



San Mateo County
Resource Management and Climate Protection Committee
Intelligent Energy Storage

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stem

Stem overview



Stem's Headquarters in Millbrae, California

Year Founded:	2009
Headquarters:	Millbrae, California
Operations:	California, Hawaii, New York, Massachusetts, Texas
Employees:	150+
Sites & Customers:	700+ sites, 120 MWh and 3.5 million run-time hours
Project Finance Capacity:	\$350MM

High Caliber Global Investors



Distinguished Honors & Awards



Intelligent controls and battery agnostic platform

Stem combines big data, predictive software and advanced energy storage to help businesses save on electric costs and, when aggregated, deliver services to the grid.

Indoor – 18 kW
(gym locker sized)

Outdoor – 250 kW+
(parking space sized)

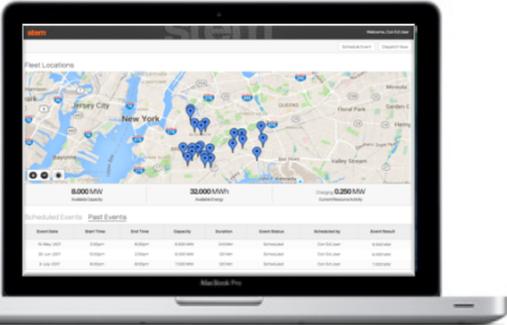
PowerStore.
Stores and releases energy using an on-site battery system.

PowerMonitor.
Captures data on real-time energy consumption.

