

# San Pasqual Band of Mission Indians Microgrid Project

John Flores

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Indians

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# 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]

Valley  
Center  
Middle

Center

Woods Valley  
Golf Club

San Pasqual  
Reservation

0 0.5 1 2 Miles



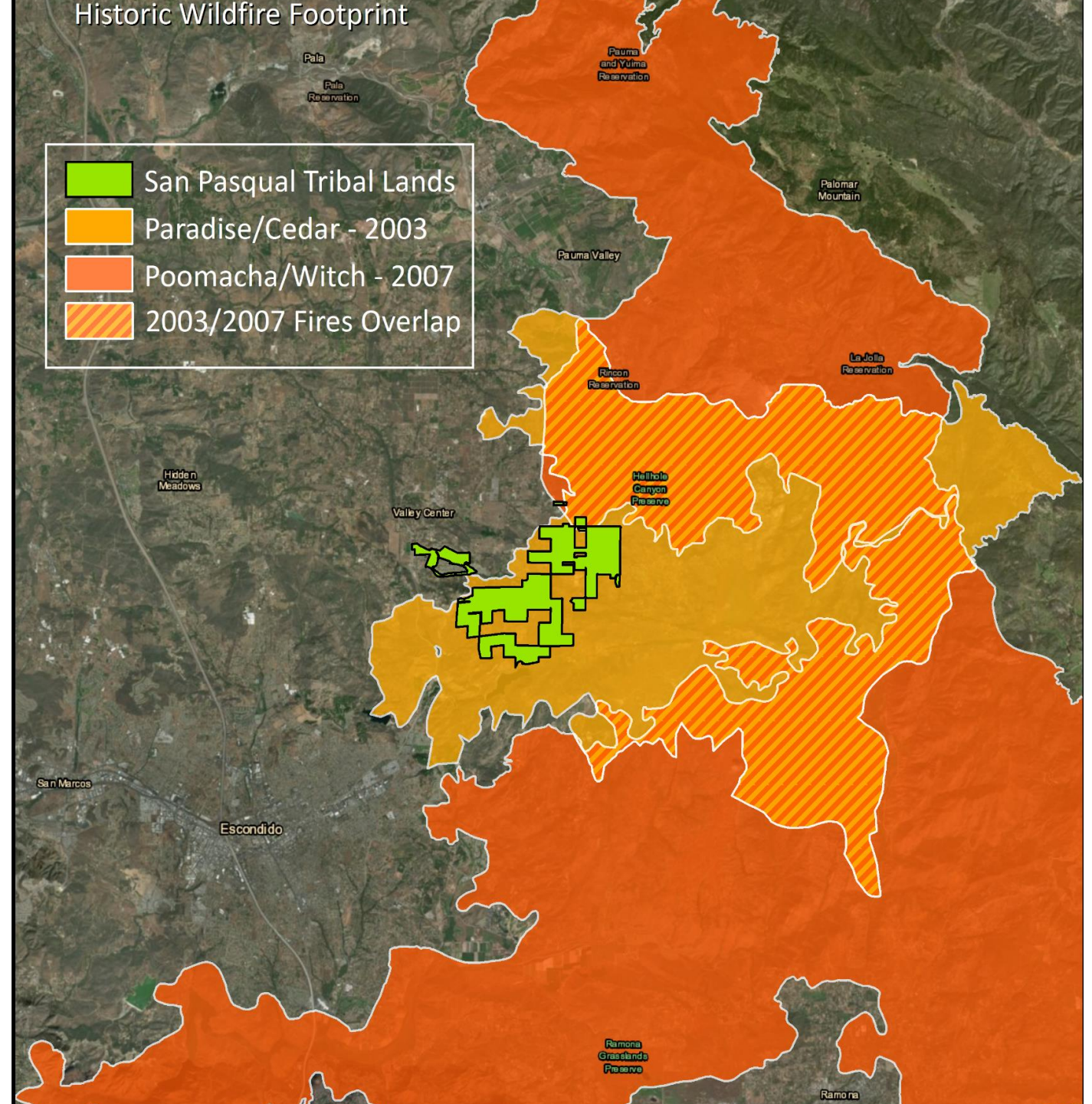
Date Created: 4/20/2013

Source: San Pasqual Band of Mission  
Indians Environmental Department



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# 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)

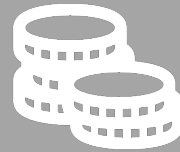
## IMPACTS

- 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

# Priority/Critical Electricity Loads

Facility	Emergency Purpose	Critical Electric Loads
<b>Tribal Administration</b>	Red Cross evacuation center; emergency public shelter; tribal command and control; first aid	HVAC, lighting, telecom/IT, food storage, food service
<b>Housing &amp; Security</b>	First response (police); public safety and security monitoring	Telecom/IT, security camera monitoring, lighting
<b>Fire Department</b>	First response (residential fire station); 911 emergency dispatch	Telecom/IT, lighting, overhead door operation
<b>Education Building</b>	Emergency public shelter	HVAC, food storage, food service, lighting
<b>Preschool</b>	Emergency public shelter	HVAC, lighting
<b>Wastewater Treatment Plant</b>	Wastewater treatment for complex	Full load

