

VIEJAS

TRIBAL GOVERNMENT

Feasibility Study for the Formation of a Renewable Energy Tribal Utility

Viejas Tribal Government

**DOE EERE Tribal Energy Program Review
Meeting**

November 19, 2003





Presenters

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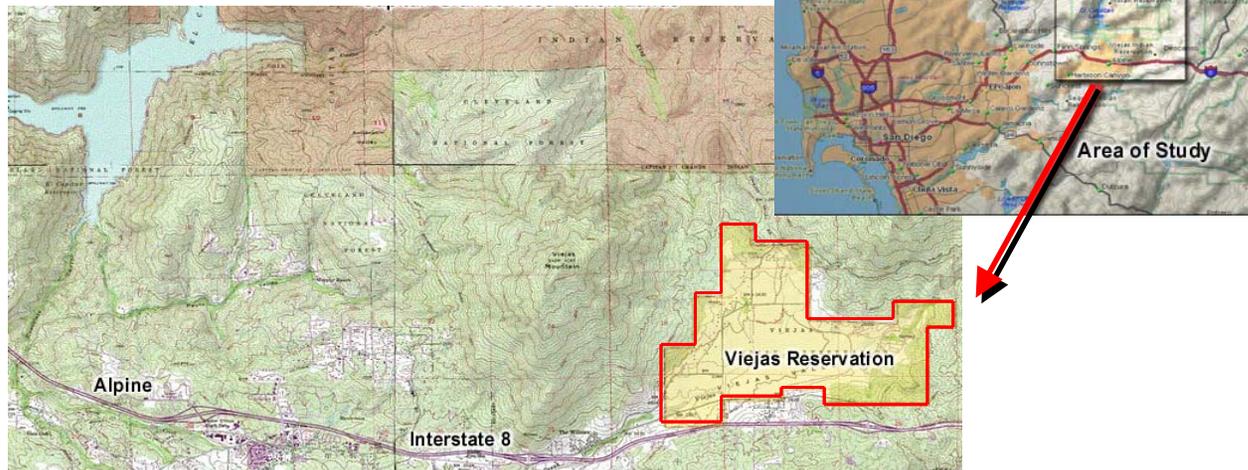
Project Objective

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

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Project Participants

- Viejas Tribal Government
- Black & Veatch Corporation
- Legal Opinion



Tribal Concerns/Project Drivers

- 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

Past work: Energy Assessment Study (2001)

