



**San Carlos Apache Tribe**

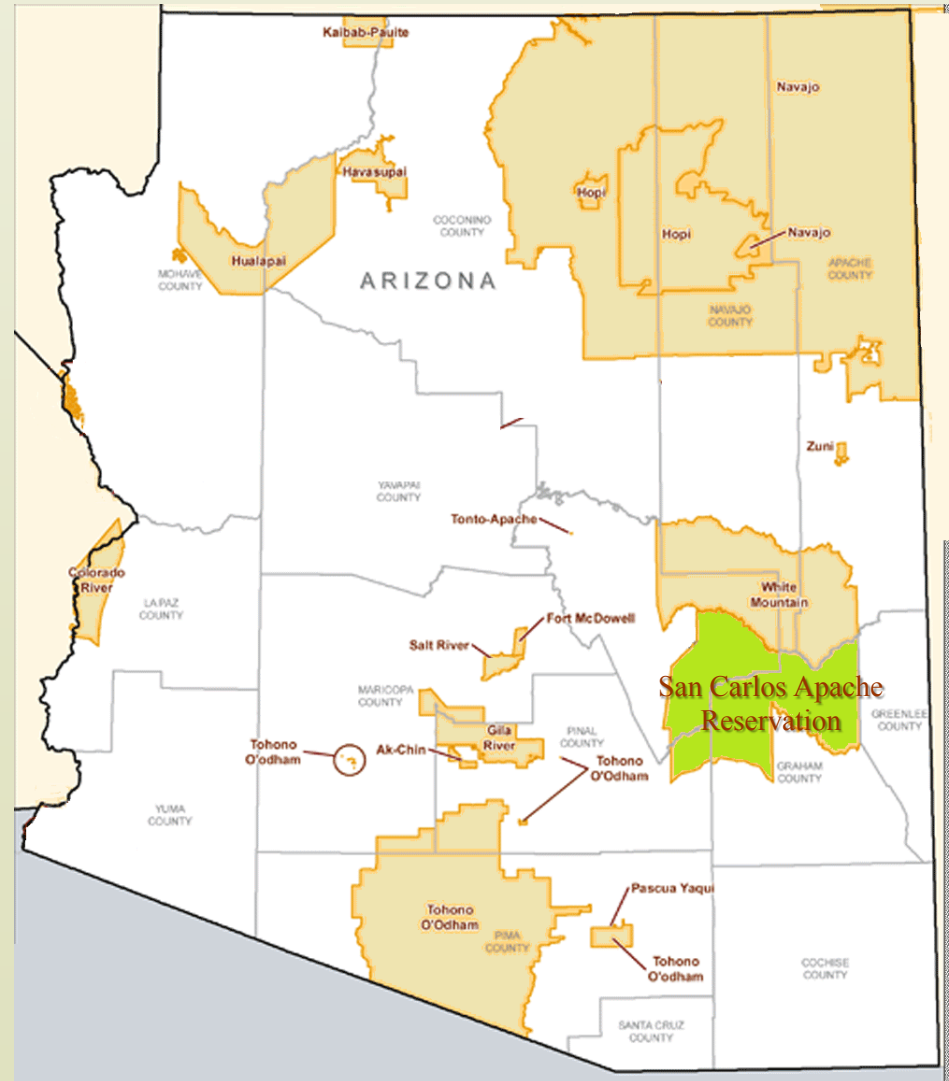
# San Carlos Apache Mission Statement

The Apache People will live a balanced life in harmony with spirituality, culture, language, and family unity in an ever-changing world.

The Apache People shall create a strategic framework for our tribe to grow and prosper.

# San Carlos Apache Tribe And Reservation

- Membership: approx 15,000
- Unemployment rate: 67%
- 11 member tribal council
- Apache Gold Casino
- 1.83 million acres.
- 800,000+ acres wooded/forested.
- 1M ac. riparian/grasslands/desert.
- 2nd highest rated level of solar resource potential





