

CPUC Workshop on SB 1339

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

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12 December 2019



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 kWhr 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 kWhr Li-On Energy Storage System
- EnergyScope™ Microgrid Controller & DERMS
- AC-Coupled Microgrid
- NEM Interconnection Agreement
 - ❖ **5 Months PG&E Interconnection Process**

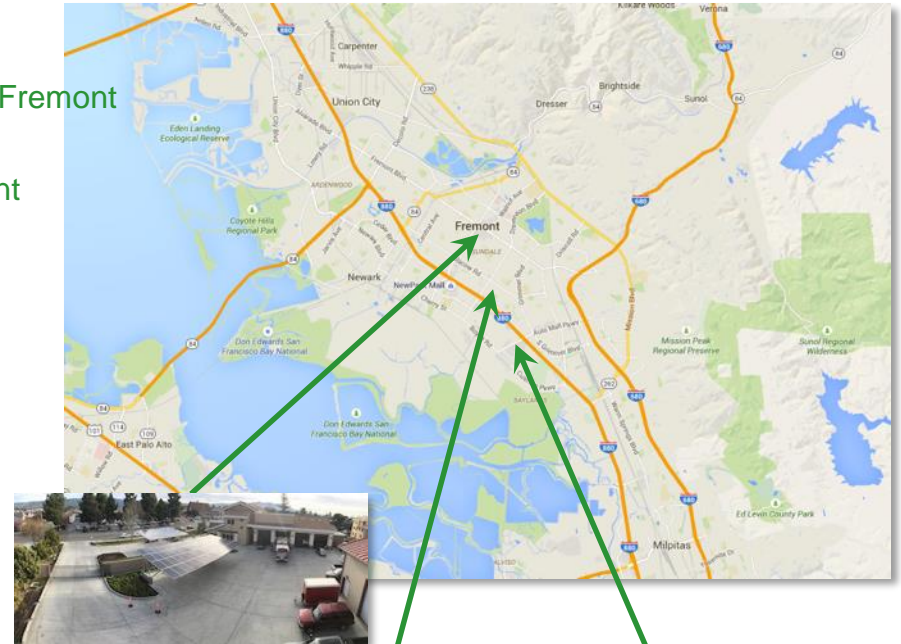




Photo Credit: CEC



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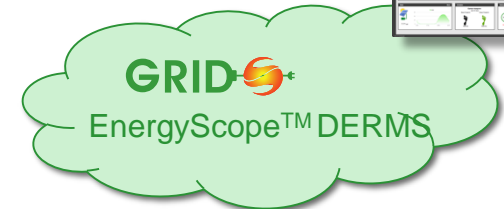


Photo Credit: CEC



EnergyScope™ Microgrid System

A peek inside – “Microgrid-in-a-box”



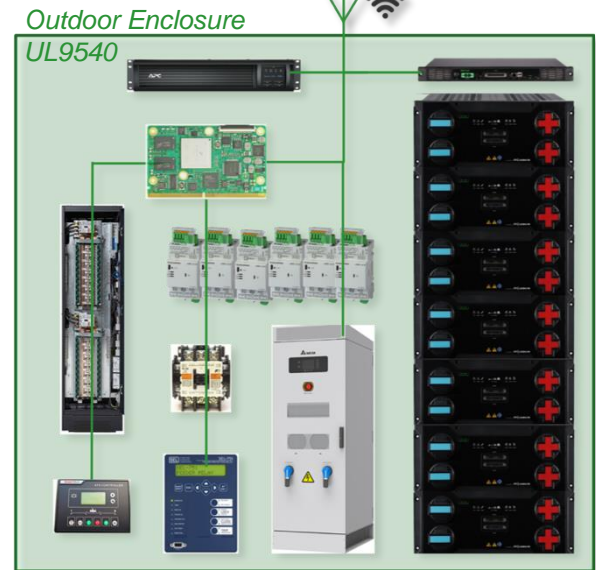
V1.0

Fremont Fire Station 11 (2017)



V2.0

Fremont FS 6 & 7 (2018)