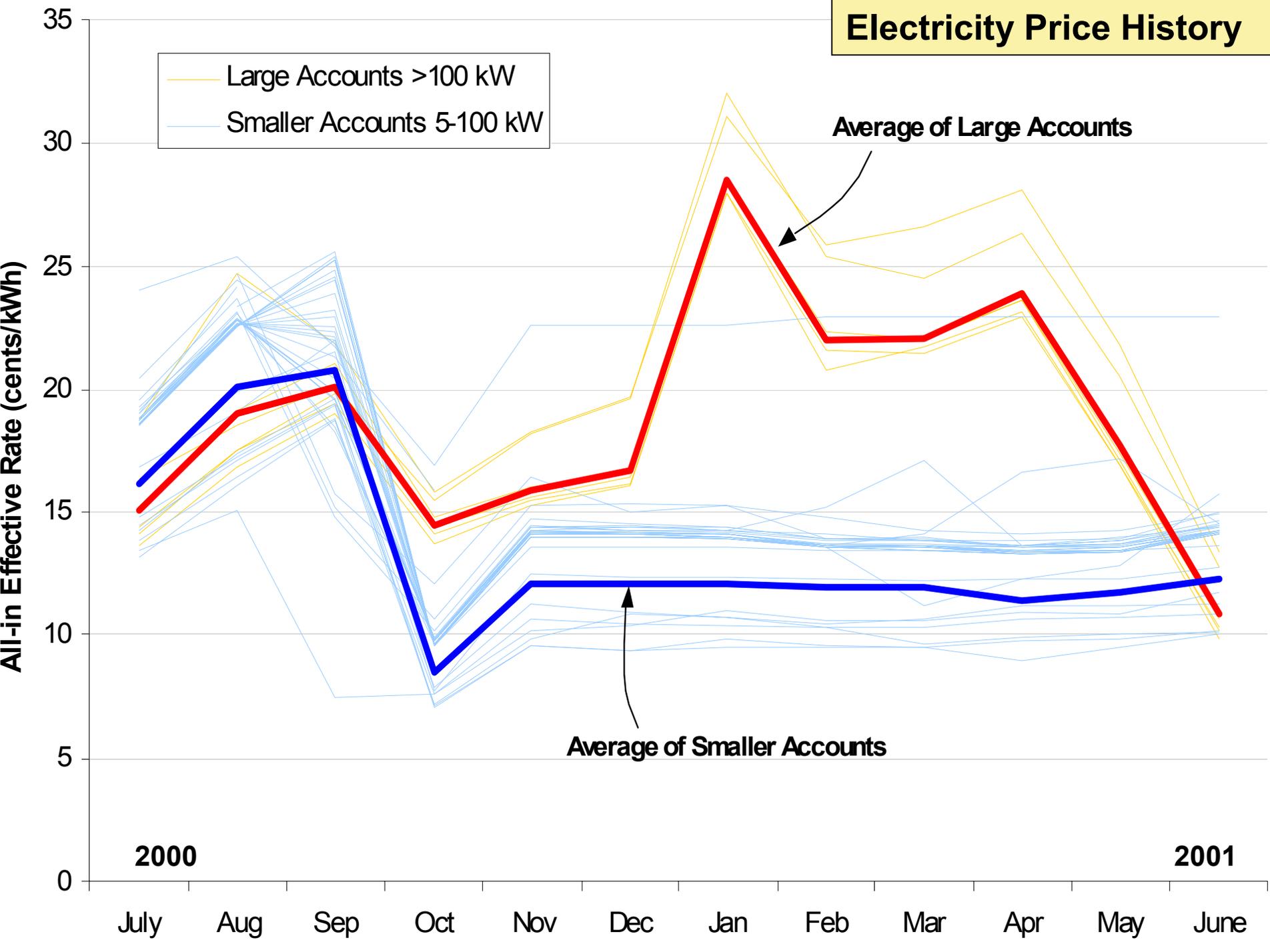


Objective: Evaluate options in face of “dynamic” California energy market

- 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



Past Work: Utility Formation Study (2002)



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



Project Tasks (cont.)

- Electrical Interconnection Analyses
- Distribution System Audit
- Legal Analysis
- Generation Mix Optimization Study – POWRPRO™
- Environmental Analysis
- Tribal Benefit Assessment
- Economic Assessment
- Business Plan Development



