



Hualapai Renewable Energy Program DOE Tribal Energy Peer Review

November, 2011

History - Background

- § 2004 DOE Native American Anemometer Loan
- § 2006-2009 BIA EMDP Phase-I Feasibility Study
 - § 50-Meter MET Towers at Nelson and Grand Canyon West
 - § Phase-I Environmental Screening Report Completed
 - § Avian Impact Assessment Completed
 - § Transmission Study Completed
- § 2009 MOU with Clipper Windpower
- § 2009 MOU with Mohave Sun Power
- § 2010 DOE Tribal Energy Program Phase-II RE Business Development

GCW Solar Power System 2005 -2008



2 100Kw solar -diesel
hybrid non-grid tied
systems with 16kW
solar- and 5400amp
hour battery banks.
Latest SatCon digitally
integrated Inverters
50% -70% reduction in
generator run time.

Hualapai Tribal Utility Feasibility Study DOE First Steps 2005

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-

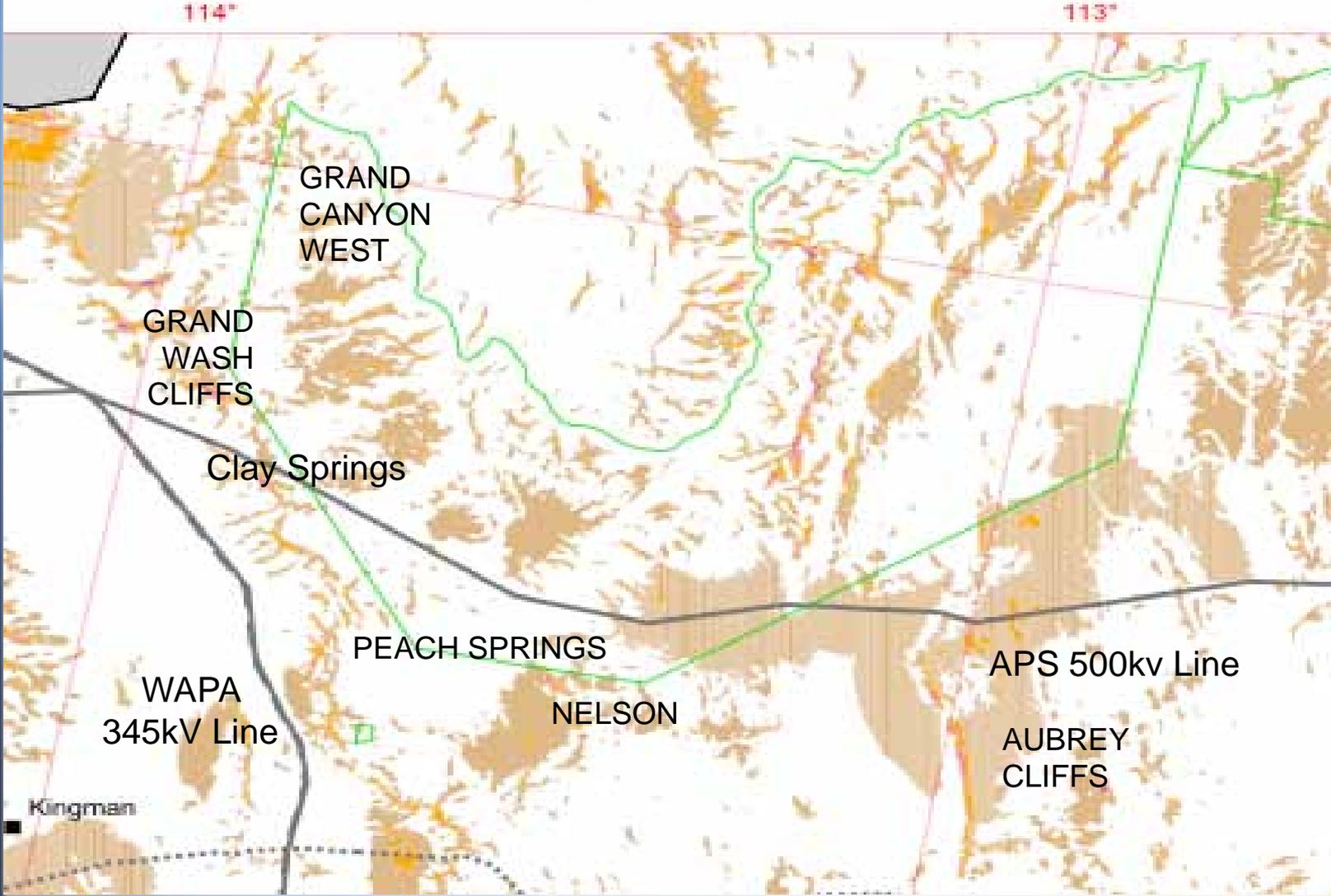
Hualapai Wind Assessment Project

BIA-MAP 2005 - 2009

Overview

- § Wind Resource Assessment Sites
 - § Grand Canyon West
 - § Peach Springs
 - § Nelson
- § Feasibility Study
 - § Phase I Environmental Screening Completed
 - § Avian Impact Assessment Completed
 - § Interconnection Study underway
 - § Wind Development Partner Identified

Arizona - Hualapai Wind Resource Map



Funding Support

- § DOE Tribal Energy Program
 - § 2005 First Steps - Tribal Utility Study
 - § 2010 Wind Farm Business Development Phase