V3.0

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



Gridscape Critical Facility Microgrids in CA

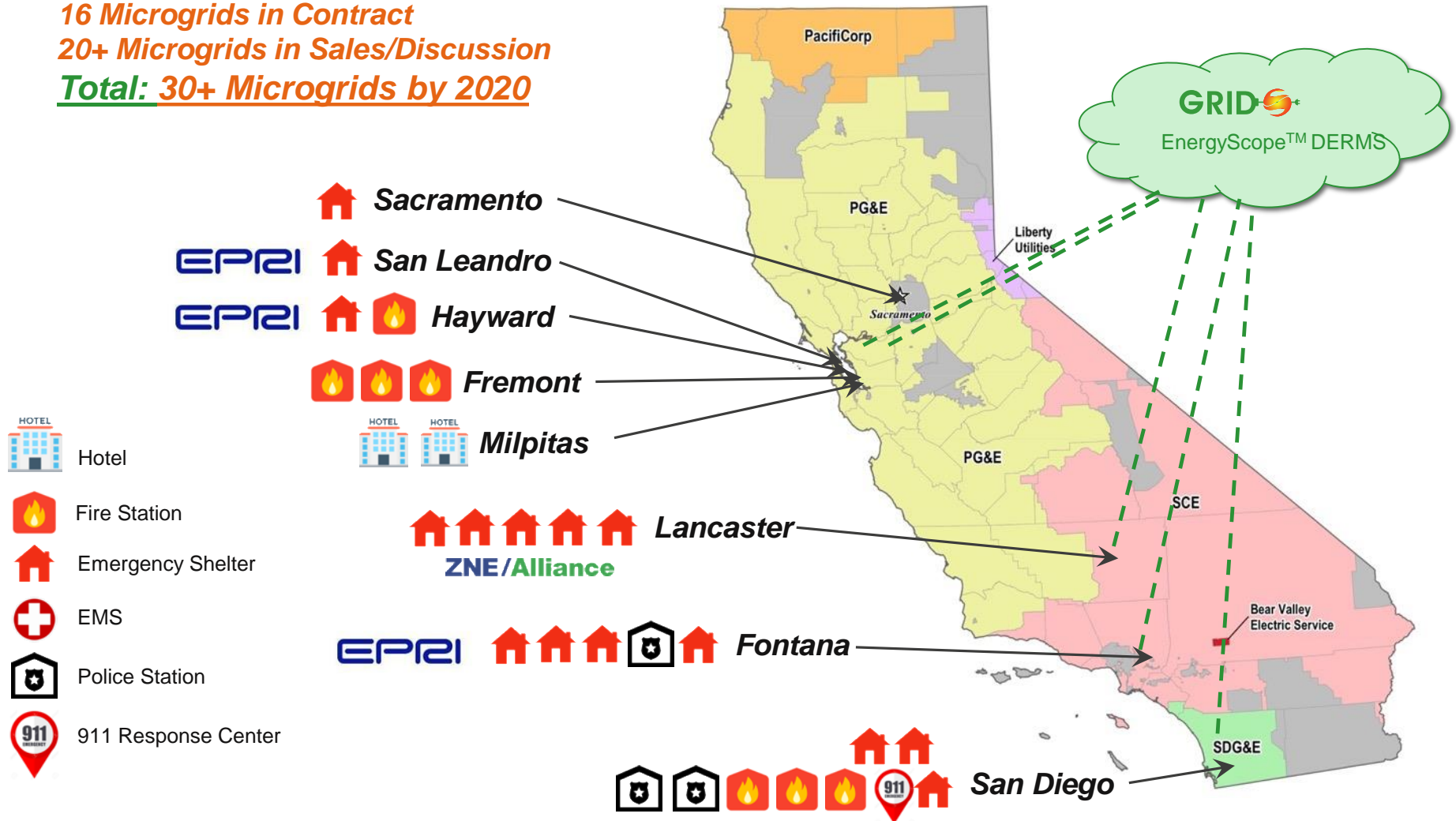
5 Microgrids in Operation

9 Microgrids in Design/Construction

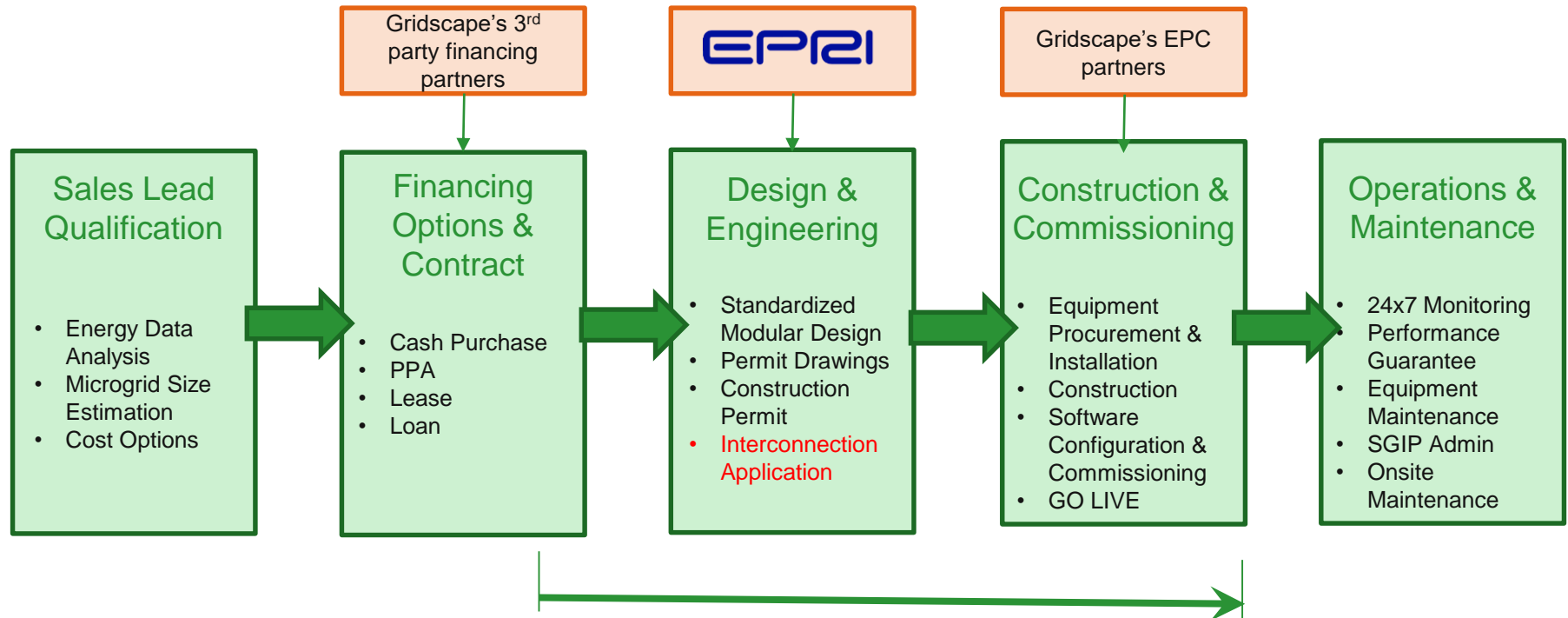
16 Microgrids in Contract

20+ Microgrids in Sales/Discussion

Total: 30+ Microgrids by 2020



