Microgrids in the Sierra Nevada

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Ad Hoc Biomass Working Group
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THREATS

And many, many more…

Public Safety Power Shutoffs

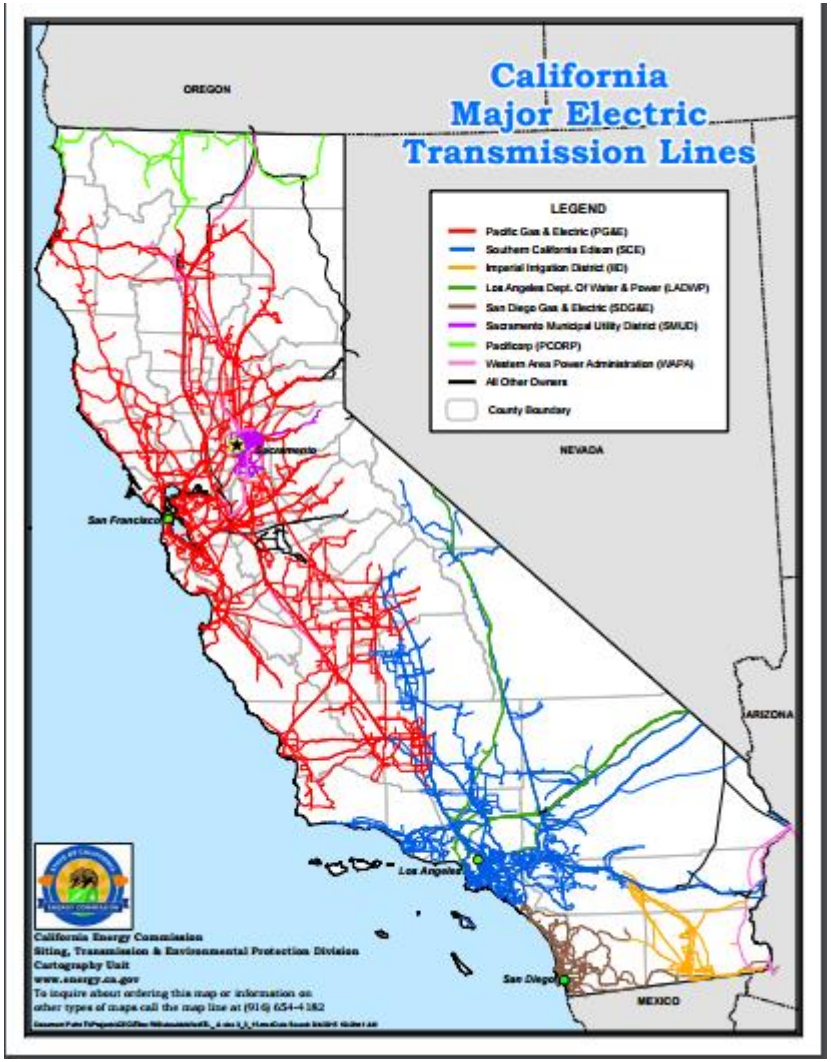
Implemented to reduce risk in high-wildfire prone areas of the state of California. There were many negative impacts from PSPS including:

- Hundreds of thousands of Californians without power for days at a time
  - October 27, 2019 approximately 3 million residents were affected
- Reduced societal functions (traffic lights gas station pumps, businesses, soiled food, etc.)
- Estimated upwards of $2.5 billion economic losses
- Rural communities and small businesses are disproportionately affected

Mercury News: October 2019

Current Grid

- Long transmission lines reaching from main power generation stations to smaller communities
- Increased risk of sparks from unmaintained grid due to distance
- EPA estimates that in the Western United States, about 5.10% of electricity is lost through transmission from initial generation to consumer
- Nearly 70% of transmission lines and transformers in the United States are over 25 years old