- § BIA Energy and Mineral Development Program
 - § 2006- Renewable Energy Feasibility Study
 - § 2010 Solar Power Plant Feasibility and Planning
- § USDA-Rural Utilities Service-High Energy Cost Rural Communities Program
 - § Grand Canyon West Solar Power System

MOUs

§ Clipper Windpower Development Company

§ Complete Final Wind Farm Feasibility

§ Mohave Sun Power, LLC

§ Complete Transmission & Interconnection

§ Complete PV Solar Power Plant Feasibility



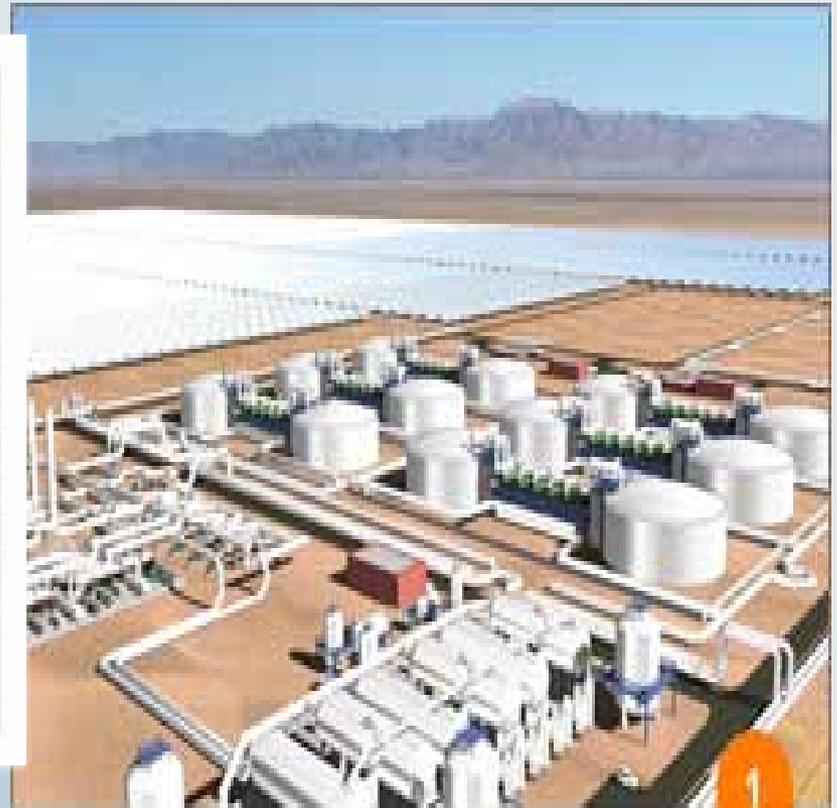
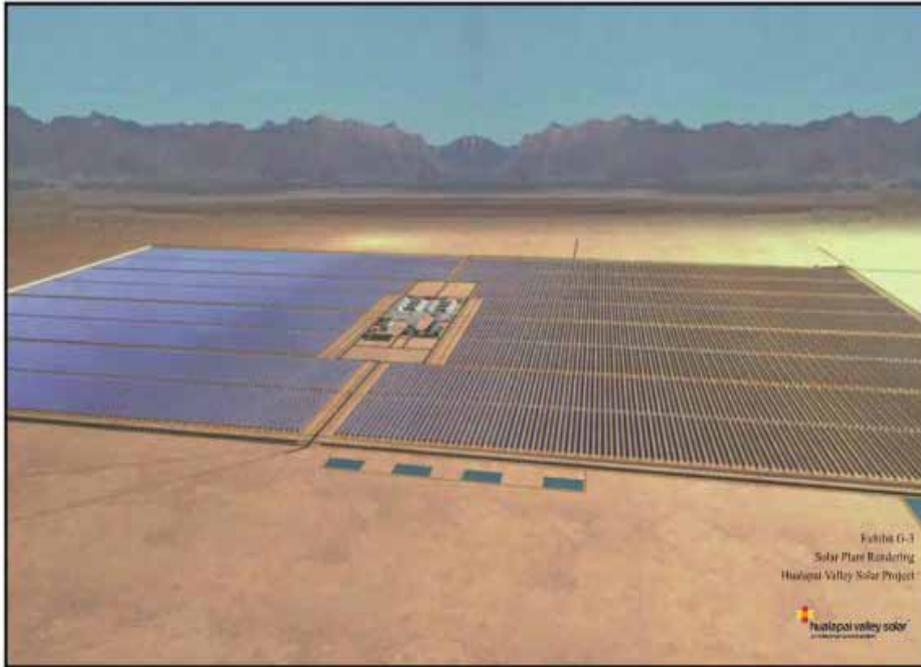
- § Manufacturer of Clipper wind turbines
- § Developer of wind farm projects
- § Priority for Native American Wind Farm Projects



