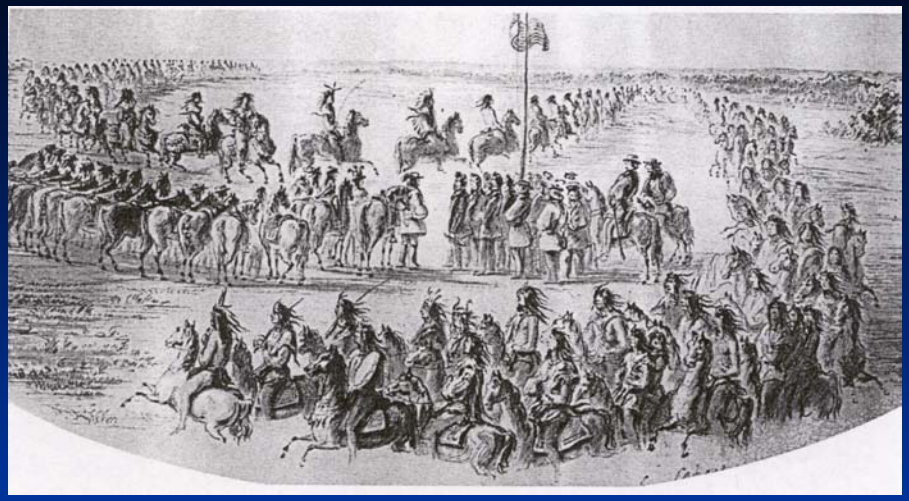
Confederated Tribes of the Umatilla Indian Reservation Energy Feasibility Project Update