# San Carlos Apache Tribe



# 2008 - 2013 Energy Initiatives

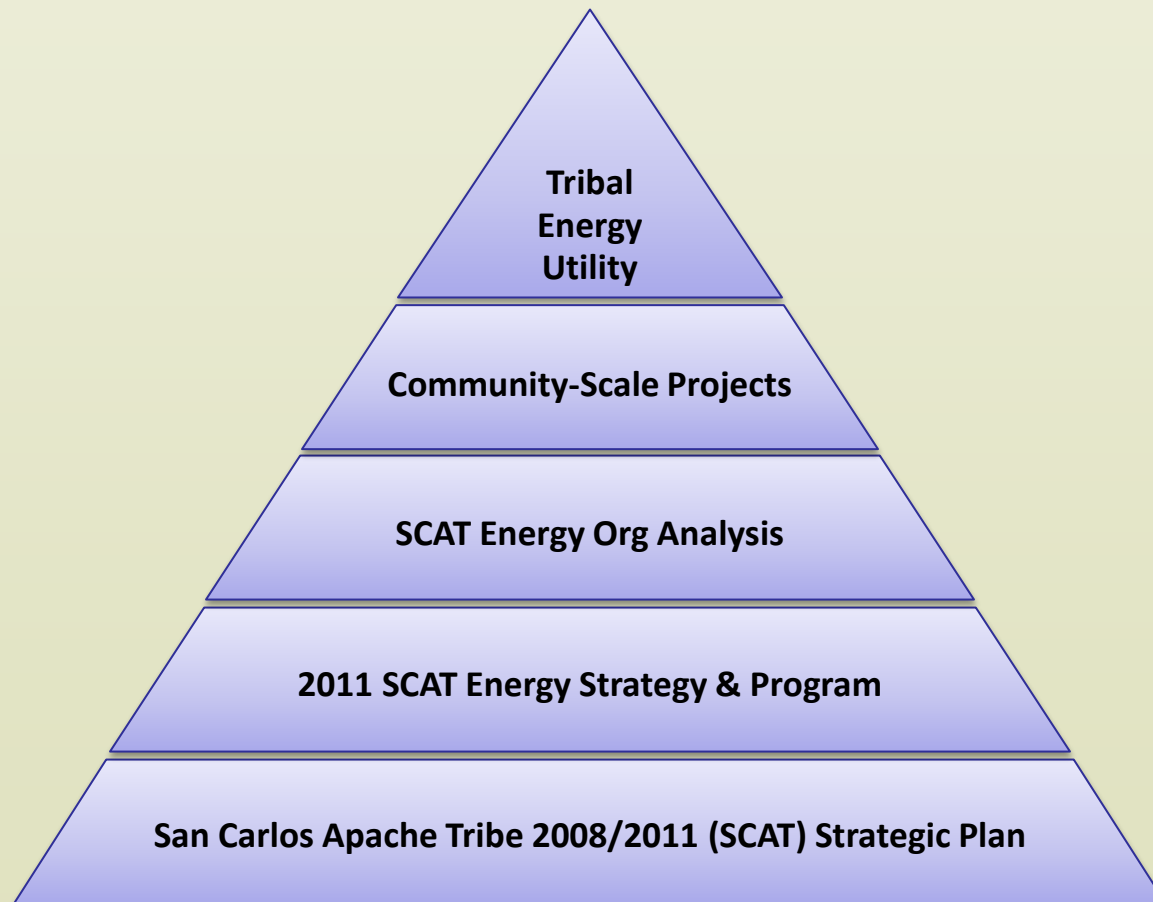
- 2008: DOE ARRA Energy grant (TA/Energy Plan/lighting retrofits, solar at radio station/1<sup>st</sup> Energy Summit)
- 2011: Workforce Report, Needs Assessment, Strategic Plan
- 2011: US DOE-funded EOA Energy Organization Analysis (Dev EOA Plan, hired Energy Coordinator/funded 2 Energy Summits)



# 2008-2013 Energy Initiatives (cont.)

- 2012: US DOE-funded solar feasibility study grant (study on community and commercial solar feasibility reservation wide)
- 2012: Tribal radio station on air March 2013 w solar power funded by DOE – EECBG. Tower site fully solar with battery backup funded by Grand Canyon Trust grant.
- 2012: Applied for APS Incentives for casino community-scale solar PV power facility.
- 2013: Currently arranging funding for casino solar PV (Pavillion/RVPark/Water pump/Casino)

# **Building on Tribal Vision**



# San Carlos Apache Reservation





# Downtown view of San Carlos Apache Rez



# Solar at Tribal Radio Tower Site





# Solar PV at Tribal Radio Studio



# Solar PV at Tribal Radio Studio



# Solar Energy Resources

US DOE National Renewable Energy Laboratory (NREL) mapping indicates that the Reservation has the second highest rated level (5.5-6.0 kWh/m<sup>2</sup>/day) of solar resource potential. These climatic conditions, combined with significant acreages of flat southerly facing vacant land on the Reservation, indicate strong prospects for developing renewable solar power generation.