Project Schedule

- 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

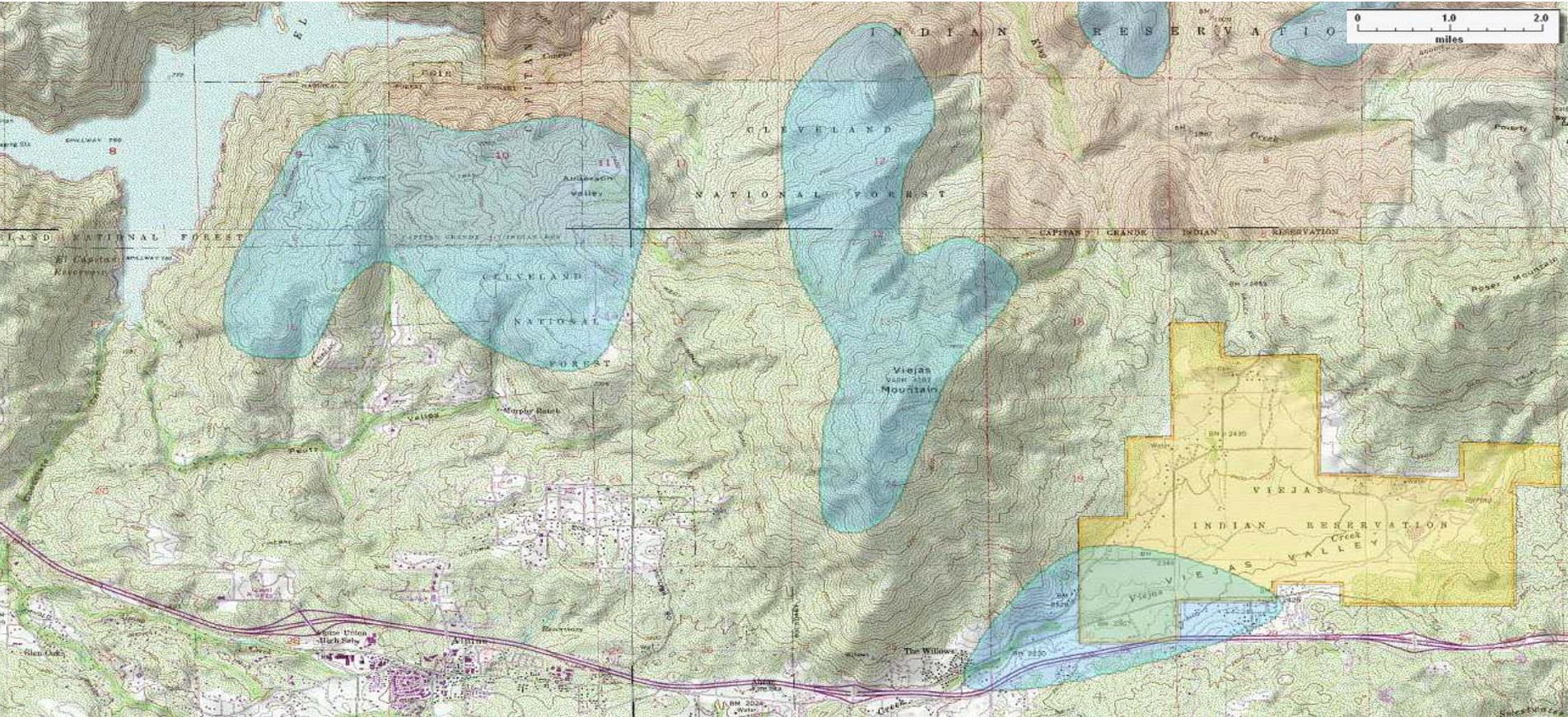


Expectations

- 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



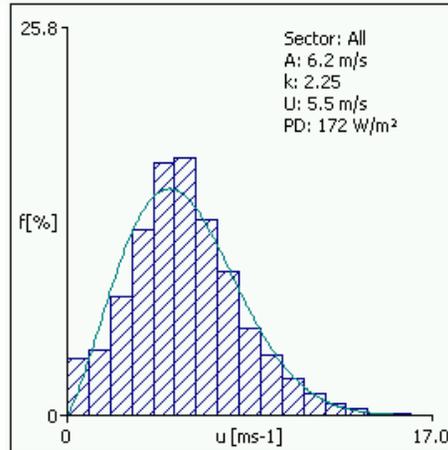
Areas of Wind Resource





Sample Wind Analysis Outputs

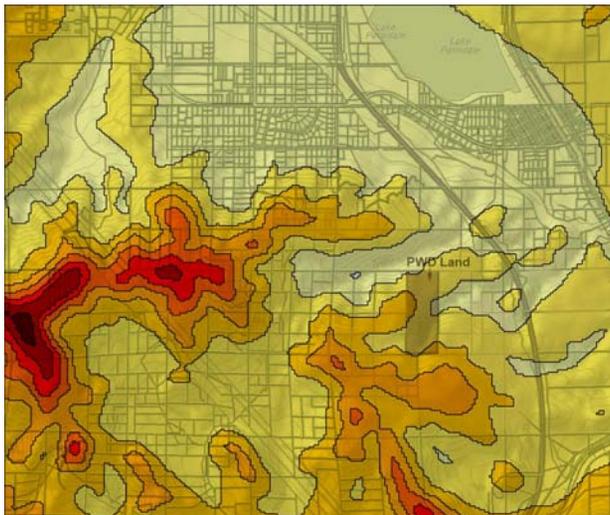
Weibull Curve



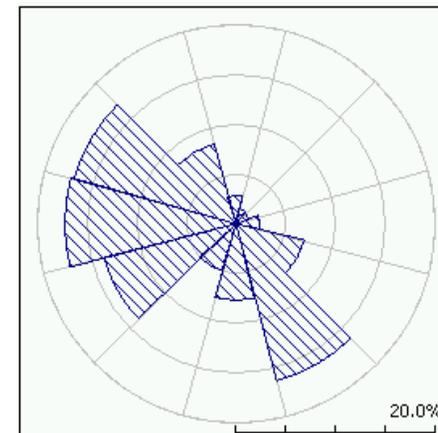
Photomontage



Classification Depiction



Wind Rose



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Conclusion

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