National Renewable Energy Laboratory

Denver, Colorado

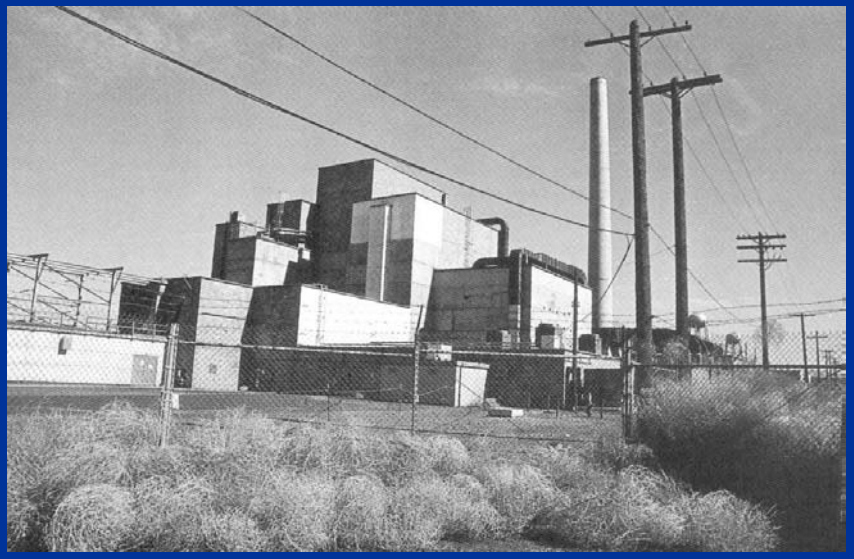
October 19, 2004

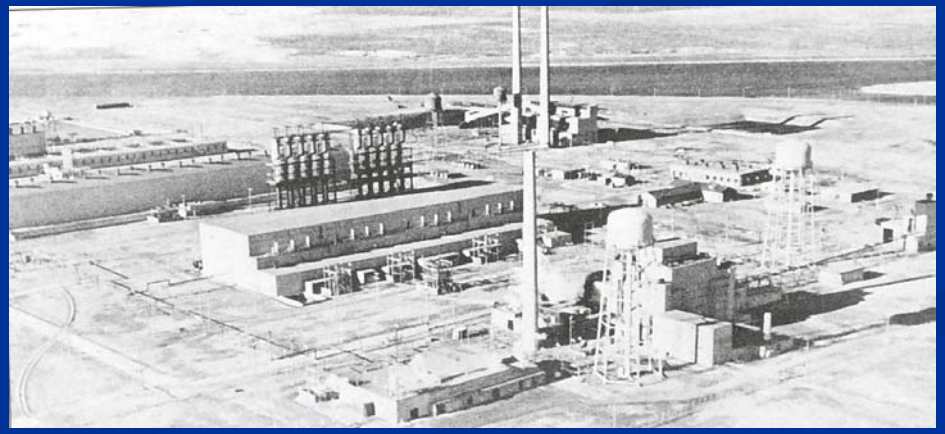


CTUIR Background

- Treaty of 1855 -Sesquicentennial commemoration
- Approximately 2420 Tribal members
- Hydro has devastated traditional tribal economy
- Currently 1.5MW average energy consumption
- Peaks at ~3.5mw in January and August

FEDERAL DAMS
NON-FEDERAL DAMS
CANADIAN DAMS
CANADA
WASHINGTON
MONTANA
Columbia River
OREGON
IDAHO
CALIFORNIA
NEVADA
UTAH





Department of Science and Engineering

- Recently changed from program to department
- New Manager
- Addresses Hanford clean up, Chemical Weapons Incineration, Columbia River Pollution, Air Quality, Ground Water, Risk Assessment, Engineering (Chemical and agricultural)

Project Overview

- Identify, assess, and evaluate renewable energy development opportunities in and near the Umatilla Indian Reservation
- Task 1: Assess Renewable Energy Resources: Biomass (pellets)and bio fuels, solar and wind
- Task 2: Determine Development Viability
- Task 3: Develop Business Plan

Project Products

- 3 Stand alone plans(technical, logistical, economic) for biomass, wind and solar
- Energy vision for the CTUIR
- Discussion of technologies not explored
- Document forecasting future energy issues

Gathering Background Information

- Community demographics (Planning enrollment)
- Transmission lines and distribution grid (GIS/Planning)
- Two power suppliers (Pacific Power, Umatilla Electric Coop)
- Timina and Wanapa
- Energy Vision

Biomass

- Pellet production at Tribal Environmental Recycling Facility
- Reduces solid waste transfer costs
- Forest Management Planning Fire Prevention
- Wood stove replacement program

Bio diesel

- Hired Biodiesel expertise
- Energy Policy Act mandates alternative fuels in federal fleets
- Currently making small batches
- Participating Tribal programs Farm Enterprise (NRTC), Wildhorse Resort, Arrowhead Travel plaza, and TERF
  - Manufacture and/or retail
- Biodiesel fuel use credit
- Barges, boat fuel, tribal fleet, federal fleet,

ARROWHEAD
TRAVEL PLAZA
AUTOS

Biodiesel and Alcohol Fuels

- CTUIR Arrowhead Travel Plaza
- Located Along Interstate 84
- 2003 sales of diesel 4,359,767 gal.
- 2003 gasoline 1,585,283 gasoline
- CTUIR currently has 128 fleet and GSA vehicles

