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Energy Storage for Federal Markets

Drive Resilience, Renewables & Competitiveness with Energy Storage

The global energy transition is at an inflection point, and more flexible and "on-demand" energy solutions are critical to enabling a cleaner, more reliable grid. As federal agencies look to save energy costs, adopt more sustainable energy sources, and ensure resilience for our nation's critical infrastructure, Stem's innovative smart storage solutions can be integral to achieving these ambitious goals.

With more than 950 energy storage systems and more than one gigawatt-hour (GWh) operating or contracted, including at critical facilities such as hospitals and water treatment plants, Stem brings extensive experience to empower government clients to enhance their energy resilience. Stem's best-in-class Athena™ smart energy software helps lower costs and optimize distributed energy resources (DERs) such as solar PV and backup generators.

World-class Software for Better Performance & Longevity

Stem's Athena™ software, the world's first artificial intelligence (AI) for energy storage, controls all our energy storage systems (ESS) and has now logged more than 20 million system runtime hours. Stem services are backed by performance guarantees, which minimize financial risk for customers. In 2020, Athena exceeded customer savings guarantees by more than 50 percent. Athena also recently improved customer savings by an average of 30 percent relative to the previous software provider in our 345MWh Southern California portfolio serving 25 municipal and commercial customers.

Athena optimizes system performance over the life of the project, managing the asset to ensure it stays within warranty compliance limits. Warranty specifications include charge and discharge cycles, average resting state of charge (rSOC), and other parameters. Athena's ability to adhere to these parameters and document performance over time ensures the asset will not depreciate ahead of schedule as a result of how it is operated.

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Security & Safety Are Our #1 Priority

Stem's Cybersecurity program is sponsored and governed by the Executive Team, and Stem's CTO and senior leaders are involved in risk management and mitigation processes to ensure protection against both internal and external threats. Stem monitors a live security dashboard and regularly updates the Executive Team and the Audit Committee of the Board of Directors on monthly activities. Stem has implemented its Cyber Security Risk Management Program based on NIST (800-37 Rev2, 800-53) Best Practices and Guidelines, which identify potential penetration vulnerabilities in our cloud and edge devices; whether code changes introduce new security vulnerabilities; attempted or actual attacks; and any malicious behavior. Stem regularly implements updated best practice guidelines from NIST, TOGAF, FISMA, SANS, IIoT, and Amazon Web Services (AWS) Well Architect. Stem uses AWS for core security audit and compliance features based on CIS AWS Foundations, Payment Card Industry Data Security Standard (PCI DSS), and AWS Foundational Security Best Practices, which provide comprehensive independent and layered security audit and compliance functions. All Stem employees go through regular cybersecurity training.

Stem's Athena software is informed by a continuous stream of asset health data from each ESS including temperature, voltage, and current. All systems are monitored remotely 24/7 with over 150 data points through Stem's Network Operations Center (NOC) to ensure optimum safety and performance. Should a measurement indicate the system is not performing within an optimal range, fault detection alarms are automatically triggered, and Stem's NOC is immediately notified. Preventative maintenance is performed annually on all Stem ESS systems and their electrical connections to ensure that equipment is functioning properly in order to increase uptime and decrease risk of failure. Reactive maintenance is conducted whenever a system is not operating at optimal performance due to a failure or a maintenance health flag is thrown by a subsystem in the ESS.

Entire Lifecycle Support for Energy Storage

Project Design	Deployment	Operations Management
Design and engineering for Solar+Storage microgrids, market expertise, financial modeling and analysis, ESS size selection	Procurement, EPC technical advising, interconnection support, utility signal integration	Warranty management, system health monitoring, preventative maintenance
Dispatch Management	**Value Stream Optimization**	**Performance Management**
Real-time operating visibility, capacity forecasting, scheduled or real-time dispatching, aggregated dispatch for Virtual Power Plants	Demand charge management, solar charging, energy arbitrage, microgrids	Data reporting, performance guarantees, market settlement

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Project Spotlights

Wastewater Treatment Plant

Storage Use Cases
Backup Power, Utility Bill Optimization

Backup Assets
Battery Storage, Diesel Generator

Storage System Size
464kW / 1.8MWh

Logistics Fulfillment Center

Storage Use Cases
Backup Power, Solar+Storage, Utility Bill Optimization

Backup Assets
Battery Storage, Solar PV, Diesel Generator

Storage System Size
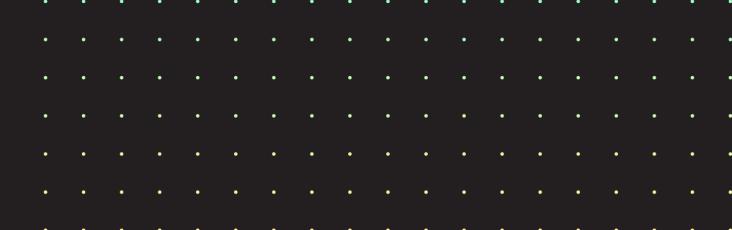1.1MW / 2.2MWh

Agricultural Manufacturing

Storage Use Cases
Backup Power, Solar+Storage, Utility Bill Optimization

Backup Assets
Battery Storage, Solar PV

Storage System Size
111kW / 223kWh

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About Stem

A global leader in artificial intelligence (AI)-driven energy storage.

Stem delivers and operates smart battery storage systems that reduce energy costs and help build a cleaner, more resilient grid. Our customers include energy service companies (ESCOs) and project developers, state and federal agencies, critical facilities, electric utilities and cooperatives, and large and mid-sized businesses.

Stem's best-in-class Athena™ software uses advanced artificial intelligence and machine learning to automatically switch between battery power, onsite generation and grid power. Athena helps lower energy costs, stabilize the grid, reduce carbon emissions, and solve renewable intermittency across the world's largest network of distributed energy storage systems.

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