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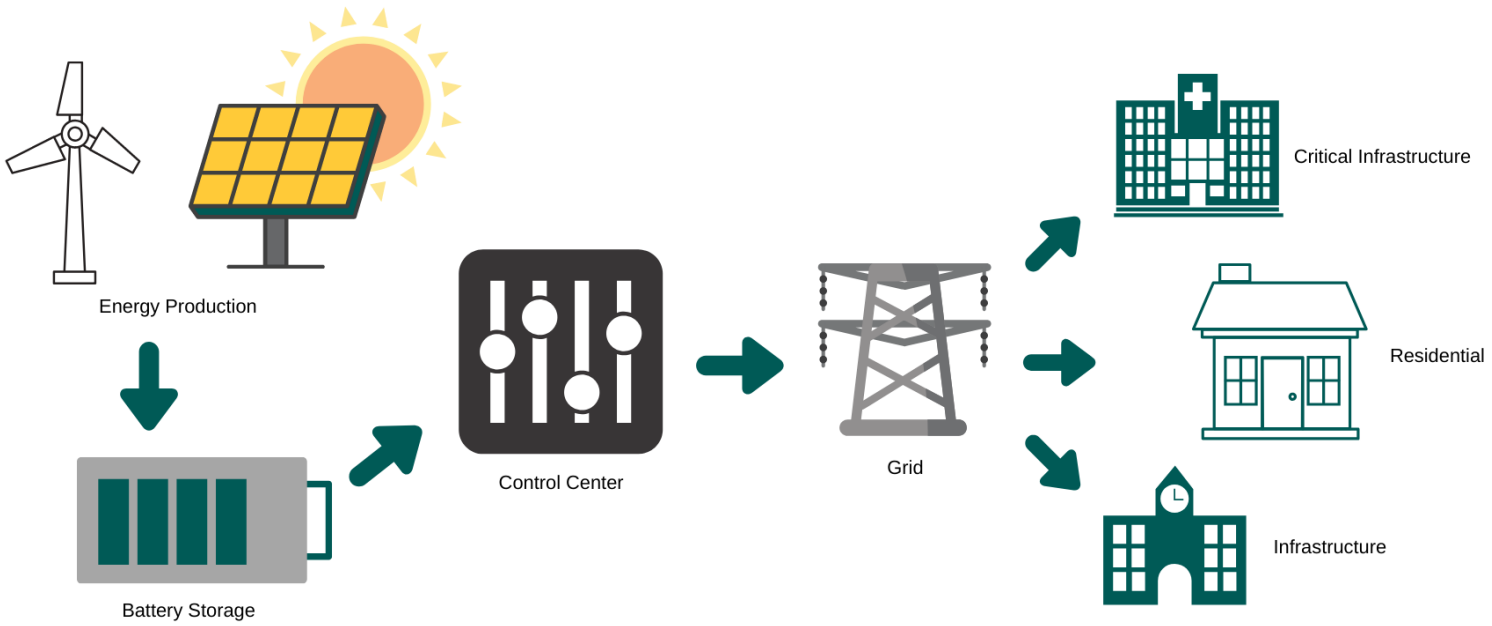
What is a Microgrid?