Typical Project Timeline



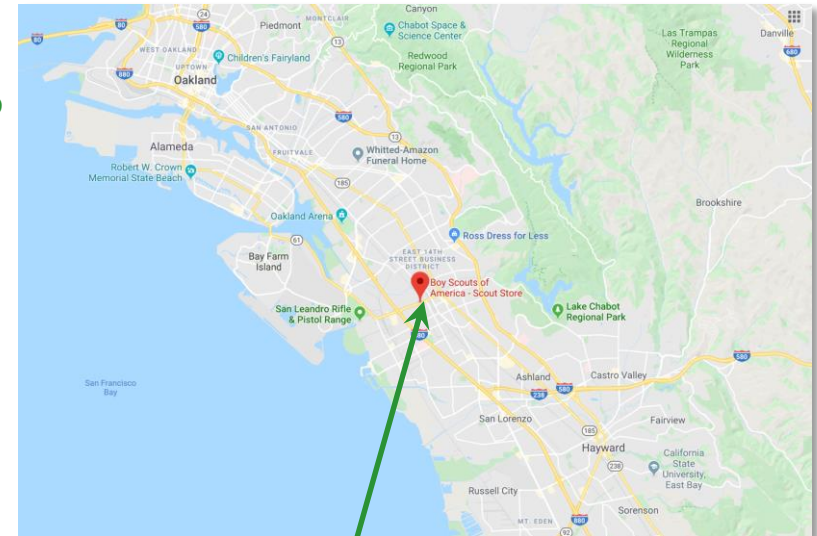
Ideally this should take 4 to 6 months

- 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:



Media:



greentechmedia:



CEC Grant Awards:

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

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

