



Energy Resilience

Microgrids, Backup Power and Voltage Support

With impacts from weather-driven power outages increasingly apparent, many organizations – from manufacturing and distribution centers, to healthcare and other critical facilities, to schools and grocery stores – are eager to explore backup power and microgrids. And for those whose equipment or processes could be damaged by voltage fluctuations, power quality remains as important as ever.



Leverage Stem's Expertise to Build Your Energy Resilience

Founded in 2009, Stem pioneered intelligent energy storage in North America and now operates the world's largest digitally connected energy storage fleet. As a longtime energy storage market leader for commercial and industrial (C&I) customers, Stem brings extensive experience with critical resilience incentives, such as the Equity and Equity Resiliency incentives under the California Self-Generation Incentive Program (SGIP), that support energy storage installations. Our best-in-class Athena™ smart energy software optimizes any viable combination of onsite distributed energy resources (DERs), including energy storage, solar PV, and backup generators, to help customers achieve the level of energy resilience they want. And through the Stem Partner Network, we educate and empower hundreds of solar developers and installers to pair solar installations with storage and deliver turnkey resilience solutions to Fortune 500 enterprises and mid-sized businesses.

Energy Resilience Services

- Economic Modeling & Analysis
- System Design & Engineering
- Supply Chain Management & Procurement
- DER Deployment & Asset Management
- Energy Resilience Value Stream Optimization
- Program Enrollment & Incentive Management

Stem's 6-Step Guide to Building Energy Resilience with Storage

Customer needs for backup and microgrids vary widely. With more and more customers interested in building energy resilience, we've assembled the following recommendations to help you determine the energy storage solution that's right for you.

1. Identify and prioritize your project goals

To establish what you really need in a resilience solution, consider questions like:

- What power quality issues or outages have you had in the past? What was their impact?
- Which critical loads need to be backed up and for how long?
- What sort of backup assets do you have currently? How have they performed?
- Will there be longer-term load profile changes at the site?
- Do you already have plans to invest in energy storage or other distributed energy resources?
- Are you looking strictly for backup, or do you also want to achieve other goals like reducing demand charges or greenhouse gas emissions?

Gather site data and determine your primary goals as you assess options and move forward with your project. For example, in California your goal may be something like: Maintain 100% uptime during next fire season's Public Safety Power Shutoff events.

2. Understand how storage delivers resilience

Energy storage provides fast-response backup power with no GHG emissions. It pairs easily with solar for longer-duration clean backup, or with traditional generators to 'bridge the gap' between utility grid outages and microgrid ramp-up and to reduce diesel fuel use (and associated costs and emissions). And because batteries still provide all economic benefits when they're not being used for backup, they help pay for themselves. For hospitals and other locations generators may be mandatory, but storage can enhance the solution.

3. Maintain a big-picture strategy as you begin project design

Before selecting hardware, software, and installation partners for the project, think about the broader energy ecosystem you currently have or may want. Does it include solar or EV charging, for example? Use this to define key elements of your strategy such as the location of your backup storage, the deployment configuration, energy storage size, and software that will easily integrate a broader set of distributed assets.

4. Work with an expert to capture incentives

Battery storage keeps getting cheaper and generous incentives can significantly offset project costs. But understanding program requirements and navigating application processes can be daunting. Working with a market expert can help you receive all available storage incentives and avoid unnecessary paperwork.

5. Maximize project economics

Make the best case for project approval by calculating its full value. Beyond incentive payments, be sure to include the avoided costs of power-related business disruptions as well as utility bill savings from using storage to manage demand charges and peak consumption. Know that while energy storage is not a panacea for all resilience challenges, it can be very financially attractive for many sites.

6. Choose the right partner for installation, commissioning and operation

During the design phase, ensure your partner understands your pre-established goals and your energy strategy, and brings a focus on quality. Choose an experienced partner with standardized design and deployment specifications. This will improve costs, save time, and increase project reliability. Make sure appropriate commissioning and acceptance testing is completed and that the partner has full lifecycle support, including 24/7 monitoring, asset management, reporting and compliance.

Project Spotlights



Water Treatment Plant

Storage System
464kW / 1856kWh

Backup Assets
Energy storage, diesel generator

Impact
Storage supplements unreliable backup generators during Public Safety Power Shutoff (PSPS) events



Logistics Facility

Storage System
1115kW / 2230kWh

Backup Assets
Energy storage, solar PV, diesel generator

Impact
Solar + storage provides “clean” backup for 2+ hours, reducing diesel use and GHG emissions



About Stem

Stem provides solutions that address the challenges of today's dynamic energy market.

By combining advanced energy storage solutions with Athena™ AI, a world-class artificial intelligence (AI)-powered analytics platform, Stem enables customers and partners to optimize energy use by automatically switching between battery power, onsite generation and grid power. Stem's solutions help enterprise customers benefit from clean, adaptive energy infrastructure and achieve a wide variety of goals, including expense reduction, resilience, sustainability, environmental and corporate responsibility and innovation. Stem also offers full support for solar partners interested in adding storage to standalone, community or commercial solar projects—both behind and in front of the meter.

For more information, visit www.stem.com

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