



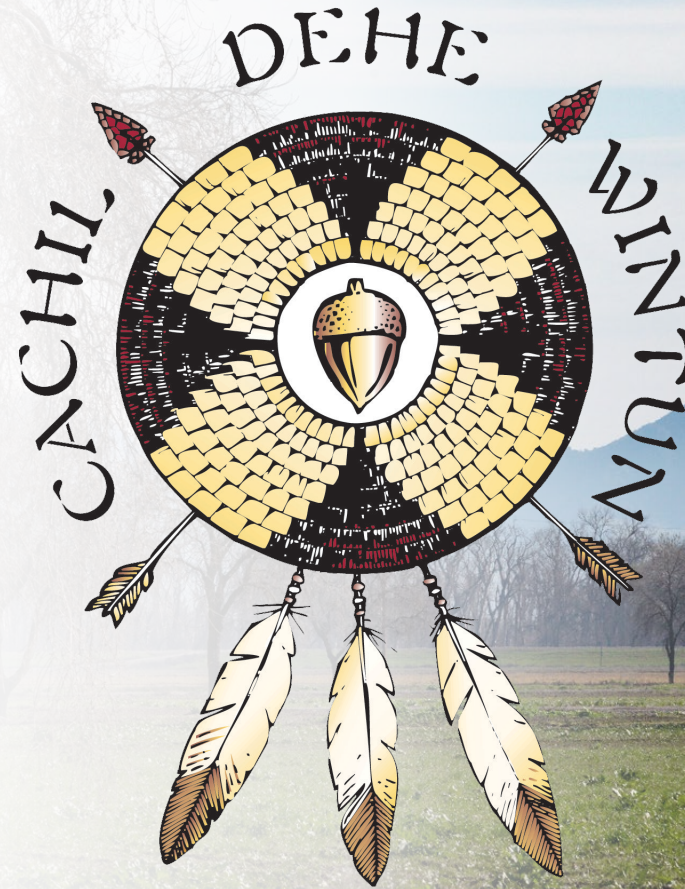
# Colusa Indian Community: Reese Road Housing Power Project & Packer Ranch Solar PV Project

DOE Annual Program Review 2024  
Presented by Ken Ahmann

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# Presentation Outline

- Summary of Colusa Indian Community
- History of CIC-Tribal Utility Authority
- Reese Road Housing Power Project
  - Project Objective & Summary
- Packer Ranch Solar PV Project
  - Project Objective & Summary
- What's Next For CIC?



# Summary of Colusa Indian Community



The Colusa Indian Community consists of 111 members of the Cachil DeHe Band of Wintun Indians and a total of 160 residents. The Tribe resides in the heart of Northern California's agricultural land on a 290-acre reservation along the Sacramento River with another 1,000 acres pending trust.

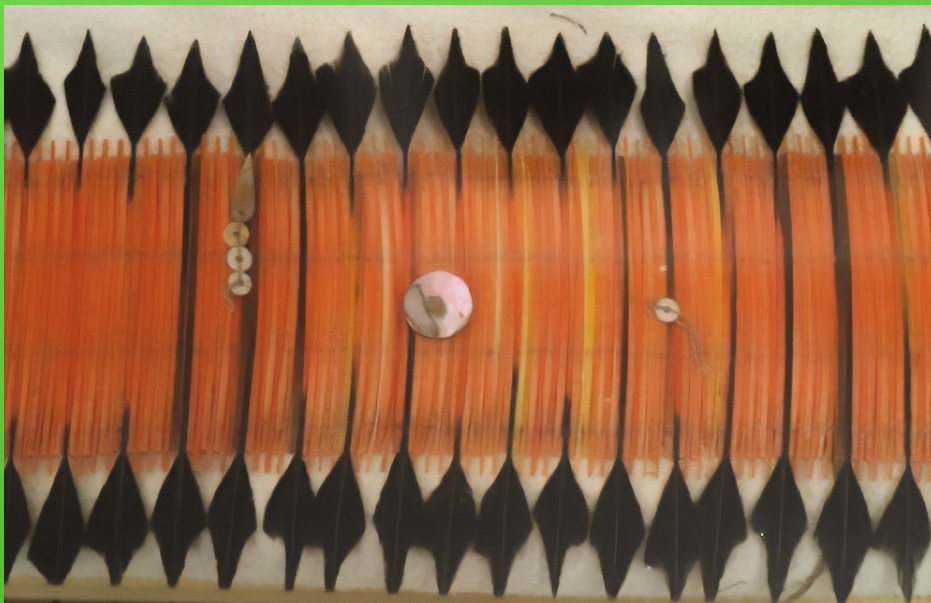
The Colusa Indian Community owns and operates the Colusa Casino Resort, which is powered, heated, and cooled by the Tribal Utility Authority's cogeneration power plant. The TUA's 7.1 MW microgrid hasn't had a power outage in over 12 years.

