



# Hualapai Tribal Energy Program

DOE-BIA Peer Review  
October 26, 2006

# Hualapai Reservation



# Solar Water Pipeline 1997 to Present



- USDA Water Project
- Upgraded to provide water to Grand Canyon West Tourism area
- Currently being upgraded for increased flow and domestic water quality improvements

# Earthship Project - 1999



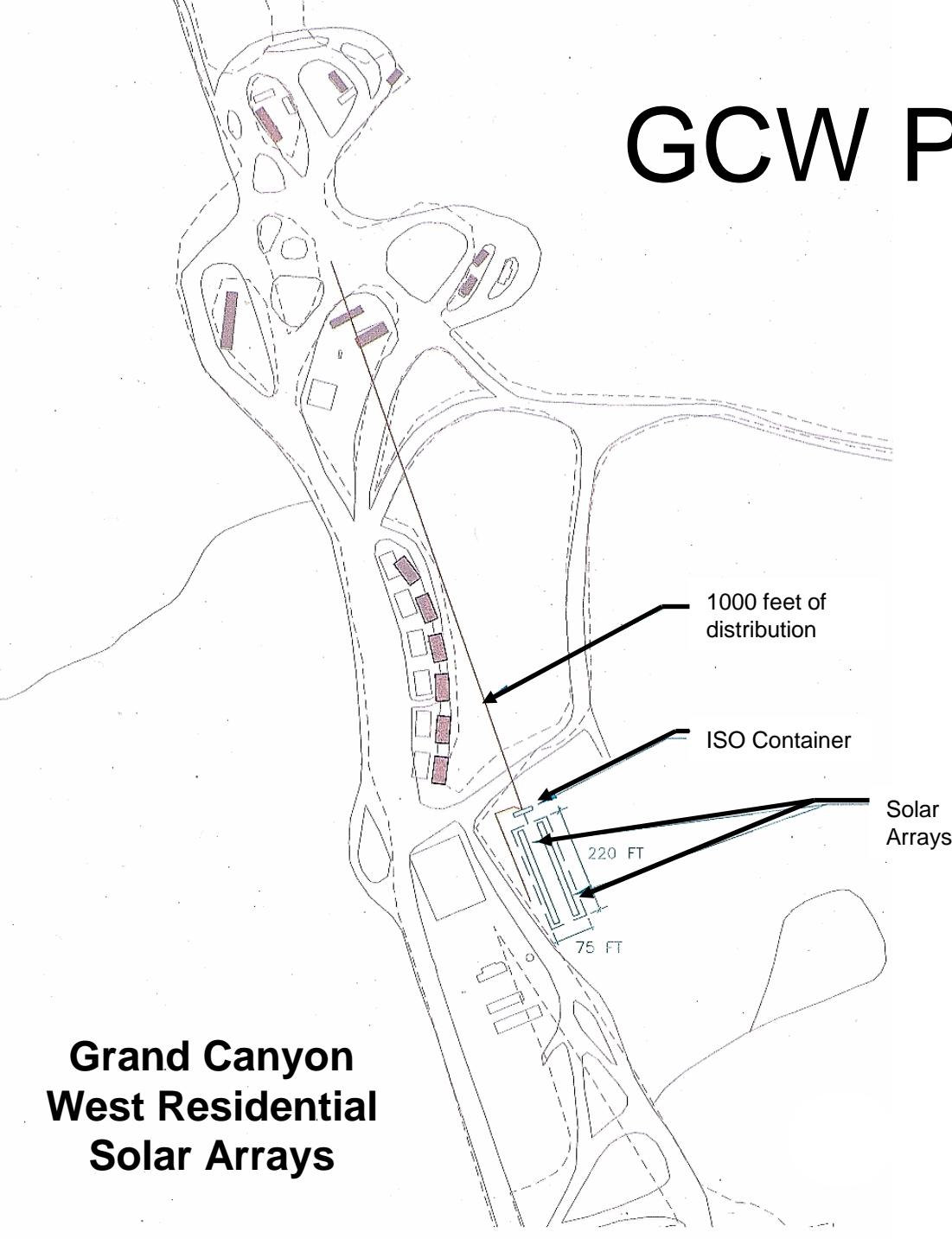
- Funded by DOL  
Jobs in Recycling  
program
- Built by WIA workers
- Solar PV
- Water Catchment  
system

