you've stored for later.

Case Study

Global Retailer Adds 90% More Value to Solar Project with Storage

Let's take a look at an actual case study: a global retailer with a store located in the Southern California Edison utility territory. This store's 2019 electric rates were recently affected by new time-of-use changes that reduced the value of standalone solar. By adding energy storage to this solar project, the customer earns meaningful value through demand charge reductions, time-based energy arbitrage, and additional grid services available through the Demand Response Auction Mechanism (DRAM).

Overall, adding storage increased the total project value by 90 percent.



Driving the Most Value from a Bright Idea

By now, you've seen the light; adding storage to solar projects just makes sense.

But what are the key drivers that will allow you to get the most value out your solar + storage project? What should you look for in a storage provider? Here are the top factors to consider:

Over the life of a new solar project, most customers face between five to eight energy rate changes, which can seriously affect the project's value.

Artificial Intelligence

Your solar project needs to be able to adapt to changing market conditions and energy rates. Over the life of a new solar project, most customers face between five to eight energy rate changes, which can seriously affect the project's value.

Battery hardware alone can't unlock the full value of energy storage. That's why adding smart software to your project like artificial intelligence is so important. It takes the guesswork out of the equation and future proofs your project against changing rates and policies.

Experience

Changing rates, energy regulations, federal and state incentives, competitive supply chains...it's a lot to keep track of! It's hard enough to run your business without having to learn all the ins and outs of maximizing the value of solar + storage on top of it.

Choosing a partner with the the right industry knowledge and project experience can help you navigate all these interconnection hurdles and ensure that your project meets the right specs to deliver the most value.

System Sizing and Design

No two solar plus storage projects are alike. Each project has different energy needs and infrastructure.

Rather than a one-size-fits-all solution, you need an energy storage solution that's suited to your business needs to ensure optimal efficiency and savings. Look for a provider with sophisticated software modeling and project simulation capabilities so you can rest assured that your project is optimally sized.

Adding smart software to your project like artificial intelligence takes out the guesswork and future proofs your project against changing rates and policies.

Supply Chain Expertise

Sourcing batteries, panels, and other hardware for your solar + storage project can be a tricky and time-consuming process.

Working with an experienced storage partner that has existing contracts and relationships with vendors, along with deep knowledge of the storage supply chain, gives you access to better products at lower prices.

A Bright Future Ahead

With a smart energy storage solution in place, the sky's the limit for your business's next solar project. COOs, CFOs, or CSOs alike are looking to transform their energy strategy are well positioned to maximize project economics, adapt to market volatility, and gain competitive advantage through energy storage coupled with artificial intelligence.

You'll be able to generate more value now and into the future by controlling when and how you use all the solar energy your project will create, both in energy savings as well as in efficiencies to your operations. And that means a new dawn for a better bottom line.

Ready to add storage to your next solar project? Contact the solar plus storage experts at Stem for a free project evaluation. Visit www.stem.com/request_evaluation/ today or email info@stem.com

About Stem

900 systems operating and installed. 7 million run-time hours. The world's first artificial intelligence for energy storage. Stem delivers real-time energy optimization as a service, combining artificial intelligence with batteries to deliver value to customers and partners. Athena, Stem's AI, orchestrates a powerful network of behind-the-meter and front-of-meter storage systems that deliver sustainable, reliable electricity supply for all.