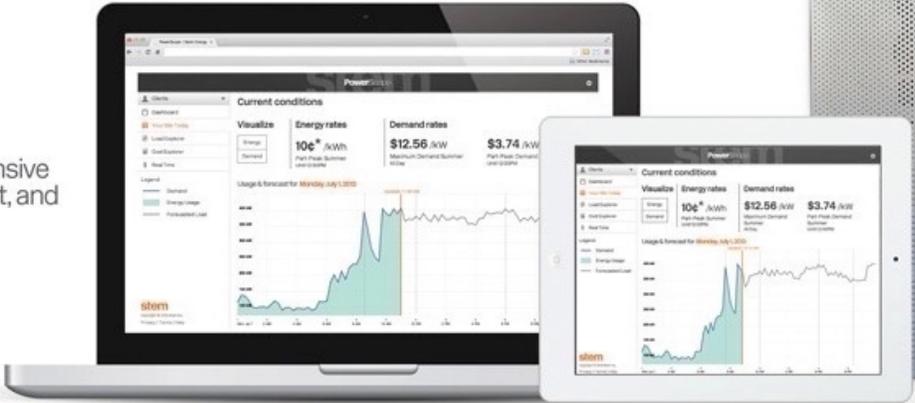


Grid Services Portal

Aggregates and optimally dispatches fleet

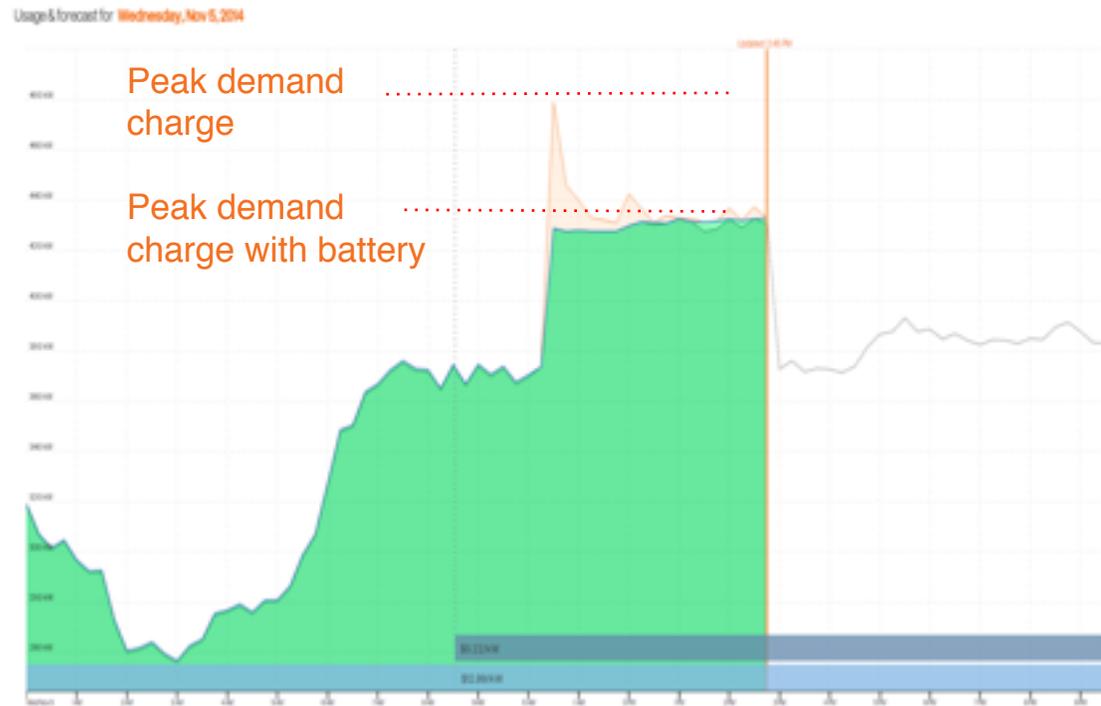


PowerScope.
Enables a comprehensive view into past, current, and future energy use.

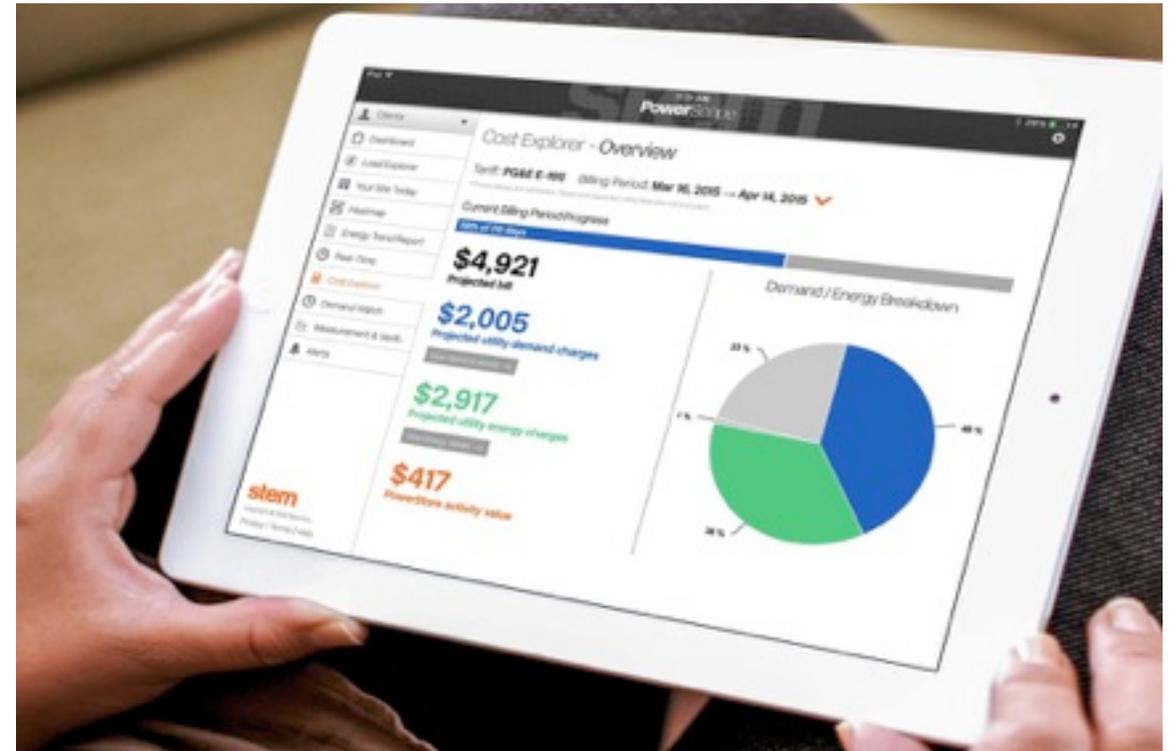


Stem reduces peak load to save businesses money

Batteries provide energy to the building to reduce peak demand charge



Software provides real time data on energy usage to find more ways to save money



Customers of Stem energy storage systems

Sample of San Mateo County Installations

- Hampton Inn, SFO
- Food Service Partners
- Merrill's Packaging

In Development

- Facebook (8 sites)
- Alexandria Real Estate (biotech buildings)
- Guittard (chocolate)
- Graniterock (construction)

"Our business revolves around our customers' timetables, so we have little flexibility to space out operations throughout the day. Battery storage is the perfect solution because it automatically lowers our energy spend without requiring us to change anything. There's really nothing else like it in the market."

