A new tool to assess the potential value of battery backup power for commercial customers
CalCCA Webinar Team

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Thank you to our sponsors!

Calpine

Calpine Energy Solutions
Housekeeping

- Webinar is being recorded
- All participants will be in listen-only mode
- Use the Q&A button on your screen to submit questions
- Q&A will begin following presentations
Powering Commercial Customers Through a Power Outage

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John Woolsey, PE, Principal Engineer, CSE

September 25, 2020
Sonoma Clean Power

Sonoma Clean Power is turning the tide on the climate crisis, through bold ideas and practical programs.

**CleanStart**
- 50% renewable energy
- 97% carbon free energy

**EverGreen**
- 100% local renewable energy
- 74% geothermal and 26% solar

*Numbers are rounded*
Center for Sustainable Energy

One simple mission —

DECARBONIZE.™

Our vision is a future with sustainable, equitable and resilient transportation, buildings and communities.
Origins

- PG&E Public Safety Power Shutoff Events in SCP territory
  - 9/23/19 to 9/25/19: 2-3 Days - 637 Meters
  - 10/9/19 to 10/12/19: 3-4 Days - 60,694 Meters
  - 10/23/19 to 10/25/19: 2-3 Days - 22,740 Meters
  - 10/26/19 to 10/29/19: 3-4 Days* - 110,948 Meters
  - 10/29/19 to 11/1/19: 4-5 Days* - 103,300 Meters
  - 11/20/19 to 11/21/19: 1-2 Days - 6,102 Meters

- Customers purchasing gas and diesel generators to prepare for future events

*these events bled over into one another, where a minimal number of accounts were restored in between
Program Design

• Selected CSE from a solar + battery storage RFQ

• Worked with CSE to establish a two-phase program approach to control costs

**Phase 1:** Customer questionnaire, desktop analysis, usage data, and intake calls to determine if battery storage is feasible
  • **Deliverable:** Report with details about capacity size, lifespan, storage cost and incentives, economic analysis storage, solar analysis, recommendation for phase 2 analysis

**Phase 2:** If feasible, in-person site visits from CSE for more in-depth analysis to determine infrastructure upgrade needs and costs.
Customer Process

• SCP identifies key customers by PSPS history, designation as "essential", business type, and location (High Fire Threat District)

• Commercial Accounts Manager (CAM) and Commercial Accounts Specialist (CAS) proactively reach out to customers that would benefit/impacted by PSPS

• SCP CAM & CAS do initial intake calls to answer questions about the program and send questionnaire to interested customers

• Once questionnaire is returned, customers are introduced to CSE for Phase 1 of audit
Customer Questionnaire

Energy Resiliency Audit Program (ERAP) Questionnaire

Facility and Contact Information
- Facility Name:
- Primary Contact
  - Contact Name:
  - Title:
  - Email Address:
  - Phone Number:
- Technical Contact
  - Contact Name:
  - Title:
  - Email Address:
  - Phone Number:
- Project Location
  - Street Address:
  - City:
  - ZIP code:
  - County:

General
1) Facility Type (Select from the list below):
   - Large Office
   - Small Office
   - Data Center
   - Warehouse/Storage
   - Food Sales or Service
   - Retail
   - Lodging
   - Public Order and Safety
   - Residential
   - Public Assembly
   - Health Care
   - Service
   - Agricultural
   - Industrial/Manufacturing
   - Vacant
   - Other (Specify below):

2) Motivation for Energy Storage (Select from the list below):
   - Resiliency
   - Cost Savings

3) Annual Hours of Operations:

4) Facility Description:
   (Describe any special considerations, including occupancy percentages and different space types, e.g., office, lab, warehouse, etc.)

Site Qualification Questions

Yes/No (Answer: "Yes" if any of the following apply to you)

- 1. Are you concerned about the impact of current or future energy costs on your business?
- 2. Are you concerned about power reliability?
- 3. Does your location have a history of blackouts?
- 4. Is there a substantial financial impact to your business if the power goes out for 1 hour?
- 5. Is there a substantial financial impact to your business if the power goes out for 5 minutes?
- 6. Do you have an emergency generator? If "Yes" provide kW:
- 7. Have you rented an emergency generator in the past? If "yes", provide cost $:
- 8. Do you rent your facility?
- 9. If you rent, do you have permission to upgrade electrical equipment?
- 10. Does your facility have existing onsite renewable electricity generation?

