Sustaining Power During Wildfire Public Safety Power Shut-offs with Microgrids

League of California Cities
Public Works Officers Institute

March 23, 2022
Agenda

1. Introductions
2. Wildfires and and Public Safety Power Shutoffs
3. The Road to Energy Resiliency (What are Microgrids?)
4. Resiliency Considerations
5. Incentives
6. Local Government Sustainability Initiatives
7. Procurement with SPURR
8. Next Steps
9. Q&A
Meet Your Speakers

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City of Fresno

• Fresno 2020 Census – Population 542,012
  • 112 square miles
  • 5th Largest City in CA
  • 34th Largest in the Nation

• The Sustainability Division is committed to making City facilities and operations efficient and sustainable to best serve the citizens of Fresno. This work includes:
  • Combined 25MW of solar and battery storage serving City facilities.

• 2022 Women In Smart Energy (WISE) Award Winner
SPURR

SPURR (School Project for Utility Rate Reduction)

• Joint Powers Authority founded in 1989
• 300+ public agency members
• Aggregates purchasing power and expertise.
• Advocates at CPUC and legislature on utilities-related issues.
• SPURR governed by board of public agency administrators.
• Any public agency can participate in SPURR programs
ForeFront Power – A Trusted Name in Renewable Energy

Serving business, the public sector, and community solar customers in the U.S. and Mexico, ForeFront Power is a leader in the United States for solar and energy storage solutions.

<table>
<thead>
<tr>
<th>1300</th>
<th>Unique Projects Developed</th>
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<tbody>
<tr>
<td>1000</td>
<td>Megawatts (MW) Developed</td>
</tr>
<tr>
<td>15</td>
<td>Years Working as a Team</td>
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<tr>
<td>“A”</td>
<td>Parent Company Credit Rating</td>
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In 2020, there were over 8,600 wildfires recorded across California, burning 4.2 million acres of land – equal to Los Angeles, Orange, Santa Clara and Santa Cruz counties combined.

Driving sources behind many wildfires are downed power lines or electrical malfunctions paired with extremely dry and warm conditions.

When weather conditions create a high risk for a wildfire, utility companies proactively shut off power in what’s called Public Safety Power Shutoffs.

These safety measures leave countless California businesses and residents without electricity, disrupting entire communities.
Microgrids – Boost Resilience During Wildfire Season

Traditional Solar + Storage

- Solar Energy
- Battery Storage

Your Facility

Utility Grid

Solar + Storage Microgrid

- Solar Energy
- Battery Storage
- Generator
- Microgrid Controller

Utility Grid

Facilities
Boost Resiliency With Microgrids

• **What is Resiliency?**
  • backup power during utility outage
  • requires ability to isolate or “island” from the grid

• **Resiliency is not solar and/or battery storage alone**
  • most often implemented with a microgrid
  • resiliency requires control functionality
  • Without a microgrid, solar & battery systems must be shut off during a power outage for safety reasons

• **Cost versus Savings**
  • solar and storage result in savings
  • **resiliency solutions tend to add cost**
  • **your organization can leverage solar savings to offset costs of resiliency**
Resiliency Considerations

- Resiliency is complex
- Solutions are built from emerging technologies
- Site-specific engineering studies may be required before a resiliency solution can be defined and costs determined, as many interrelated factors need to be considered
Resiliency Analysis: Site Specifications

**Needs**
Which components of your site need to be powered by a microgrid?

**Duration**
For how long do you need these components powered during a shutdown?

**Time Gap**
What lapse in time can you afford between a grid shutdown and your microgrid powering on?

**Technologies**
Which technologies are you open to including in your microgrid configuration?

**Value**
What is such resiliency worth to your business operations?
Case Study – A California High School

2 Hour Battery

• 100% of 4-hr outages
• 98% of 6-hr outages
• 95% of 8-hr outages
Net Energy Metering Overview

- Current program (NEM 2.0) maximizes payment to Customer.
- NEM 2.0 pays Customer near full retail energy payment
**What is NEM 3.0?**
- CPUC changing solar rules
- New Rules = NEM 3.0
- Reduced bill credits for exported solar energy
- Reduced energy bill savings expected
- **Timing:** ????