# Solar Feasibility Study Area



# Growing into solar

- DOE Solar Feasibility Study (DOE funded)
- 10kW system at Tribal radio station
  - Practical value of solar
- 3kW system on small subdivision- 12 tribal homes
- Early feasibility of commercial-scale solar PV
- Solar PV at the Apache Gold Casino



# Areas Project can Add Value

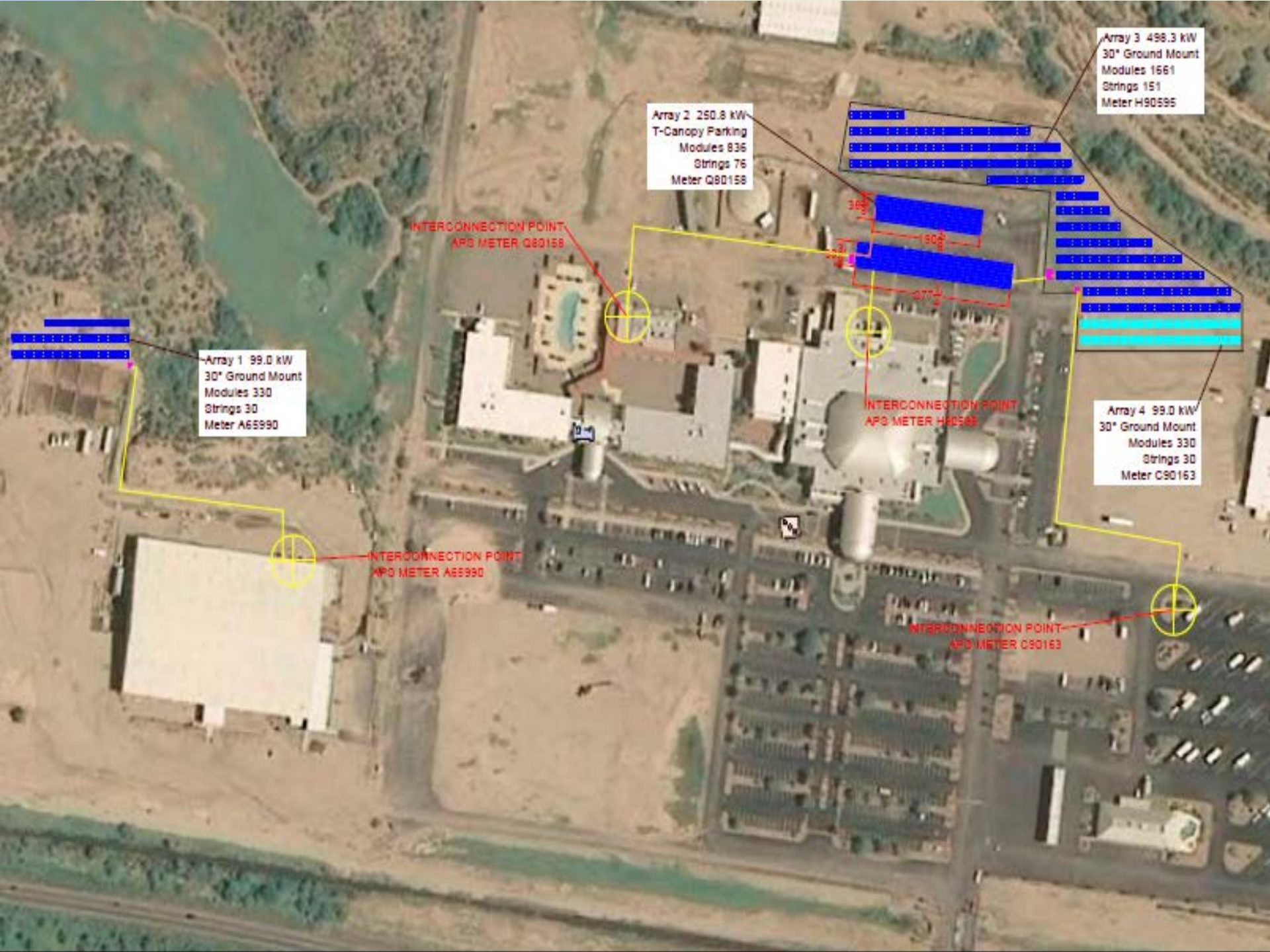
- Job creation
- Income
- Cost Savings
- Cost Stabilization
- Build knowledge capacity
- Energy Diversification
- Environmental
- Self-Reliance

