Mesa Grande Band of Mission Indians
Tribal Energy Project Feasibility Study
The Land
The Land

- Reservation consists of 1820 acres
- Historically as low as 120 acres
- Acquisition of 800+ acres in 1988
- Purchase of 900 acres in 1998
The People

- 700 members today
- 130 living on Reservation
- 90% people on Reservation below poverty line
- Long waiting list of people wanting to live on Reservation
Challenges Facing the Tribe

- Quality, Affordable Housing
- Decent, Living Wage Jobs
- Sustainable Growth
Upper Tract Housing

- Older Homes
- Remote, scattered sites
- Many homes and trailers not weathertight
- Many homes without power
Black Canyon Housing

- Newer, clustered housing
- Utility supplied power
- Some of highest electricity rates in US
- Unaffordable utility bills
- Modern construction but not built for energy efficiency
Energy Issues for Existing Housing

- Hot and dry in summer
- Cold with some snow in winter
- Air conditioning driving $300-400 per month utility bills during summer
- Power interruptions, especially during storms and fires
- Wood harvested on reservation to heat homes
Quality of Life Issues

- Comfort is not affordable on the reservation
- Wood provides a cheaper alternative to electricity, propane or kerosene
- Tribe now facing deforestation of land
- Wood smoke is a health hazard, especially for the young and old
Water Issues

- All water is pumped from wells on the Reservation
- On 900 acres: 10 wells drilled, only one with pump
- Water pumping capacity key to fire safety also
Jobs

- High unemployment on the Reservation
- Tribal members want to move back to Reservation and work close by
- Previous proposals to the Tribe have been for low paying, unskilled jobs that do nothing to sustain cultural values
- Tribe sees skilled jobs in energy efficiency and renewable energy as key to its future
Accomplishments So Far

- Acquisition of land suitable for housing
- Successful housing development in Black Canyon
- EPA feasibility study completed
- Tribal leadership committed to a sustainable future
The Vision of the Future: Create an Energy Independent, Self-Sufficient Community

- Start by addressing the needs of the people currently living on the Reservation
- Provide relief from high utility bills through energy efficiency upgrades and renewable energy systems
- Utilize the DOE Phase III development project grant to accomplish this phase
Leverage DOE funding to create job opportunities

- Require job training of tribal members as part of development projects with outside contractors
- Look for private/tribal partnerships that can provide long term employment opportunities
- Obtain additional funding for energy efficiency measures
Leverage DOE funding to create job opportunities

- Obtain additional funding for job training on the development project
- Demonstrate to the whole tribe the benefits of renewable energy development
- Build capacity for a future renewable energy based enterprise
Energy Improvements to the Upper Tracts Homes

- Insulate and weatherize
- Energy efficient windows

- Hybrid photovoltaic systems, with battery storage and generator backup
- Solar water heating for space heating and domestic hot water
Energy Improvements to the Black Canyon Homes

- Optimize efficiency of existing HVAC systems
- Add hydronic heating coil to existing HVAC systems

- Grid-tied photovoltaic systems
- Solar water heating for space heating and domestic hot water
Solar Water Pumping

- Individual homes
- Community wells
- Buffalo
- New housing developments
Design and Build a Model Zero Energy Community on the 900 acre site

- Build homes for members currently living off Reservation
- Build an eco-resort that can provide jobs and revenue for the tribe
- Build a cultural/visitor center to celebrate the heritage of the tribe and promote understanding with the surrounding communities
Funding the Zero Energy Community

- Utilize funds already secured by the tribe for new housing
- Community Development Block Grants
- Private Foundation Green Building Grants
- Develop private/tribal strategic partnerships that promote long term economic development for the tribe
Zero Energy Buildings

- Passive solar design
- High R-value envelope
- High thermal mass
- Night ventilation cooling
- High efficiency windows
- High efficiency lighting
- Photovoltaic systems
- Solar water heating systems
- Building energy modeling
Features of the Eco-Resort

- Direct Access to San Dieguito River Park

![Map of San Dieguito River Park](image)
Features of the Eco-Resort

- Horse Camp with access to equestrian trails in the park
- Cabins
- Conference Center
- Campgrounds
- Mountain bike trails
- One hour from downtown San Diego
Conclusions

Development project assistance from DOE’s Tribal Energy Program can solve immediate energy problems on the reservation AND provide a kick start for future sustainable development that meets Mesa Grande’s goals of minimum environmental impact.