**Savings Impact**
- $1M vs. -$2.5M in savings
- Assumes CPUC proposed decision adopted as-is

**There remains a short window to secure NEM 2.0 rates.**
Incentives
Federal Investment Tax Credit (ITC)

Each tier stepdown delayed by 2 years

- **Former schedule**
  - 2006 - 2019: 30%
  - 2020: 26%
  - 2021: 26%
  - 2022: 26%
  - 2023: 22%
  - 2024: 10%

- **Updated schedule**
  - 2006 - 2019: 30%
  - 2020: 26%
  - 2021: 26%
  - 2022: 26%
  - 2023: 22%
  - 2024: 10%

% refers to monetary investment in the solar facility over time
Self Generation Incentive Program (SGIP)

Step 1
$500 / kWh

Step 2
$400 / kWh

Step 3*
$350 / kWh

Step 4**
$300 / kWh

*SoCal Edison (SCE), SoCal Gas (SCG), San Diego Gas & Electric (SDG&E)  
**PG&E  
Note: There will be no Step 4 for SCE – this is its terminal step.
Entities consuming either gas or electric from a CA investor-owned utility (IOU) are eligible.
Values shown represent capacity for standalone storage projects only. Solar-plus-storage project values would be lower.
Sustainable Energy Initiatives & Partnerships

The Need to Become Energy-Efficient

• The Rising Costs of Energy
• State & Local Renewable Energy Goals
• Energy efficiency projects: City Streetlights, City Hall, the Municipal Service Center, Police and Fire Facilities and City Parks and Community Centers. Those projects combined resulted in:
  • $3.4 million annual savings on our PG&E (electricity) bill.
  • 15 million kWh annual savings is equivalent to:
    ▪ Removing 2,290 vehicles off the road
    ▪ 10,665 metric tons of CO₂ emissions avoided

Renewable Energy & Battery Storage

• Over 25 MegaWatts (MW) of new solar & battery storage
  • Represents over 37,000 tons of CO₂ emissions avoided
  • 8,000 gas powered cars off the streets.
Planning for ZEV & Electrification Infrastructure

**EV Charging Stations**
- Planning ahead
  - Power Needs
  - Infrastructure
  - Security

**Pilot Program**
- 87 Public Charging Stations at 12 sites
- State & Local Grant Incentives
- Challenges of Public Chargers
Local Energy Partnerships

City of Fresno and SPURR

• Managing Expectations & Gaining Support
• Choosing the Path Forward

The strength of the Joint Powers Authority (JPA)

• Takes the risk out of going solar
• Provides stability and low rates
• Competitive process provides California Agencies a path forward other than CA Code 4217
Procurement with SPURR
### Procurement Options

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<th>Self-Run</th>
<th>Consultant</th>
<th>JPA</th>
</tr>
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<tbody>
<tr>
<td>Procurement Time (months)</td>
<td>12-18</td>
<td>12-18</td>
<td>3-9</td>
</tr>
<tr>
<td>Experience</td>
<td>Limited</td>
<td>Expert</td>
<td>Expert</td>
</tr>
<tr>
<td>Staff Time &amp; Resources</td>
<td>High</td>
<td>Moderate</td>
<td>Minimal</td>
</tr>
<tr>
<td>Risk</td>
<td>High</td>
<td>Moderate</td>
<td>Minimal</td>
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SPURR: School Project for Utility Rate Reduction

**SPURR: Experience + Success**

- Buying Consortium of 300+ Public Agencies
- Joint Powers Authority (JPA) governed by Board of public agency administrators

**Renewable Energy Aggregated Procurement (REAP) Program**

- Solar, Storage & EV Charging
- Competitively Bid Pricing & Terms
- Standardized Pre-vetted PPA Contract

**Used by 50+ Counties, Cities & Districts**
Benefits of the REAP Program

• Proven
  • 50+ California Public Agencies use REAP
    • 25+ School Districts
    • 10+ Community Colleges
    • 5+ Cities, Counties, Universities
  • Endorsed by CA Community College League

• “Easy Button”
  • Solar, Storage, & EV Charging
  • Competitive Process
  • Exceeds Requirements of Gov Code 4217

• Reduced Project Risk
  • Standardized Pre-vetted PPA Contract
  • Standardized Pricing & Standardized Terms
  • Favorable terms/conditions: RECs, annual performance guarantee, LDs, etc.

Save Time
• PG&E Detailed Study – 6 Months
• PG&E Engineering – 6-9 months
• Complete System 12-18 Months earlier

Optimize Incentives
• Federal Tax Credits
• Net Energy Metering 2.0
• SGIP Storage Incentives
Next Steps
Design – Build Agreement

- System Ownership
- Expand General Fund
- Capitalize Energy Expenses
- Cash / Cheap Capital
- Operations & Maintenance Agreement
Power Purchase Agreement

- No upfront cost / No Bonding
- Year 1 Savings
- 0% Escalator for 20 Years
- Utility Rate Hedge
- Monetize Tax Credit
- Aligned Partnership
- Free Operations & Maintenance
- Guaranteed Performance
- Buyout Options after Year 6
Free Microgrid Consultation - Sign Up Now
Contact Us

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