– AlSCO Manufacturing



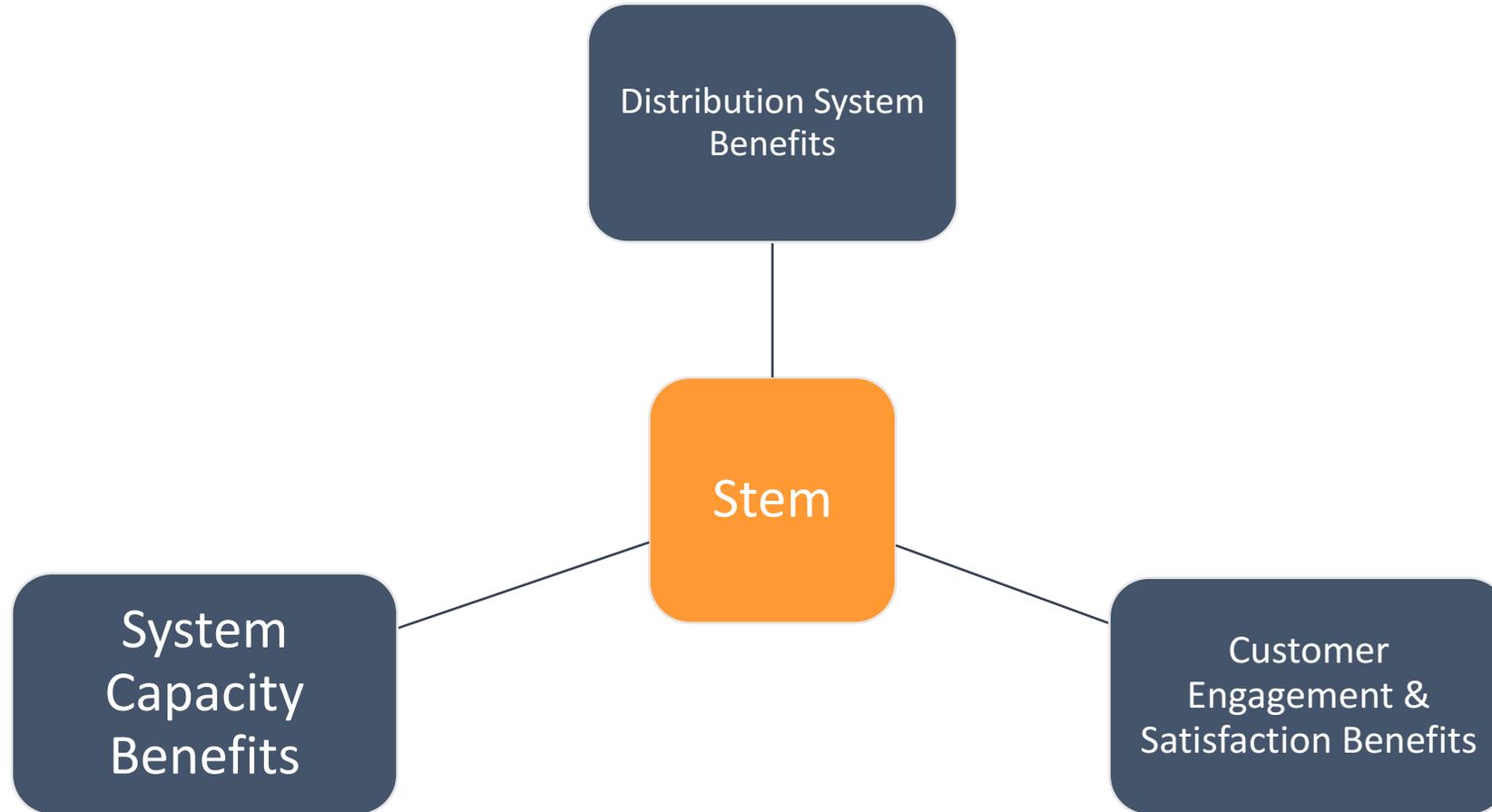
FORTUNE 500 COMPANIES

USE STEM'S SOLUTIONS

Select Enterprise Customers



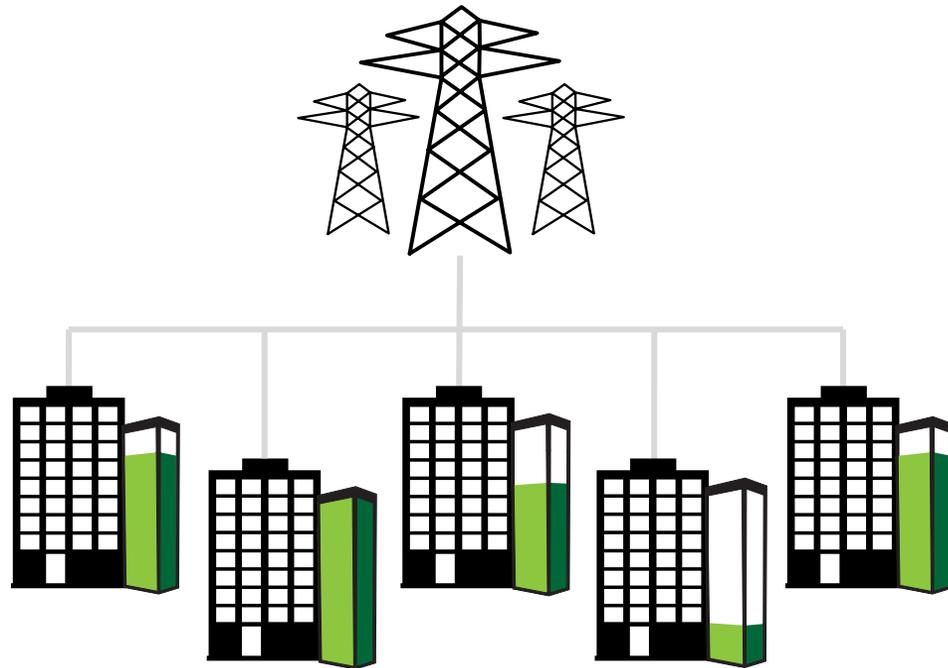
Stem Grid Services Benefits to Utilities



Virtual power plant provides reliability

Aggregated fleet of systems creates a generation-like resource

Stem predictive software automatically selects storage systems with available capacity



VPP advantages over traditional generation:

- More resilient to contingencies
- Faster responding
- Higher availability

Utilities employing Stem in a variety of applications



Addressing high penetrations of renewables by providing storage for **ramping and smoothing** and enhanced grid visibility



Delivering a **highly controllable capacity resource through DR** in highly congested regions



Delivering enhanced **grid visibility** from customer-sited and distribution line monitors to **combat PV volatility and inform volt/VAR**



First customer-sited storage provider to aggregate customers for **real-time and day-ahead wholesale capacity market**



Providing **load relief** during critical hours on peak summer days, and enabling **deferral of a major new substation** build by 5+ years



Providing **resource adequacy** to all 3 CA IOUs for DRAM 2017 (and SCE and SDG&E for DRAM 2017)

SCE challenged with T&D constraints in west LA



SONGS closure in 2013 prompted SCE to look for new resources

Procured 260 MW of energy storage as part of All-Source RFO

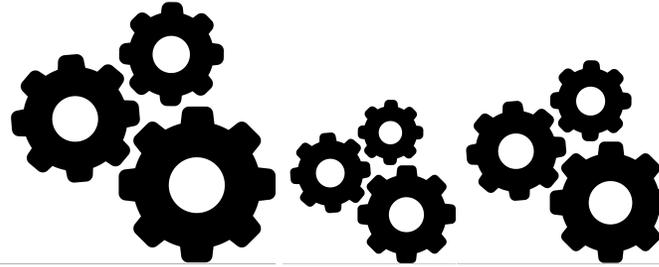
