CPUC Workshop on SB 1339

Short-term Recommendations to Expedite Renewable Microgrid Deployments at Critical Facilities

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Fremont Fire Stations Solar Microgrids

• Sites
  • Three Critical Facilities – Fire Stations in the City of Fremont
  • Originally CEC Grant Funded
  • 10-year Energy Savings PPA with the City of Fremont

• Fire Station 11 *(operational since Sept 2017)*
  • 37KW Solar Canopy System
  • 111 kWh Li-On Energy Storage System
  • EnergyScope™ Microgrid Controller & DERMS
  • DC-Coupled Microgrid
  • Non-Export Interconnection Agreement
    ❖ 10 Months PG&E Interconnection Process

• Fire Station 6 & 7 *(operational since Oct 2018)*
  • 43 KW Solar Canopy System
  • 111 kWh Li-On Energy Storage System
  • EnergyScope™ Microgrid Controller & DERMS
  • AC-Coupled Microgrid
  • NEM Interconnection Agreement
    ❖ 5 Months PG&E Interconnection Process
EnergyScope™ Microgrid System

A peek inside – “Microgrid-in-a-box”

V1.0
Fremont Fire Station 11 (2017)

V2.0
Fremont FS 6 & 7 (2018)

V3.0
Fontana Sites & others (To be Deployed in mid-2020…)

30% Cost Reduction
Gridscape Critical Facility Microgrids in CA

- 5 Microgrids in Operation
- 9 Microgrids in Design/Construction
- 16 Microgrids in Contract
- 20+ Microgrids in Sales/Discussion

Total: 30+ Microgrids by 2020
Typical Project Timeline

Ideally this should take 4 to 6 months
- 2 months for design & engineering using standard modules
- 2 to 4 months for construction and go live

However, Interconnection Process itself takes more than 5-10 months
San Leandro Boy Scout Building Solar Microgrid – Emergency Shelter

• Site
  • Boy Scout Building – Emergency Shelter in San Leandro
  • Energy Savings PPA with the customer
  • Partially CEC grant funded

• Deployed since November 2019
  • 60 KW Solar Rooftop System
  • 60 kWhr Li-On Energy Storage System
  • EnergyScope™ Microgrid Controller & DERMS
  • AC-Coupled Microgrid
  • NEM Interconnection Agreement
    ❖ 8 Months PG&E Interconnection Process
    ❖ Application submitted in April 2019
    ❖ Still Awaiting PTO
Short-term Recommendations
(2020 deployments)

A. Interconnection Process
   1. **Prioritize** Interconnection Application Process for Critical Facility Microgrids over other types of microgrids (both NEM and Non-export)
   2. **Simplify** the AC-Coupled Microgrid Interconnection (NEM & Non-Export) so that it does not trigger Detailed Engineering Review all the time.
   3. **Allow** NEM or Non-Export interconnection for DC microgrids with standardized components (Inverters, ATS, Interconnection Relays)
      ➢ DC Microgrids are cheaper and more efficient than AC microgrids
   4. **Publish** standard designs that are repeatable and standardized including list of components (inverters, ATS, interconnection relays, etc.)

B. SGIP Funding
   1. **Prioritize** SGIP funding (equity & resilience) for Critical Facility Microgrids over other types of microgrids
   2. **Simplify** and clarify eligibility criteria quickly
Thank You

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Backup Slides
Long-term Recommendations
(2021+ deployments)

A. **Interconnection Process**
   1. Simplify and make NEM and Non-export Interconnection Process fast and easy
      - The interconnection process should not take more than 2-3 weeks if all microgrid components are modular and standardized
      - Simplify Application Form for renewable solar microgrids. Current Application form is too complicated and includes all sorts of non-renewable generation sources details.

B. **Microgrid Tariff**
   1. Create and implement Microgrid Tariff Structure for microgrids that apply for non-export interconnection agreement in lieu of loss of revenue from alternate NEM agreement
      - Non-export interconnection applications may be faster and easier to approve than NEM interconnection applications
Gridscape Solutions

- Leading & Cost-Effective Renewable Solar Emergency Microgrid Developer
  - *Founded in 2013*
  - *Global Presence – US, UK, India*
  - *40 Engineers*
- Turnkey Smart, Efficient Energy Solutions
  - *Renewable Emergency Microgrid Systems*
  - *Solar+Storage Systems*
  - *EV Charging Solutions*
- Focusing on designing Modular, Standardized Emergency Microgrids for Critical Facilities (Fire Stations, Police Stations, Emergency Operations Centers and so on)
  - *Standard, Modular, Cookie-cutter design that is repeatable and proven*

**Customers:**

- Fremont City
- Fontana, CA
- SMUD
- IKEA
- EVgo
- LINC Housing
- Boy Scouts of America

**Media:**

- KQED
- San Jose Mercury News
- Greentechmedia
- CleanTechnica
- NAVIGANT
- MICROGRID KNOWLEDGE
- GreenBiz

**CEC Grant Awards:**

- **GFO-17-302:** Five DAC Microgrids
- **PON-14-301:** Fremont Fire Station Microgrid: [https://goo.gl/WPxgMP](https://goo.gl/WPxgMP)
- **PON-13-606:** Bayside EV Charging Stations: [https://goo.gl/An5T3w](https://goo.gl/An5T3w)
- **GFO-16-303:** Open V2B/V2G/V2M ZNE Grid Services
- **GFO-16-309:** Integrated Building-scale Solar+Storage project

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Standardized, Modular Microgrid System

- Cloud-based Distributed Energy Resource Management System (DERMS)
- Integrated outdoor-rated, expandable box that includes battery energy storage, inverter, controller, interconnection relay, critical load panel and other essential components
- Low installation cost
- Low maintenance
- On-Demand Reporting
- Remote management of Critical Load panels
- On Site and Off Grid Mode (Islanded)
- 24 hour grid resiliency for critical loads
- “Infinite” Power Mode
- UL 9540 certification
- Integrated EV Charging
- Utility Interconnection Ready