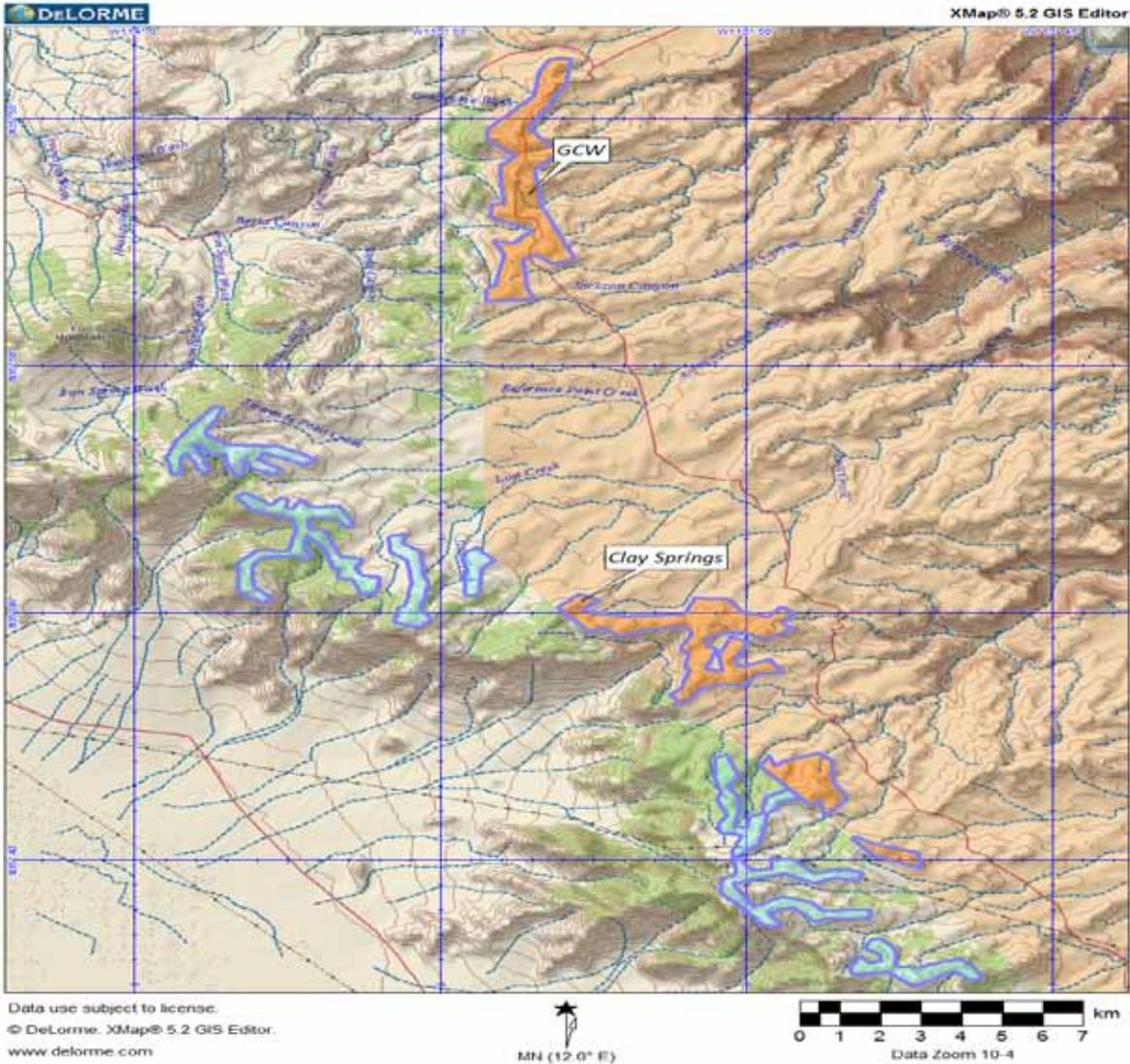


hualapai valley solar[™]
a mohave sun power project

340 MW Concentrating Solar Power Facility



Grand Canyon West - Clay Springs Wind Farm



Transmission and Interconnection

- § Hualapai Valley Solar - leads interconnection to WAPA system
- § WAPA TIP wants diversity -Solar CSP, PV Solar, and Wind. High priority for Native American projects
- § WAPA funding to build interconnection substation & upgrade existing lines
- § HVS - Connections to other APS- SCE transmission lines and power markets

Benefits of Renewable Energy Development

- § Reliable Revenue Stream to the Tribe
 - § Lease / Royalty Payments
 - § Co-Ownership Revenues
- § Jobs
 - § Construction
 - § Construction Support
 - § On-going Operations
- § Power Connection to Grand Canyon West
- § Tribal Electric Utility control on Reservation

Phase II - Business Development

- § Business modeling
 - § Ownership Scenarios & Financing Options
 - § Tribal
 - § Partnership
 - § Lease to Developer
 - § Transmission and Interconnection Study
 - § Environmental Assessment Activities -Pre EIS
 - § Detailed Site planning
 - § Turbine locations, roads, interconnections,
 - § Final Project Feasibility Determination

Participants

- § Clipper Windpower & Mohave Sun Power
 - § Economic Modeling, Business planning, PPA research
- § V-Bar
 - § Wind Resource & Site Assessment, Turbine Placements
- § PDS Consulting
 - § Transmission & Interconnection Study
- § Daystar Consulting, LLC
 - § Project Management,
- § Tierra Environmental
 - § Site Mapping, Environmental Assessment
- § Squire Sanders Dempsey
 - § Tribal Renewable Energy Business Education

Current Status

- § Clipper Windpower - MOU Terminated
- § Mohave Sun Power
 - § Lost their PPA and development partner
 - § Project is being re-invented as a PV project
- § Solar Feasibility Final Report in Draft
- § Grand Canyon Solar solar power system in preliminary design
- § Wind Feasibility Report

