

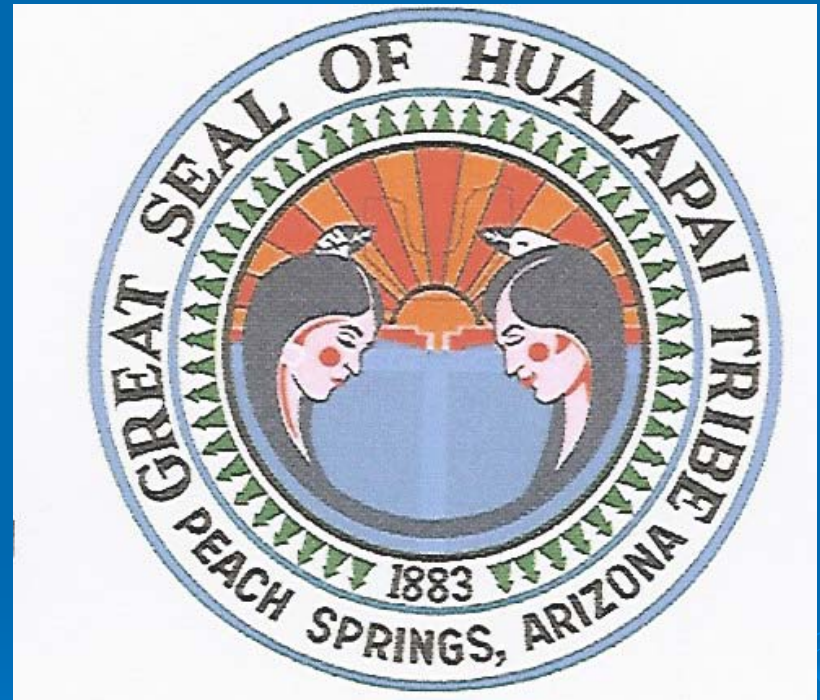
# Hualapai Tribal Utility Project

DOE First Steps Program

Jack Ehrhardt -  
Hualapai Planning Director

# WHO WE ARE

- ~1 MILLION ACRES IN NW ARIZONA
- 108 MILES OF THE GRAND CANYON
- 2500 Members
- Peach Springs Community
- ~240 electric customers



# ECONOMIC SITUATION

- Very Rural- Little opportunity for commercial development
- Route 66 passes through Peach Springs
- River Runners Tourism Enterprise
- Hualapai Lodge
- Grand Canyon West Tourism Enterprise
- Hunting and Fishing
- Timber

# Energy Situation

- Mohave Electric Serves Hualapai
- 75-mile Powerline to Havasupai - BIA
- No Power at Grand Canyon West
- No Power to most of Reservation
- WAPA Allocation Sold to NTUA
- Electric Load ~ 800 kilowatts
- Energy Resources:
  - Solar
  - Wind

# Energy Projects

- Earthship - Natural Resources Office
  - Passive Solar
  - Photovoltaics
  - Water Conservation



# Solar Water Pipeline

- Water for Grand Canyon West
- 26 Miles
- Upgrade Underway



# Guano Point

- 2.5 kilowatts for lights, appliances, and evap cooling



# Energy Projects

- USDA-RUS High Energy Cost Rural Communities
  - Grand Canyon West Power Project
- BIA Mineral Assessment Program
  - Wind Assessment
- DOE First Steps Toward Renewables Development on Tribal Lands
  - Tribal Utility Feasibility Study



# GCW Power Project

- \$2 Million Grant - Rural Utilities Service
- 12 kV underground power distribution system
- Solar Hybrid Power Plant
  - Photovoltaics or Thermal
  - Bio-diesel Backup
  - Wind
- RFP for Design-Build is out - due 10-25

# BIA Wind Assessment

- DOE 20-meter tower at Peach Springs
  - Community Power Project
  - Low Class 3
- BIA 50-meter assessments
  - Peach Springs - Community Power - 2-5 MW
  - Blue Mountain - Wind Farm 5-10 MW
  - Grand Canyon West - Integration with Solar Hybrid system
  - Wind Energy Marketing to Arizona Power Authority, State Facilities, WAPA, APS, Others

# Tribal Utility

## ➤ DOE First Steps

- Feasibility of Tribal utility to operate power system at Grand Canyon West
- Feasibility of tribal take-over of Reservation utility system

# Grand Canyon West



**GCW DESTINATION RESORT** #  
The 37-room Resort will offer a variety of recreational facilities, a restaurant, conference space, and sports amenities. It is aimed at capturing a greater market share of overnight Grand Canyon travel.

**NEW AIRPORT TERMINAL** #  
The New Terminal will be funded by the FAA. Public areas include a waiting area, food court, cultural center, theater, gift shop, and ET station. Non-public areas will include air terminal operations and control parking.

**CORPORATE CONFERENCE** #  
The Corporate Conference Center will be located near the New Airport Terminal. This Center is aimed at capturing business from over 4 million travel show attendees that visit Las Vegas annually.

**GRAND CANYON GOLF COURSE** #  
It is anticipated that a designer of international prominence will create this signature golf course. This unique course has been planned to work in conjunction with corporate groups utilizing the Conference Center.

**SHUTTLE SYSTEM** #  
All visitors arriving at GCW via car, bus or air, will converge at the "A" terminal. From this location, a hop-on hop-off shuttle system will transport visitors to any of the locations within GCW. Specialty buses will also be utilized.

**RESIDENTIAL COMMUNITY** #  
A series of community will be developed at GCW for employees and their families. Over 50 townhomes and 50 apartment units will be established, as well as community center, parks and public services.