# 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


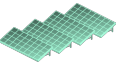
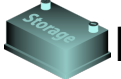
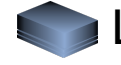







Microgrid Controls



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  
[OurEnergy](#)

## Design Build Contractor

Ralph Ciarlanti III  
[Green Realities](#)

Vipul Gore  
[Gridscape 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 are 95% complete



Government center tied into microgrid  
December 31

# Project Status & Accomplishments



Purchase and install back up propane generator



Run test on fully operation microgrid



Attain Permission (PTO) to Operate from SDGE



Construction activities are 95% complete



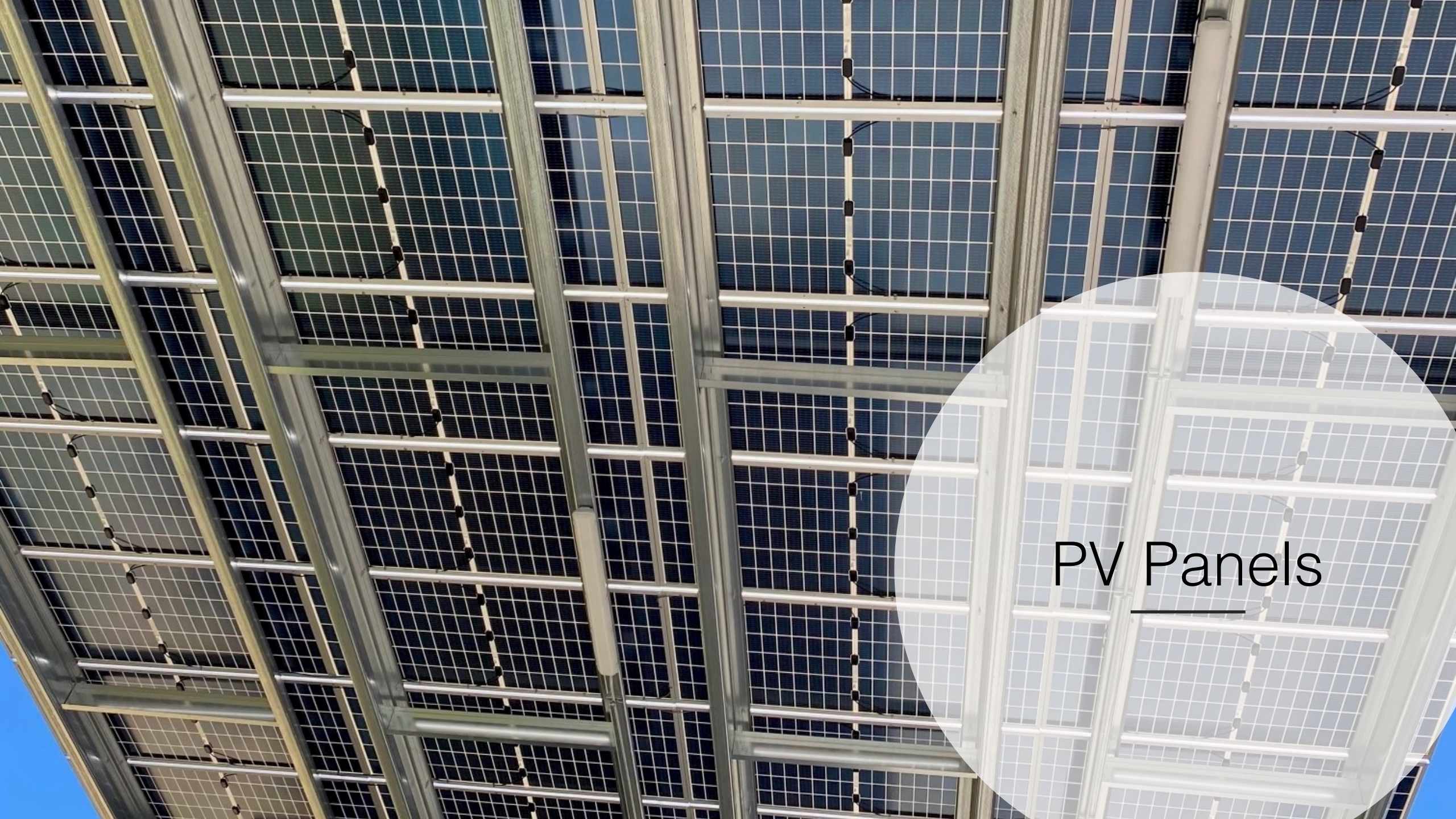
Ribbon cutting ceremony

# 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

# Pandemic Lessons Learned

- Procurement and supply chain issues have become more challenging
- Cost of materials have risen
- Utility approvals take longer during a pandemic
- Navigating work force illness: testing, quarantining, people out sick
- Everything seems to take longer



PV Panels



# Covered Parking



PV Lighting under the canopy

PV  
Lighting  
at Night





## 6 BTCPower EV Charging Stations

- Installed 3 units (6 EV charging ports) at Administration, Education, and Tribal Hall
- Charging is free of charge, all power to the EV charging stations provided by PV and battery storage
- If you build it, they will come...

# Battery Storage

- 240kW/480kWh BESS plus Microgrid Controls



# SDGE Transformer

Installed on October 29, 2021

# Thank you

Questions and Comments

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