- Stem awarded 85 MW, largest behind the meter award
- To be deployed from 2016 – 2021

Up to 4 hour demand response event dispatch

- 15 minute day of availability
- Available weekdays, year-round

Systems deployed at C&I facilities and also deliver demand charge savings

California CCA's and their customers



\$0 money down
Load management
Automated bill reductions
Energy mgmt software

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Customer engagement
CA Storage Mandate
Resource Adequacy
Demand Response 2.0
RPS and IRP

Unique benefits of customer sited storage

Helping build Smart Communities

Customer Benefits

- Automated savings
- Help meet sustainability objectives
- Become an active grid participant
- Hire and retain more employees

Community Benefits

- Local jobs
- Improve reliability at key locations
- Reduce pollution
- Raise awareness and engagement



Utility Benefits

- Strengthen utility brand with customers
- Improve power quality using grid edge visibility
- Reduce overspend risk
- Increased resource flexibility at circuit level

Storage Policies to Enable the Future Grid



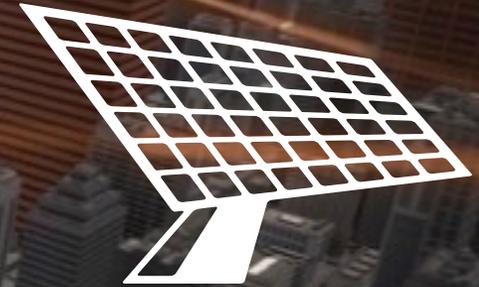
Empower Energy Consumers

Incentives and rate structures that make storage economic for all classes of customers



Increase Grid Efficiency and Reliability

Solicitations and contracts that compensate storage for reducing peak load and deferring investments



Enable Renewable Energy

Procurement and planning changes to include a critical role for storage to achieve renewable energy goals