**GCW ENTRANCE/RETAIL** #  
The entrance to GCW will incorporate a gas and convenience store, retail shopping, gas, vending and parking. Visitors of GCW, either arriving or departing, will be able to diversify their experience as they stop and shop.

**QUANO POINT** #  
Quano Point is one of GCW's three primary views. It offers dramatic, 360 degree panoramic views of the North Rim and the Grandchase River.

**AMPHITHEATER AT THE RIM** #  
The amphitheater is planned as a remote, intimate setting and will host musical performances, corporate presentations, and special events. It will be located at the rim and provide guests an incredible view.

**ENGLE POINT** #  
Named after a rock formation that resembles an eagle in flight, this site will host a Glass Walkway, an Eagle Vantage Point, and an Indian Village that celebrates Native American architecture.

**HEALTH & WELLNESS SPA** #  
The wellness spa is planned as a mix of development and promotes GCW as a place of natural healing and scenic wonder. The spa will feature a wellness program designed by an internationally-acclaimed spa expert.

**RETREAT CLUSTERS** #  
Retreat Cluster 1 (today) provides a versatile alternative to the Grandchase Resort. Clusters of private units will be built at the rim, and lined for special retreats such as family gatherings, weddings, anniversary events, etc.

**RIM DEVELOPMENT (today)** #  
A location at the rim has been selected for a potential development yet to be determined. The site is remote, with full visual access to lower Canyon. A variety of development strategies may be considered.

**QUARTERMASTER VIEWPOINT** #  
Quartermaster, the Quano and Engle Point, is primarily viewpoint at GCW. This site provides a dramatic blend in the Colorado River near River Mile 265.

**TRAMWAY OPERATION** #  
The Tramway Operation will provide a massive connection between the rim and the river, offering guests an intimate view of the lower Canyon. It will also support the lining of Redagosa River. Ramay guests out of the line Canyon for future travel connections.

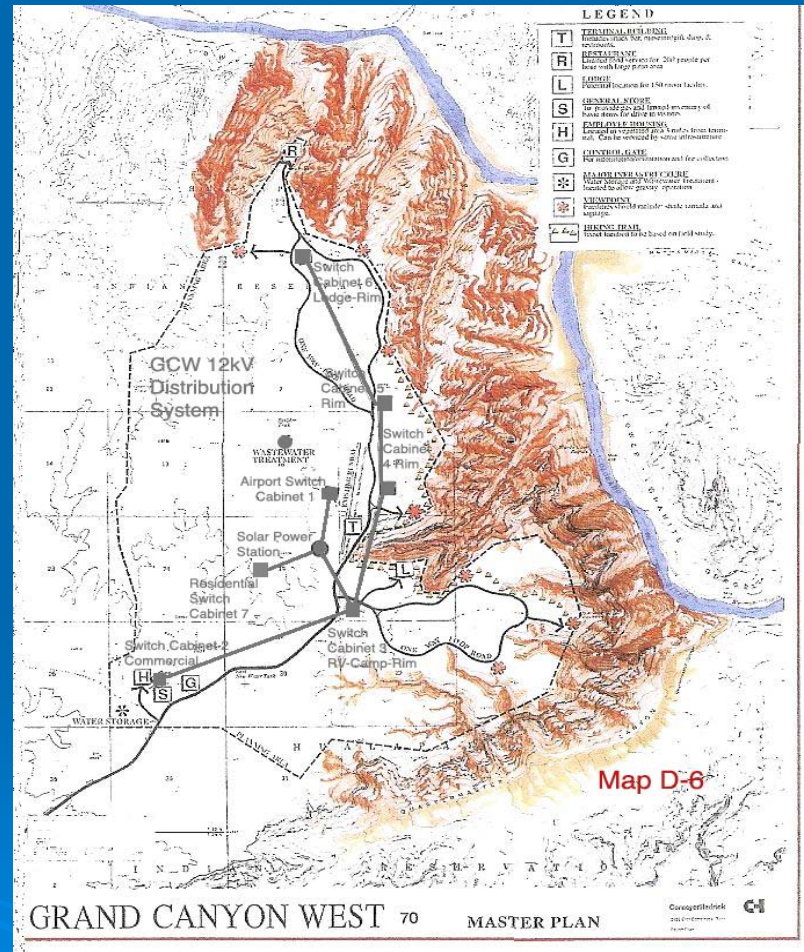
**RV PARK** #  
The RV Park will provide 150 sites for overnight travelers. It occupies a remote and scenic portion of GCW.

**CAMPSITE & HIKING TRAILS** #  
Overnight campsites and trails will enjoy the breathtaking scenery of GCW.

- Currently 150,000 tourists annually
- 9000 acre development
- No Overnight accommodations
- Diesel Gensets

# GCW Power Project

- 5 miles of 12kV Underground Distribution Mini-grid
- Solar Hybrid Power System
  - PV or Thermal
  - Wind
  - Bio Diesel
  - Hydrogen



# Tribal Utility GCW

## ➤ Feasibility Study

- Organizational Options
- Operate and Maintain GCW Power System
- Sell Power to Grand Canyon Resort Corporation
- Provide expansion
- Showcase advanced renewables technology in a pristine international setting

## ➤ Implementation Plan



# System Takeover

- Feasibility study for take over of Reservation electric service
  - System condition and value study
    - Relation to Havasupai
  - Power Resources
    - WAPA Allocation
    - Purchase Power
    - Wind
  - Organizational Options
  - Rates and Policies
  - Implementation Plan

# Project Team

- Jack Ehrhardt - Infrastructure planning
- Leonard Gold - Utility Options and Rates
- Ken Saline - Local Utility Interface
- Dean Suagee - Culture and Sustainability
- Mark Randall - GCW Coordination
- Tribal Environmental Review Commission  
- Oversight