Valencia Gardens Energy Storage (VGES)

Bringing resilient and reliable clean local energy to a San Francisco community

This groundbreaking project, located in a disadvantaged community in the heart of San Francisco, will showcase how front-of-the-meter (FOM) energy storage can be effectively deployed in dense, developed urban environments.

Key features

- First FOM merchant energy storage project in California.
- Sited at the Valencia Gardens Apartments (VGA), a low-income and senior housing facility with 260 units and 580 kW of existing FOM solar on a circuit with a peak load of 570 kW.
- Designed to enhance the interconnection hosting capacity of the existing feeder by at least 25% and ensure far more solar can be sited on that feeder.
- Staged to provide indefinite renewables-driven backup power to critical loads at the VGA and potentially other facilities on the feeder.

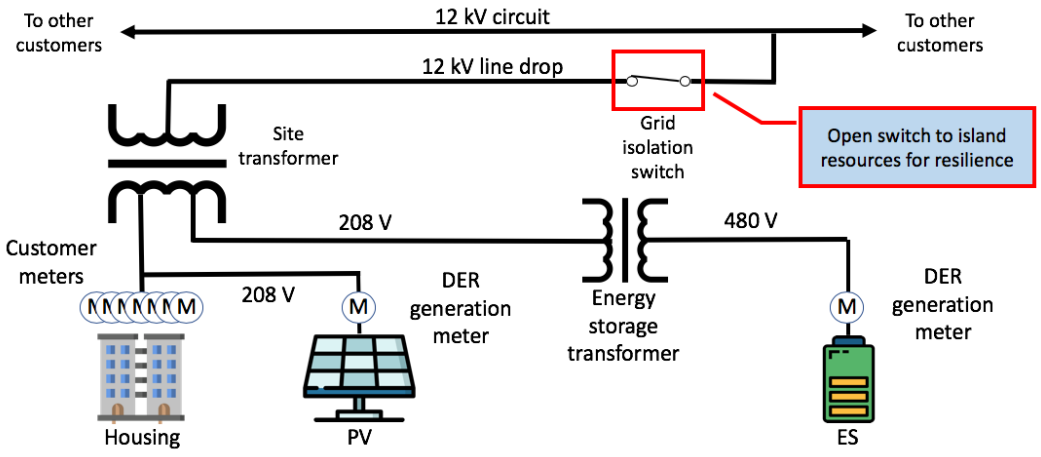
By demonstrating how targeted deployment of energy storage can increase the grid's ability to handle greater amounts of distributed solar, VGES will set the stage for increased deployment of clean local energy in California and beyond.

Valencia Gardens with existing solar

VGES project goals

1. Increase the existing solar PV hosting capacity of the distribution circuit by at least 25%.
2. Optimize and balance circuit load and generation – including discharging surplus solar energy during the evening ramp.
3. Deliver ancillary services to the grid through existing market mechanisms and share the economic realities.
4. Provide local grid resilience through voltage regulation and other prospective grid services.

VGES will drive advancements in policy, market mechanisms, and interconnection to fully value and proliferate FOM energy storage.



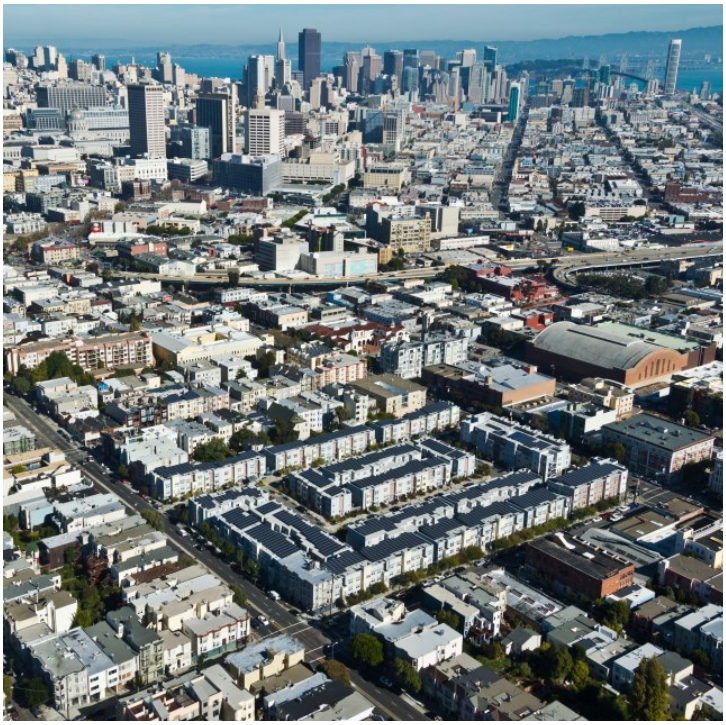
Potential long-term VGES resilience design

VGES project benefits

A major VGES innovations is that solar+storage are interconnected to the distribution grid, a configuration that will deliver many benefits to the grid that current projects — deployed either behind a customer meter or on the transmission grid — cannot achieve:

- **Support for higher penetrations of distributed solar** across multiple sites along a feeder.
- **An optimized feeder load and generation** profile.
- **Reductions in system-wide peaks**, reducing the need for costly peaker generation and expanded transmission system capacity.
- **Ancillary services to the distribution and transmission grids** such as demand response and frequency regulation.
- **Prospective policies and market mechanisms** that advance the regulatory and interconnection frameworks by properly valuing and supporting cost-effective energy storage solutions.
- **Enhanced grid resilience and security** through indefinite renewables-driven backup power to critical loads during grid outages; future resilience benefits are possible with grid isolation switches at proper locations on the feeder.

VGES will serve as a model that supports California's emissions reductions goals, increases the state's resilience and security, drives regional economic development, and lowers the cost of operating the power grid.



Benefits over 20 years for each added MW of solar PV:

- **Electricity savings of $1.3 million or more for California ratepayers**, due to reducing the need for new distribution and transmission grid infrastructure to support system peaks.

- **Enhanced grid capabilities, reliability, and resilience** from enabling higher penetrations of distributed renewable energy, improving circuit reliability, and optimizing local balancing of electricity supply and demand, even during grid outages.

- **An estimated $4.6 million in economic stimulation** in the form of regional economic development, including job creation and increased tax revenue.

- **GHG emission reductions of more than 225 million pounds** due to decreased reliance on fossil fuels for electricity generation and other decreased emissions from power plants.

VGES is funded in part by the California Energy Commission. Project partners include Mission Housing, Pacific Gas & Electric, CAISO, the City and County of San Francisco, and PATHION.

To learn more about VGES, visit bit.ly/vges.

About the Clean Coalition

The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise. In addition to designing and staging Community Microgrids, the Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of distributed energy resources (DER) and establishes market mechanisms that realize the full potential of integrating these solutions. Visit us at www.clean-coalition.org.