**111**

**Members**

**160**

**Residents**





# Colusa Casino Resort

Four miles north of Colusa,  
California on Highway 45



# History of CIC-Tribal Utility Authority

- Electrical Department created in 2003
- Co-Gen commissioned in 2005
- TUA created in 2021 to unify resources and leadership of both departments
- Team includes director, managers, technicians, operators, journeyman electricians, welders, pipe fitters, fabricators, and apprentices





# 2004-2005

- Resort expanded and hotel was built
- Reservation experienced 50+ power outages per year from local utility
- Co-Gen was built to power the resort and Tribal administration campus
- Originally consisted of 4MW of Jenbacher gas engines and two Thermax absorption chillers



# 2011-2012

- 4MW battery UPS installed
- 4MW backup diesels installed
- Microgrid has experienced zero power outages since this integration





# 2014

- DOE Office of Indian Energy grant funded solar PV project completed
- 500kW solar canopy installed
- 100kW rooftop solar installed





# 2017-2018

- Original Jenbacher gas engines replaced at 80,000 operating hours
- Two additional Jenbachers added for total gas engine capacity of 6MW
- The new engines are 100% hydrogen ready



# 2019

- DOE Office of Indian Energy grant funded solar project completed
- Four additional solar canopies installed, bringing total PV capacity up to 1.1MW
- Solar PV now accounts for ~1/3 of annual power production for the microgrid



# 2020

- DOE Office of Indian Energy grant funded micro-grid expansion project
- TUA replaced PG&E across entire reservation, including member housing, all Tribal businesses, water treatment plants, medical clinic, gas station, and more



# 2022

- Absorption chiller expansion project complete
- Resort now gets its cooling from absorption chillers totaling 1400 tons of capacity and electric backup chillers totaling 400 tons of chilled water capacity
- UPS expansion project began

# Reese Road Housing Power Project

Office of Indian Energy grant  
funded microgrid expansion





# Reese Road Project Objective

- Expand existing medium-voltage distribution to seven new households with the addition of medium-voltage cabling, step down transformers, smart meters, and street lighting for the new development.
- Utilize the Tribe's existing microgrid to supply the new homes with highly reliable power and at a reduced rate compared to the local utility.

# Reese Road Project Summary

- \$1,217,828 total project cost
- 57% grant funded
- Construction began October 2023 and complete August 2024
- 7 new homes on Reese Road are now powered by the TUA's microgrid and 10 new streetlights have been installed











# Packer Ranch Solar PV Project

Office of Indian Energy grant  
funded grid-tied solar PV arrays



# Packer Ranch Project Objective

- Install two separate grid-tied solar PV arrays, one rated at 855kW-DC and the other at 34kW-DC.
- Interconnect larger array to local utility under a NEM-A (net-energy metering aggregation) agreement to allow the solar PV to offset the electric bills of 8 ag well pumps on fee lands.
- Interconnect smaller array to offset usage for 1 home and 1 shop.
- Reduce energy costs and reliance on fossil-fuel burning power sources.
- Increase Tribal self-reliance and Tribe-owned power generating assets.



# Packer Ranch Project Summary

- \$1,767,000 total project cost
- 90% grant funded
- 5-year ROI (before grant)

- Project awarded to Colusa Indian Energy for large array and to CMCO for residential array (completed)
- Major equipment is on order and construction is set to begin next month for large array

# What's Next For CIC?

- 2MW BESS being installed to act as load buffer for solar PV
- Existing pair of 2MW diesel generators being replaced with 2 x 3MW diesels
- Green hydrogen plant under construction
- Colusa Indian Energy founded to export our decades of microgrid expertise across Indian Country as turnkey energy developer, including grants, EPC, O&M, and Tribal member training





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Thank  
You