Feasibility Study for the Formation of a Renewable Energy Tribal Utility

Viejas Tribal Government

DOE EERE Tribal Energy Program Review Meeting

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Presenters

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Investigate the feasibility of forming a renewable energy based tribal utility for the Viejas Tribe.
Overview

- 30 miles east of San Diego
- 1600 acres
- Business enterprises:
  - Gaming
  - Outlet Center
- Government Structure
  - General Council
  - Tribal Council

Project Location
Project Participants

- Viejas Tribal Government
- Black & Veatch Corporation
- Legal Opinion
The Tribe Has Several Concerns Regarding Energy Supply

- Electric Rates (Price and Stability)
- Electricity Reliability
- Energy Independence
- Local Control
- Environmental Impacts

Viejas and Black & Veatch Have Cooperated on Energy Investigations Since 2001
Objective: Evaluate options in face of “dynamic” California energy market

- Demand projections
- Alternative electrical supply through power purchase agreements
- Wholesale and self-generation power generation options
- Risk analysis and management plan
Electricity Price History

- Large Accounts >100 kW
- Smaller Accounts 5-100 kW

- Average of Large Accounts
- Average of Smaller Accounts

- All-in Effective Rate (cents/kWh)

Objective: Evaluate providing electricity to residents and tribal businesses

- Distribution system valuation
- Distribution system operations and maintenance
- Customer service operations
- Energy supply price forecasting
- Economic/financial evaluations
Conclusions of Previous Work

- Largest costs and risks involved with forming a utility are associated with:
  - Procurement of electricity from the volatile California energy market
  - Transmission of purchased power to the reservation
- Local renewable energy resources could address these issues
Project Tasks

- Renewable Energy Resources and Technology Assessment
  - Wind
  - Biogas
  - Biodiesel
  - Solar
- Detailed Reservation Load Profile
- Assessment of Energy Storage and Load Management Opportunities
- Electrical Interconnection Analyses
- Distribution System Audit
- Legal Analysis
- Generation Mix Optimization Study – POWRPRO™
- Environmental Analysis
- Tribal Benefit Assessment
- Economic Assessment
- Business Plan Development
14 months total, including 12 months of wind data collection

Tasks prior to data collection complete:
- Renewable energy assessment (non-wind)
- Load profile
- Energy storage, load management
- Distribution system audit
- Legal analysis
- Benefit assessment

Tasks after data collection complete:
- Wind energy assessment
- Electrical interconnect
- Generation mix study
- Environmental review
- Economic assessment
- Business plan
Project Status

- Area surrounding Viejas Reservation severely damaged by wildfires
- Kick-off meeting postponed until mid-December
- Wind monitoring towers purchased, ready to be installed
Expectations

- Complete load demand of reservation and businesses may be met with renewables
- Some wind energy development possible, may be economic if energy exported to SDG&E
- Other renewables may be less cost effective, but still economically viable
Areas of Wind Resource
Sample Wind Analysis Outputs

Weibull Curve

Photomontage

Classification Depiction

Wind Rose
Conclusion

- Project ready to start before end of 2003
- Expected to be complete early 2005
- Questions?