By returning this Energy Resiliency Audit Program (ERAP) questionnaire, you authorize Sonoma Clean Power (SCP) to provide our program manager, the Center for Sustainable Energy (CSE), with your SmartPlant usage data, to include 15 minute and/or hourly data as needed for purposes related to the ERAP analysis.
Stage 1 Analysis Process

Once complete, Customer Questionnaire is provided to CSE with billing data and site contact info.

A detailed technical and economic report is generated using pre-built tools and an Advice Letter is written.

Billing & BESS Sizing

15-minute or 1-hour interval billing data is analyzed and savings are estimated for 4-hr duration battery energy storage systems.

Conclusions

The Advice Letter and technical report are delivered to the customer. The advice letter explains recommended next steps.

Communicate Findings
Sample of Phase 1 Report

Dear Mr. Samson:

Thank you for your recent inquiry regarding a screening for an energy storage system at [Redacted].

According to your SCFIIP questionnaire responses, [Redacted] is a 10,000 square foot grocery store in [Redacted].

With a goal to improve energy resilience particularly during utility-initiated Public Safety Power Shutoff (PSPS) events,

This Phase 1 analysis is a first cut screening for the effectiveness of battery energy storage at your specific site using a standard analysis and based on limited site information (e.g., historical use of electrical energy, critical energy-consuming systems and operations, operating hours), and your current utility rates. The economic analysis assumes a 3% annual escalation in utility costs over time and no change in rate tariffs or peak, semi-peak and off-peak times of day from what is presently published. Any rebates or incentives are selected based on your responses to the questionnaire and are applied as accurately as possible with the information provided. The estimated implementation cost of on-site energy storage is based on typical market pricing for systems in California and does not include any electrical infrastructure upgrades that might be required.

Based on the review of the technical information provided for [Redacted] the results of the analysis do not indicate this site qualifies as a strong candidate for energy storage based solely on economic viability. The calculated simple payback approaches the useful life of energy storage equipment. Please see the attached report for additional information.

The most likely reasons for a poor economic outcome for energy storage are:

- Flat daily energy demand profile, meaning relatively minimal daily demand spikes at your site compared with average energy consumption
- Minimal monthly demand charge savings ($/kWh from energy storage at PG&E’s E-19 rate)
- When considering residual, lack of on-site renewable energy generation such as solar photovoltaics

July 30, 2020
Sample of Phase 1 Report

2.1.1 Energy Storage System (ESS) Details

<table>
<thead>
<tr>
<th>General Information</th>
<th>Solar PV System Cost And Incentives</th>
<th>Monthly Energy Use vs Solar Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility:</td>
<td>Solar PV System Cost</td>
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</tr>
<tr>
<td>Address:</td>
<td>$0</td>
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</tr>
<tr>
<td>ESS Equipment Description</td>
<td>Net Solar PV System Cost: $0</td>
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</tr>
<tr>
<td>Battery: 22.78kWh/91.12kWh Energy Storage System</td>
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<td></td>
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<tr>
<td>Banks:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inverters:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESS Equipment Typical Lifespan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery Banks:</td>
<td>15 Years</td>
<td></td>
</tr>
<tr>
<td>Inverters:</td>
<td>15 Years</td>
<td></td>
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<tr>
<td>ESS Cost And Incentives</td>
<td>ESS System Cost: $101,917</td>
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<tr>
<td>SGIP Incentive:</td>
<td>-$23,919</td>
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<tr>
<td>Net ESS System Cost:</td>
<td>$77,998</td>
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</tbody>
</table>

![Graph showing Energy Use (kWh) and Solar Generation (kWh)]

Center for Sustainable Energy
3980 Sherman St., Suite 170
Stage 2 Analysis Process

Stage 2 Analysis is recommended based on the Stage 1 Analysis economic outcomes.