# Solar PV at Apache Gold Casino



- APS offered incentives to meet the Renewable Portfolio Standards, AZ 15% by 2025.
- 2012 -Tribe awarded incentive of \$2.3M to be paid over 20 years for five meters at the Apache Gold Casino Convention Center & Resort, approx. 1.1 MW solar PV system.
- The approximate load at the Casino is 4MW.
- With a project cost of approx. \$3.4M the incentive provides about 2/3rds of the project costs.
- Tribal Economic Development (TED) bond financing
- The Tribe as owner of the system would sell to its Casino as the customer.
- Tribe to be trained to assume O/M within 5 years
- Emphasis on long-term approach in evaluating the project.





Array 3 498.3 kW  
30° Ground Mount  
Modules 1661  
Strings 151  
Meter H90595

Array 2 250.8 kW  
T-Canopy Parking  
Modules 836  
Strings 76  
Meter Q80158

Array 1 99.0 kW  
30° Ground Mount  
Modules 330  
Strings 30  
Meter A65990

Array 4 99.0 kW  
30° Ground Mount  
Modules 330  
Strings 30  
Meter C90163

INTERCONNECTION POINT  
APD METER Q80158

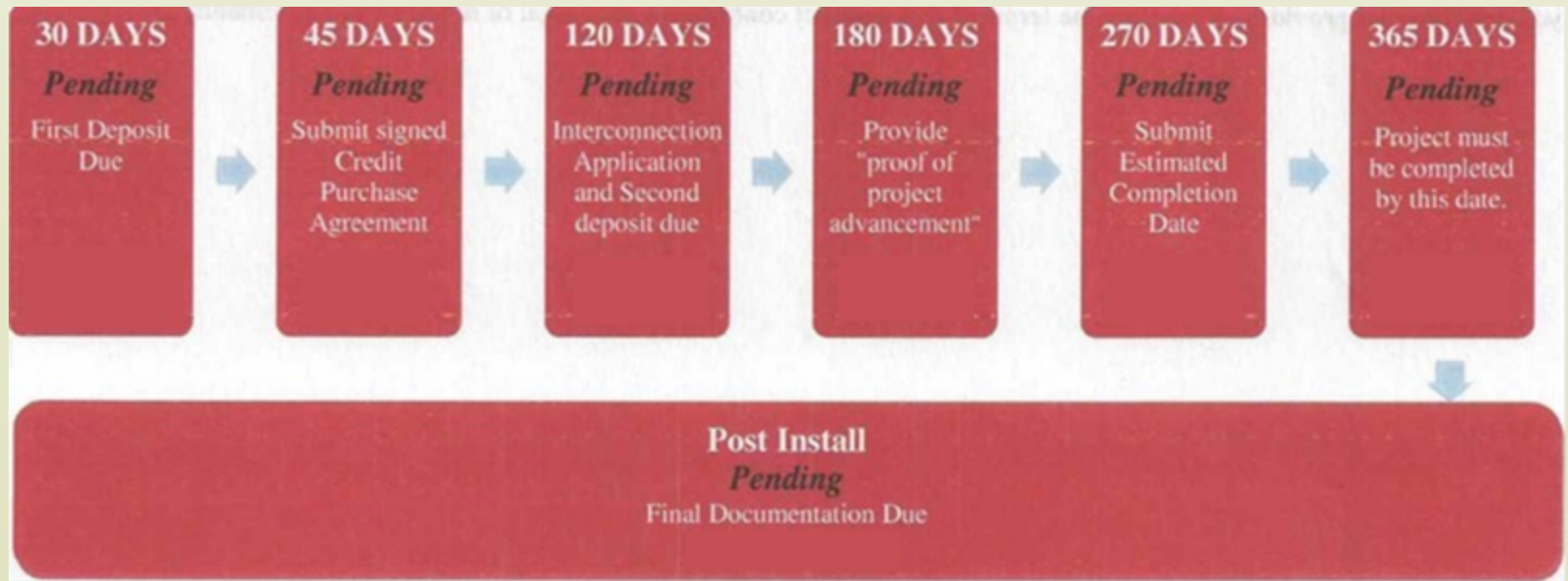
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INTERCONNECTION POINT  
APD METER C90163



# APS Project Milestones



# Lessons Learned

- Include Key Stakeholders
- Communication
- DOE/NREL is a valuable resource
- Think Outside the Box
- Consistency with the Tribe's Vision and Tribal values