Feasibility of Wind, Solar, Conservation and Utility Changes

DOE Tribal Energy Program
Program Review Meeting
November 5-8, 2007

Achieving Energy Self-Sufficiency
Striving to build a healthy, self-reliant rural Indian economy for the benefit of Smith River Rancheria members and visitors. Working to maintain and support rural assets, which include scenic and recreation areas, healthy ecosystems, and clean air and water. Enhance the community, which will serve as a center of cultural, economic, civic, and social activity. Diversify the economic base to achieve greater economic stability and growth. Build partnerships and facilitate action to achieve economic health and quality of life in the community.
Smith River Rancheria

CALIFORNIA

Del Norte County

Humboldt County
Smith River Rancheria

- Rural Coastal Community
- Smith River Rancheria
  – Checkerboard Property
- Development and Expansion of Tribal Resources
Objectives

- Economic & Technical Feasibility
- Evaluate Wind & Solar Energy
- Tribal Energy Load Assessment
- Community Need for Energy vs. Export
- Conservation Opportunities
- Power Market Assessment
- Site-Specific Resource Monitoring
Wind Efforts

- Avoid Controversial Sites
- Only Sites Owned by Smith River Rancheria
- Smaller Scale & Next to Tribal Buildings
- Member Owned Sites and Closer to Trust Lands
- Little Political Exposure
- Better Chance of Net Metering Contract
- Little Interference by Third Parties
Smith River Rancheria

- Site Audited at all Smith River Rancheria Facilities
- Average Wind Speed Considered Low to Fair
- System Payback Over 45-75 Years
  - Too Long
  - Too Expensive
• Solar
  – Consider Feasibility for Tribal Facilities
  – Assess Technical Feasibility
    • Exposure
    • Construction
    • Configuration of Building
  – Economic Evaluation
    • Accurate Equipment Cost
    • Study and understand Solar Incentives Available
    • Investigate Funding Sources
    • Access Economics
Solar Outcomes

- Evaluate all Smith River Rancheria Facilities
- Maximum Solar Capacity Determined Utilizing Usable South Facing Root Area
- System Payback From 58-83 Years
  - Too Long
  - Too Expensive
• Conservation
  – Evaluate Casino, Administration Offices, Community Center & Head Start Building
  – Access General Construction
  – Review Heating/Cooling Equipment & Operation
  – Investigate Lighting
  – Building “Tightness” and Weather Stripping
  – Study and Understand incentives Available
  – Investigate Funding Sources
  – Access Economics
Conservation Outcomes

- Facilities Energy Audits
- Energy Saving Measures With a Pay-Back Period of 7 Years or Less
- Energy Efficiencies Were Identified and Reviewed by Maintenance
• Interconnected Utilities
  – PacifiCorp and Coos Curry Electric
  – Ability to Sell into Oregon or California Market
    • On Site Generation
    • Allocation
  – Purchase from Either Market
    • Future Tribal Enterprises
  – Added Redundancy for Smith River Rancheria
Lessons Learned

Conservation is the First Step in Minimizing Energy Use.

Wind, Solar & Bio Mass Provide a Limited Energy Resource Due to Geographic Location and Sustainability of Source.

Self Determination is More Than Just Developing Resources Locally it is How Power Delivery Takes Place.
Development of an Energy Organization Investigation

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Smith River Rancheria

W.G. Buehler & Associates

Ed A. Wait
Werner G. Buehler

Achieving Energy Self-Sufficiency
Smith River Rancheria

California Statewide Power Plants

CALIFORNIA STATEWIDE POWER PLANTS
Operational .1 MW and Above

Legend

POWER PLANTS
- BIOMASS
- COAL
- DIGESTER GAS
- GEOTHERMAL
- HYDRO
- LANDFILL GAS
- MSW
- NUCLEAR
- OIL/GAS
- SOLAR
- WIND
Sources to Feed Locally Owned Tribal Utilities

Red=Coal, Blue=Hydropower, Pink=Nuclear, Yellow=Natural Gas, Green=Bio Mass, White=Wind
Power Supply Options

Given the geographic location of Smith River Rancheria in northwestern most corner of California, there are many power supply options. The options for “central station” produced power and power management are:

1. Federal Power Marketing Agencies
   a. Western Area Power Administration (WAPA)
   b. Bonneville Power Administration (BPA)
2. Power Marketing/Management Entities
   a. Northern California Power Agency (NCPA)
   b. Pacific Northwest Generating Cooperative (PNGC)
   c. The Energy Authority (TEA)
Electric Utilities

Historically local public utilities have purchased surplus wholesale power from larger IOUs nearby, this does not seem to be a viable option in the SSR’s geographic location today.

All of the area’s IOU’s contracted are short of generation and are actively seeking more.

That being so, Portland General Electric (PGE), Pacific Power and Light Company and Pacific Gas and Electric are not seeking entering into contracts with others at this time.
• BPA’s “White Book” forecasts load resource balance; taking into account IPP projects.

• If not or if the IPPs arrange to send their generated power outside the region into markets they deem to be more “lucrative”, then the region could suffer significant shortages.

• Additionally, should the all important Columbia River System suffer from poor snow pack and associated runoff for consecutive years/seasons the regional power generation adequacy becomes even more precarious.
California’s Major Electric Transmission Lines

LEGEND
- Pacific Gas and Electric (PG&E)
- Pacificorp (PPL)
- Socal Municipal Utility Dist. (SMUD)
- Western Area Power Authority (WAPA)
- Southern California Edison (SCE)
- LA Dept of Water and Power (LADWP)
- San Diego Gas & Electric (SDG&E)
- Imperial Irrigation District (IID)
- All Others

Smith River Rancheria

Major Transmission
Smith River Rancheria

Transmission Lines

Transmission Lines
- 115 kV
- 69 kV

Figure 1: Crescent City District Transmission

Crescent City substation is a distribution substation and out of the scope of this study.
Smith River Rancheria

Federally Recognized California Tribes

Detail Map Pomo Area

Costanoan Ohlone Indian Canyon Resource

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## Utility Formation Options - Pros and Cons

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Smith River Rancheria

Public Power Costs Less

Retail Electric Rates

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