- Can the system pay for itself within its expected life time?
- Can the cost of resiliency be quantified?

Stage 2 Analysis evaluates customer electrical equipment.

Stage 2 Findings will help inform the customer of any additional costs they should expect in addition to the cost of a battery energy storage system.

Stage 2 Findings provides custom assessment with recommendations for electrical equipment upgrades as needed.
Lessons Learned

• The COVID-19 pandemic complicated matters
  • Customers in precarious financial situations
• Outreach to customers is time consuming for Staff
• Questionnaire more likely to be completed if sent by SCP
  • Too much time & budget was spent by CSE to get completed questionnaires
  • Switched to having SCP Staff send questionnaire
Lessons Learned

• Most standard economic analysis does not make a case for battery storage indicating value of incentives and other economic factors.
  • Additional information should be collected to help quantify value of resiliency for each customer such as:
    • value of lost product and/or cost of renting/buying diesel/gas generators.
    • This may be challenging given other communication slow-downs experienced.

• Solar is an important addition to increase economic effectiveness.
  • Started modeling analysis with inclusion of solar and providing that analysis alongside stand-alone BESS.
Lessons Learned

• Initial value of incentives to customers appears to be baseline understanding of where the customer stands, cost implications and feasibility to move forward (in terms of time, potential cost and ROI of systems).
  • At this point, no customers have decided to move forward to Stage 2 but some have contacted BESS vendors directly using the information in the report.
  • Could be a combination of feasibility and COVID-19 considerations. Need further evaluation to determine the various reasons from one customer to the next.
CCA Resilience Initiatives

CCA in the News

- Here’s how California can keep the lights on while meeting its clean energy goals
- How local energy providers are ensuring energy resilience
- Inside Clean Energy: What’s a Virtual Power Plant? Bay Area Consumers Will Soon Find Out
- Calif. aggregators seek enough renewable power plus storage for 200,000 homes
- Pomona and Baldwin Park Community Choice Aggregation Programs Launching in October 2020
- Utility Companies’ Deadly Addiction to Profit

Member News

- Valley Clean Energy Donates Face Masks to RISE, Inc.
- SV Clean Energy Adds Director of Regulatory and Legislative Policy
- Community Choice Volunteers Wanted for Clean Energy Alliance Community Advisory Committee
- San José Clean Energy, Peninsula Clean Energy Launch Renewable Energy, Battery Storage Request
- EBCE Launches First-of-Its-kind Home Battery Backup Program

Press Releases

- CalCCA Statement on Passage of SB 350 (Golden State Energy Act)
- CalCCA Statement on the CPUC’s Central Procurement Decision
- Celebrating 10 Years of CCA in California
- CalCCA Launching New “Community Energy Innovation” Webinar Series
- Evelyn Kahl Joins CalCCA as General Counsel
- California CCAs Hit 3,000-Megawatt Mark for New Long-Term Clean Energy Contracts
- California CCAs Hit 3,000-Megawatt Mark for New Long-Term Clean Energy Contracts
- CalCCA Statement on the San Diego City Council’s Decision to Join a Regional JPA to Implement CCA
- CalCCA, CalEPA Lead Effort to Protect Clean Energy Over 2020 COVID-19 Pandemic

Info Resources

- CCA Resilience Initiatives
- CCAs and COVID-19
- California CCAs Hit 3,000-Megawatt Mark for New Long-Term Clean Energy Contracts
- CCA Renewable Energy Maps/Infographics, List of PPAs
- CCAs’ Contact Info and Location
- CCAs and Union Labor
- CCA Equity and Inclusion Report
- CCA Power Purchasing
- What People are Saying about CCAs
- CCA Benefits

Quarterly Report

cal-cca.org/news
What’s Next?

• Recording/slides will be posted at cal-cca.org/webinars
• Next CEI webinar on October 30
• Topic: Identifying cost-effective, scalable and replicable programs for deploying DERs
• Registration link and details at cal-cca.org/webinars
Thank you and stay well!

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