San Pasqual General Information

- Reservation was established in 1910
- The Reservation encompasses approximately 3,143 acres
- 280 Tribal members and over 1,400 lineal descendants
- Reservation population is 1,600
- 450 homes on the reservation
- 83 homes have solar
San Pasqual Band of Mission Indians

Trust and Fee Lands

- Trust Land (1,990 US Acres)
- Fee Land (1,153 US Acres)
  [3,143 Total US Acres]
San Pasqual and Wildfire
Power Supply Threats & Impacts

**THREATS**
- Severe weather
- High winds
- Wildfires
- Earthquakes
- Localized physical damage to utility distribution systems
- SDG&E system upgrades (planned outages)

**IMPACTS**
- Inability to Use Facilities
- Lost Productivity & Revenues
- Equipment Damage
Microgrid Project Goals

**Resilience:** Maintain electric power during outages

**Economic:** Reduce electricity costs

**Environmental:** 100% renewables, reduce emissions
<table>
<thead>
<tr>
<th>Facility</th>
<th>Emergency Purpose</th>
<th>Critical Electric Loads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tribal Administration</td>
<td>Red Cross evacuation center; emergency public shelter; tribal command and control; first aid</td>
<td>HVAC, lighting, telecom/IT, food storage, food service</td>
</tr>
<tr>
<td>Housing &amp; Security</td>
<td>First response (police); public safety and security monitoring</td>
<td>Telecom/IT, security camera monitoring, lighting</td>
</tr>
<tr>
<td>Fire Department</td>
<td>First response (residential fire station); 911 emergency dispatch</td>
<td>Telecom/IT, lighting, overhead door operation</td>
</tr>
<tr>
<td>Education Building</td>
<td>Emergency public shelter</td>
<td>HVAC, food storage, food service, lighting</td>
</tr>
<tr>
<td>Preschool</td>
<td>Emergency public shelter</td>
<td>HVAC, lighting</td>
</tr>
<tr>
<td>Wastewater Treatment Plant</td>
<td>Wastewater treatment for complex</td>
<td>Full load</td>
</tr>
</tbody>
</table>
Proposed Microgrid Components

- Solar PV Systems
  - 157 kW DC (new)
  - 24 kW DC (existing)
- Propane Generators
- Battery Energy Storage Systems (BESS)
  - 120 kW / 480 kWh
- Microgrid Controls
- Energy Management Controls
San Pasqual Tribal Government Complex Microgrid Project
CONCEPTUAL DESIGN

- Master Meter
- Existing/Sub Meter
- New Solar PV Site
- Existing Solar PV System
- BESS Location
- LP Genset Location
- Point of Interconnection
- Underground Cable Run
- Building Cable Run
- Existing Propane Tank
- New Propane Tank
Project Benefits

- Offset 108% of grid electricity
- Offset SDG&E electricity costs
- Provide redundant backup power
Project Team

SPBMI
John Flores, Environmental Director

David Martinez, Public Works Director

Desiree Morales, Utilities Manager

Owner’s Representatives
Josh Simmons
Prosper Sustainably

Michael Burr
Microgrid Institute

Dustin Jolley
Sage Renewables

Design Build Contractor
Ralph Ciarlanti III
Green Realities

Vipul Gore
Gridscape Solutions

Cassidee Kido
Energy Solutions

Code Compliance
EsGil Corporation
Project Status & Accomplishments

- Contracted Design Build Contractor
- Completed SDGE applications for 3-phase service and interconnection
- Completed design engineering
- Construction activities have commenced
- Completion of construction in Q1 of 2021 (est.)
Lessons Learned

• Procurement/contracting takes time
• Utility approvals take time
• Opportunities to leverage funding
• Budget changes
• Seek performance guarantees
• Regular, strategic communications
• Go fast by going slow
Thank you

Questions and Comments

Josh Simmons
Prosper Sustainably
805.694.8089
jsimmons@prospersustainably.com