# Guano Point 2000



- Off Grid 7 kilowatt PV and wind system
- Power for lights, kitchen, and cooling

# GCW Power Project



**Grand Canyon  
West Residential  
Solar Arrays**

- Solar Hybrid Power System for GCW
- Base for Centralized Solar-Wind-Hybrid
- BIA-MAP Wind Assessment

# Hualapai Tribal Utility

## Feasibility Study

### DOE First Steps 2005

#### **Objectives**

1. Feasibility of Stand Alone Utility Providing Service at Grand Canyon West
2. Feasibility of Take-over of Reservation Electric Service from Local Co-op
3. Feasibility of integrating Hualapai Wind Resource to meet tribal load

# Participants

- Daystar Consulting, LLC
  - Project Management
- Utility Strategies Consulting Group
  - Load Forecast and Financial analysis
- KR Saline & Associates
  - Infrastructure & Wind Interface
- Glenn Reddick, PE
  - System Valuation Study
- Dean Suagee, Attorney
  - Tribal Utility Plan of Operations - Legal Issues

# Accomplishments

- Progress without help from Co-op
  - System Mapping
  - Load Forecasts
- Intervention in BIA -MEC Dispute
  - Dispute over Responsibility for power line to Havasupai affects relationship between MEC and Hualapai
  - ACC Settlement in Process

# Issues

- Uncooperative existing Co-op
  - To allow success in acquisition, maintenance & new renewable commercial energy project
  - No Information
  - Refused Access to Facilities
  - Delays and refusal to participate
  - ACC Action

# Hualapai Wind Assessment Project

## BIA-MAP 2005 - 2006

### Overview

- Assess Wind Resources
  - Grand Canyon West - 50 meter up
  - Peach Springs Area - 2 years data
  - Blue Mountain - 9- months data
  - Nelson - NEW Resources area -50m Tower up
- Feasibility Study
  - Interconnection
  - Market
  - Environmental Impact

# Wind Resource Areas



# Objectives

- Wind Assessment
  - Grand Canyon West Stand Alone Centralized Power System
  - Community Scale Demonstration Turbine
  - Wind Farm
- Feasibility Study
  - Make as much progress toward implementation as possible on a limited budget



# Participants

- Daystar Consulting, LLC
  - Project Management, Data Collection
- Windots
  - Resource Assessment
  - Turbine Type and Placement
- KR Saline and Associates
  - Interconnection Study
- West Inc.
  - Avian Assessment
- Two Riders
  - Community Compatibility Assessment



# Accomplishments

- Progress Despite Problem with Contractor DisGen
  - Self Management is more flexible
- Discovery of New Resource Area
- 1 Year of Wind Data Collected
  - Resource “As good as any in Arizona”
- Relationship with Local Wind Developer-International
  - Donation of 65kW Turbine and Tower
- Broadened concept to have accomplishments
- Great sense of importance to native theme of environmental justice, harmony & economics



# Future Plans

- Construction of GCW Power System
- Installation of 65kW Demonstration Turbine
- Completion of Tribal Utility Assessment
- Implementation of GCW Utility Service
- Development of Hualapai Wind Farm Business Plan
- 2007 Application for Biomass Feasibility Study BIA or DOE
- 2007 Application for Large Scale Solar Feasibility Study BIA or DOE



# Supply & Demand

- Population growth and power demand will increase 3 times faster than supplies.
- Dependence on current sources will have a devastating affect.