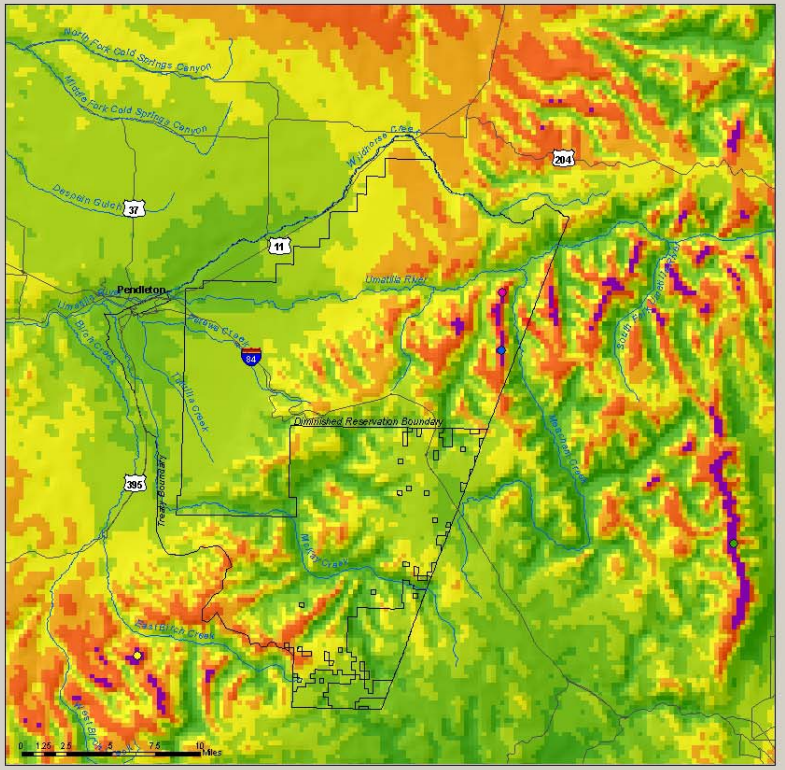
Solar

- Residential and Commercial Applications
- Solar Thermal at Tamastslikt Cultural Institute and Resort
- Photovoltaic Field applications for fisheries and remote environmental science data gathering efforts
- Field applications for pumps for agriculture, wells, and wildlife

Wind

- On reservation and off reservation
- Wind map verification vs economic development
- Siting Criteria and permits
- Access and transmission capacity
- Land ownership
- Visibility issues
- Identified Environmental and cultural resources issues and survey needs

Wind Power at 50 Meters Above the Surface
Confederated Tribes of the Umatilla Indian Reservation



Location	Wind Power W/m2	Wind Speed at 50 meters	Wind Speed at 30 meters
1	Superb	Outstanding	Outstanding
2	Outstanding	Outstanding	Oustanding
3	Superb	Superb	Superb
4	Outstanding	Outstanding	Outstanding

Wind power data developed by TrueWind Solutions using MesoMap, a mesoscale atmospheric simulation system at a spatial resolution of 40 meters/one-quarter mile. Data was aquired from National Renewable Energy Laboratory (NREL).

Data depicted here is preliminary and has not been fieldverified. No Warranty is made for this information beyond the purpose intended by the GIS staff of the Confederated Tribes of the Umatilla Indian Reservation.

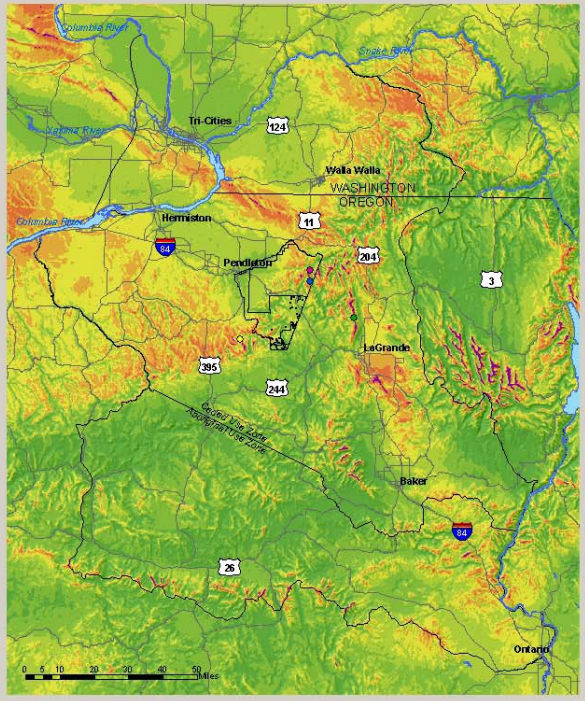
GIS 02: Wind_Data

Legend

- Location 1
- Location 2
- Location 3
- Location 4
- Road
- River
- CTUIR Lands

Wind Power

- Poor
- Marginal
- Fair
- Good
- Excellent
- Outstanding
- Superb
- Combined Best Locations



Wind continued

- Off reservation Nations largest wind farm immediately to the north
- Lots of wind speculation going on
- Tremendous transmission issues and an aging infrastructure
- Seeking expertise that can assist (2nd opinion) in review of off reservation wind data

Conservation

- Tamastslikt
  - Oregon energy trust
- Tribal Fleet
- Existing buildings (Previous surveys ATNI)
- Capitol Building (being planned)

Other Emerging Energy Issues

- Timina Operation
  - Wanapa and diesel opportunities
- Education
- Conservation
- Low head hydro application associated with fisheries management
- Fuel Cells and the hydrogen economy
- Indian Country Energy policy development in 21rst century