Clay Springs RE Project

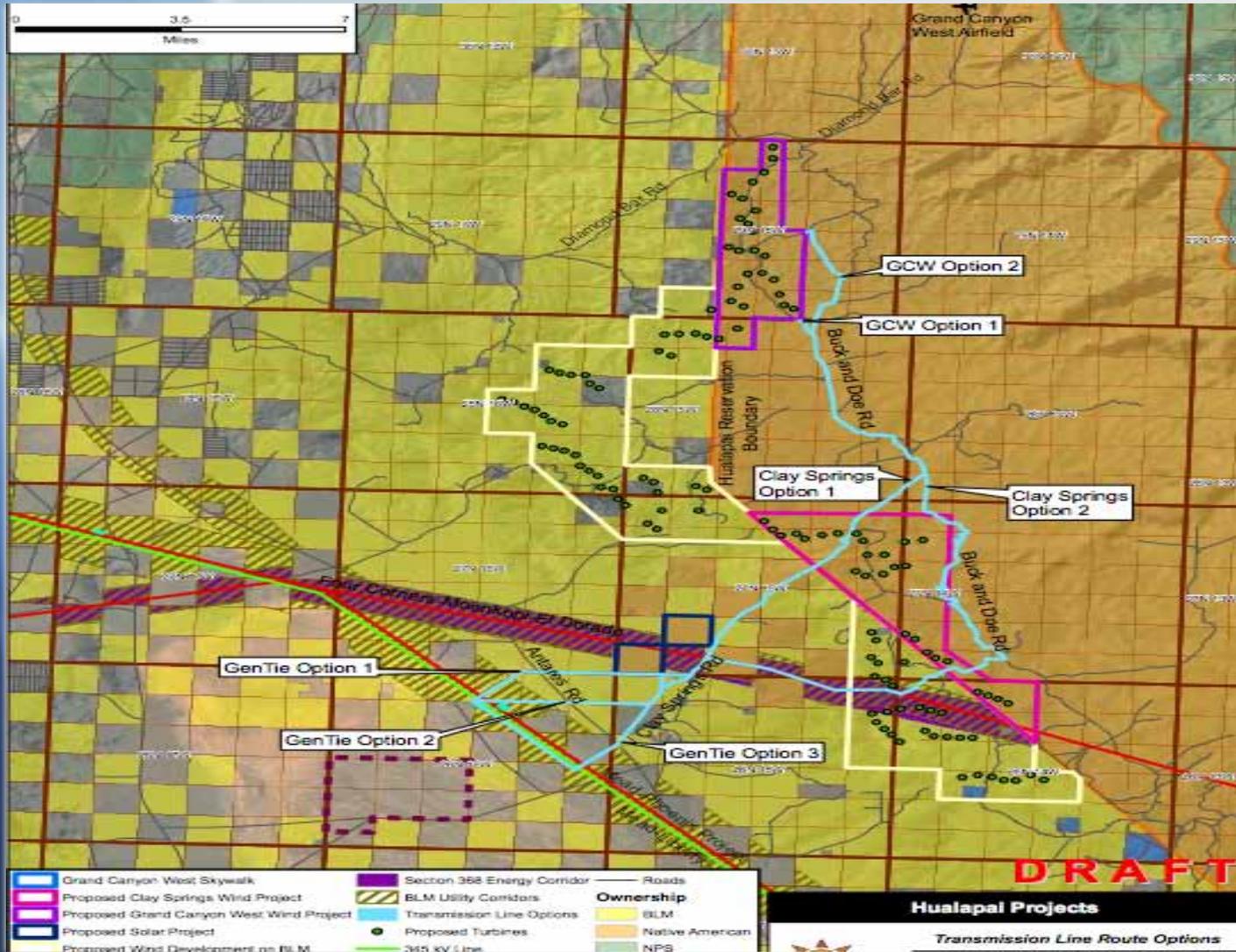
§ 50MW Wind at Clay Springs

§ 50MW Wind at Grand Canyon West

§ 50MW Wind on BLM Land

§ 100MW Solar at Clay Springs

Clay Springs - GCW Wind and Solar Project Concept



WAPA Interconnection Request

- § Filed by the Hualapai Tribe as applicant for Clay Springs Project
- § Secures Queue Position for the Tribe
- § Starts the WAPA Study Process
 - § System Impact Study
 - § Facilities Design Study

Lessons Learned

- § Collect and Retain your wind data
- § Control your development plan yourself
- § Developers can change their minds at any time
- § Money / credit worthiness does the talking
- § Small projects are easier to do
- § Push parallel lines of development
- § Keep your projects in the public eye