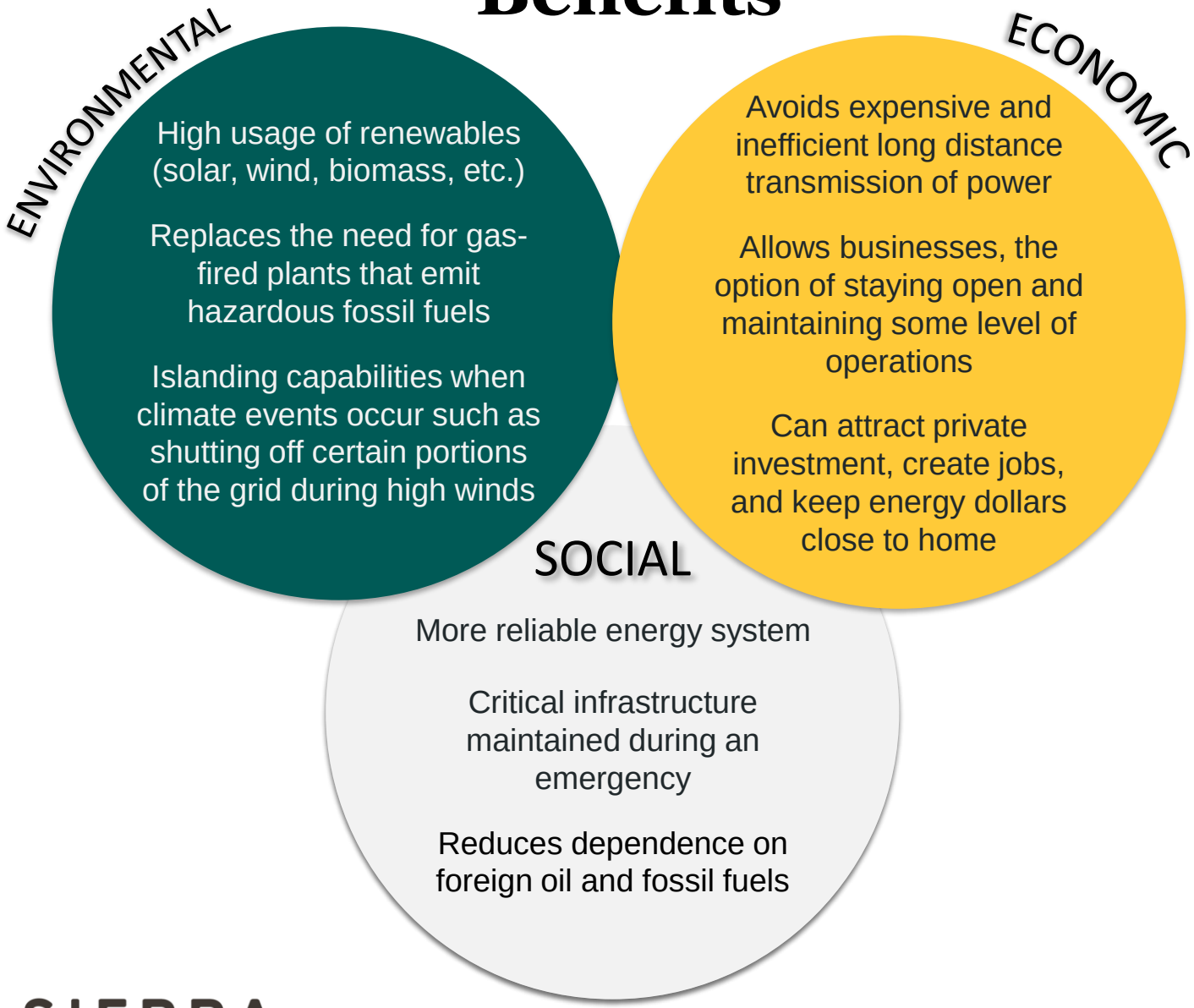


A microgrid is a local, coordinated energy system that can use renewable energy resources like wind, solar, biomass, hydro, or fuel cells to provide electricity at a smaller, more resilient scale

Features

- High penetrations of local renewables and other DERs that achieve desired levels of grid reliability, resilience, and power quality;
- Local balancing and load flattening that reduces costly transmission investments and load peaks;
- Ongoing, renewables-based backup power to prioritized loads;
- A scalable and replicable solution based on the substation-level building block of the electric grid.

Benefits



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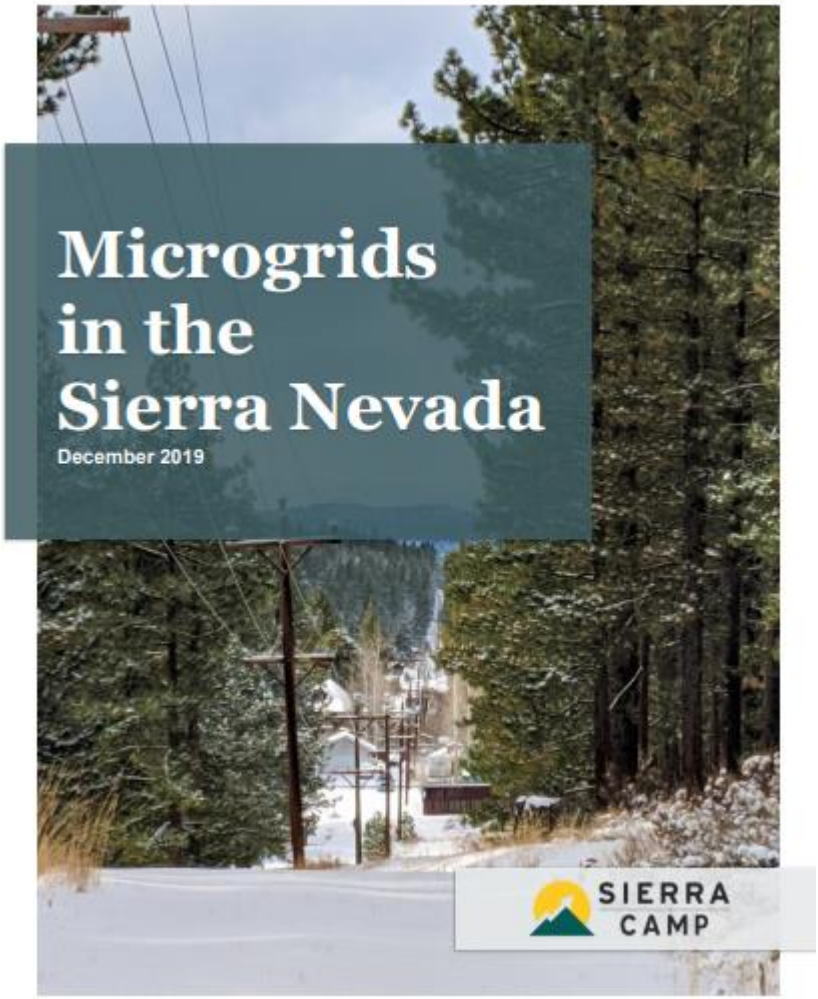
Microgrids and Biomass

- Microgrid systems typically utilize high rates of renewables
- Biomass's ability to come online quickly could sustain a community's energy need quickly
- Important to determine the size of a biomass facility and its ability to provide power to the community
- Factors: Type of feedstock (agrarian vs forestry), proximity to feedstock, reliability of feedstock (15-20 years is standard).



WHITE PAPER – December 2019

GOALS

- Make the case of small-scale microgrid utilization in the Sierra Nevada
- Display benefits to energy resilience for PSPS events
- Provide resources to local jurisdictions for implementation of a microgrid system

KEY MESSAGES

- Local power generation and utilization
- Maintaining operations during PSPS events and reducing frequency
- Increased renewable energy deployment in the region

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Questions?

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