

ATTACHMENT 3 Fact Sheet Template

Santa Rosa Junior College Microgrid

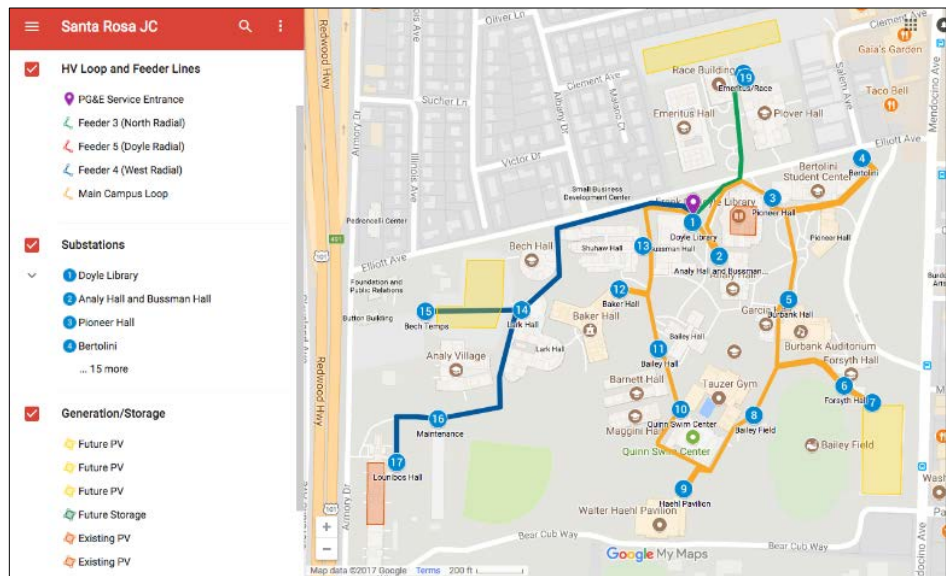
Demonstration of A Highly Flexible Campus Microgrid with Unique Local Distribution Grid Benefits

The Issue

The State of California is ambitiously working toward increasing the role of microgrids in California's grid. Microgrids are critical to goals of many legislative mandates such as Senate Bill (SB) 246 (Wieckowski, 2015), which created the Integrated Climate Adaptation and Resiliency Program (ICARP). ICARP is designed to develop a cohesive and coordinated response to the impacts of climate change by creating a centralized resource of information and technical assistance to assist policymakers at all levels of local and state government when planning for implementing climate adaptation and resiliency projects. The forthcoming Microgrid Roadmap demonstrates the commitment to state mandated programs such as ICARP and to the State's top-level energy agencies. The value microgrids will provide to the grid, customers, or ratepayers through increased resiliency, clean energy, or grid stabilization has yet to be quantified. Additionally, it is not clearly understood how microgrids can tap into all existing value streams in order to recover the costs of the microgrid infrastructure. There are also issues relating to interconnection arrangements with utilities that need to be worked through and resolved, as well as new component technologies that must be proven in the field, allowing performance data to be gathered over time in the real-world context.

Project Innovation + Advantages

The proposed project will result in significant technological knowledge advancements in the high-speed control of microgrid storage and load mitigation resources, in the combination of storage technologies specializing in energy supply and power capacity, in adaptive load management, and in the monetization of microgrid assets, while providing enhanced community support facilities in times of need. The proposed project will also demonstrate coordination of multiple large energy storage devices with different dynamic capabilities and by demonstrating a proprietary approach to stabilizing utility grid frequency locally, transform the microgrid from a source of load transients to a point of stabilization reaching far beyond the point of interconnection.



This image depicts the location of PV generation and storage as well as the network of buildings that will be connected through the various feeder lines.

Anticipated Benefits for California

General benefits: The proposed project plans to overcome these barriers by demonstrating and quantifying the value that advanced microgrids provide to the grid, customer, and ratepayers by testing innovative technologies that coordinate and manage energy usage on the microgrid and provide capacity relief and voltage support to the local distribution grid. Beyond customer energy

ATTACHMENT 3 Fact Sheet Template

and demand management, the project will explore and, where appropriate, participate in additional value streams to demonstrate where microgrids can currently receive value and to illustrate what future programs or payment structures could exist to compensate microgrids for services provided. By better understanding and quantifying the monetizable and non-monetizable benefits that microgrids provide, as well as current and potential future value streams, this project will inform State and local-level regulators, utilities, project developers, and customers how to overcome existing barriers to microgrid development.

Specific Benefits:

- **Lower costs:** The project will lower customer costs by providing demand and energy mitigation and by providing other monetizable benefits, such as demand response participation. The microgrid would lower costs of lost operation for the Junior College by allowing the campus to remain operational in the event of an outage of the surrounding grid, and would lower peak demand charges and energy costs through on-site generation and storage even when the larger grid is operating normally. Additionally, the project will reduce costs for the utility and ratepayers by providing local voltage support and frequency regulation, allowing the distribution grid to rely less on centralized local power electronics to provide these services; the microgrid will also reduce peak demand, in turn reducing the stress to substations, transformers and wires, and thereby extending the life of the associated grid equipment.
- **Greater reliability:** The project will improve power quality on both the college campus and local distribution system through demonstration of dynamic frequency regulation and voltage control technologies. With the ability to provide both real and reactive power and to respond autonomously to changing grid needs, the project will be capable of providing grid stabilization to the local distribution feeder the campus is located in part of area. Additionally, the project will provide back-up to the Junior College in the event of an outage and could potentially provide black-start services for the grid. The project will provide unlimited renewable-based 100% reliability to certain critical loads on the campus in the event of grid outages of any duration, by matching local PV generation, battery energy storage, and loads to ensure an indefinite energy supply to these loads, while providing limited reliability over a range of time periods to other, less important loads within the microgrid.
- **Increase safety:** The project will provide back-up to the Junior College in the event of grid outages, improving the safety of staff, students, and potentially local residents. Additionally, as the project will provide improved grid reliability through voltage and frequency regulation, the microgrid will reduce the likelihood of the local distribution grid suffering an outage, improving the safety of local residents.

Contacts

Recipient: Santa Rosa Junior College

Phone: (707) 522-2836

Email: dliebman@santarosa.edu

Amount: \$4,999,005 (Primary Application) \$6,999,005 (Option 1)

Co-funded Amount: \$8,689,759

Project Location(s): Santa Rosa Junior College Campus;

Project Term: 6/4/18 – 1/31/21