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Barriers to Renewable Energy Development on Tribal Lands

Tommy Jones, Ph.D Student, University of Arizona

Len Necefer, PhD Candidate, Carnegie Mellon University



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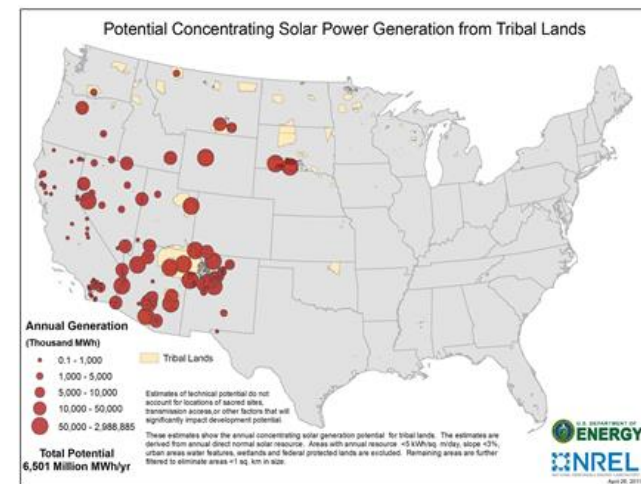
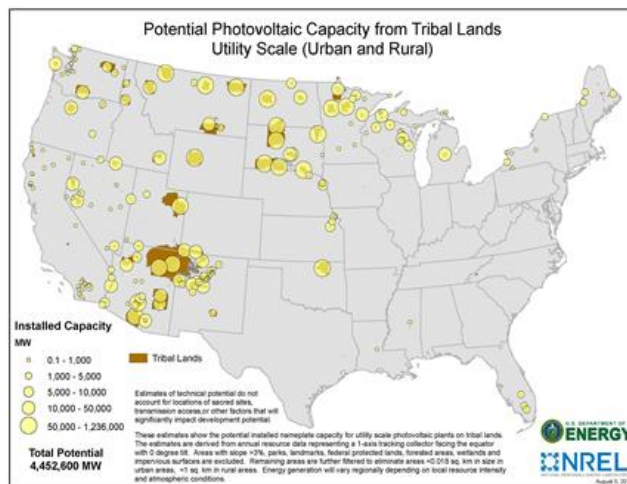
Resources on Tribal lands

- Native American lands comprise 5% of land
- 10% of all energy resources in the US
- 40% of uranium
- 30% low sulfur coal
- 4% oil and gas
- 44 million acres of rangeland
- 2.5 million acres of farmland
- 5.3 million acres of commercial forest



Renewable Energy Potential

- 17,600,000,000 billion kWh/year of solar
- 535 billion kWh/year of wind energy



Need for energy

- EIA estimates 14.2% Native American households are without access to energy (1.4% Natl. avg)
 - 75% are on the Navajo Nation
- 28% poverty rate on reservation 22% combined on/off
 - 15% all US



Navajo Nation

Four Corners Region

- 18,000 homes without electricity
- Candle, kerosene, propane, diesel
- Wood burning stoves for heat
- Perishable food daily chore
- Miles from the grid
 - Remote and isolated
- \$27,000-\$48,000/mile
- Kayenta and Navajo mines
- NGS (CAP), FCPP
- Oil + Gas exploration



Potential and Need

Why has there not been more development?



Previous Research on Barriers to Development

- **Regan (2014)**
 - Identifies federal regulations as a critical barrier to energy development
- **Greenhowe (2013)**
 - Acknowledges energy potential
 - Identified mistrust of outside partnerships and tribal sovereignty as barriers
- **Brookshire and Kaza (2013)**
 - Federal programs key to capacity development
 - Energy Planning correlates with project development
 - All energy resources were considered

Research gap

- Previous research identifies conflicting barriers
- No clear consensus on barriers
- Strong claims to specific areas that are fatal to project development
- We want to ask experts, with field experience, in Indian Energy what they consider to be barriers to development
- Why haven't more projects been developed?



Methods

- **Delphi method used for survey**
- **Identification of experts**
 - Experts in federal and tribal governments that directly work with Indian energy
 - Tribal Staff (5) and Experts from DOE and DOI (5)
 - Open ended questions / non directive
 - Interviewees Anonymous
- **Questionnaire protocol**
 - Elaborate on involvement with tribal energy
 - Direction of renewable energy in next decade on tribal lands
 - Rank ordering of barriers of most and least significant
 - How barriers will be addressed in next decade on tribal lands
 - Native Nation Building related questions
 - Importance of federal programs

Future Energy Development on Tribal Land

- More small scale projects 5
- Capacity building 4
- Tribally managed projects 4
- Critical for Alaskan Communities 3
- Distributed Generation / Community Scale 3
- Not many large scale projects 3



Rank Order of Importance of Barriers

Most Significant Barrier

Financing / Funding

Tribal Leadership / Staff

Customer

Partnerships

Infrastructure

6

6

5

5

4

Least Significant Barrier

Tribal Sovereignty

Non-tribal govt/public

Financing / Funding

Strategic Energy Planning

Cultural Acceptance

5

4

3

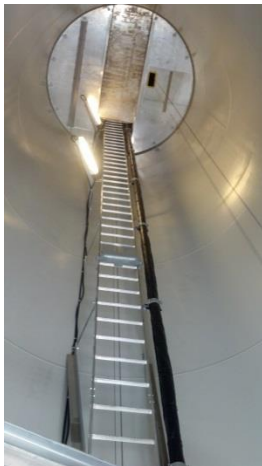
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How will barriers be addressed?

- Capacity building 5
- Depends on Tax Credits 2
- Partnerships 2
- Renewable Energy Portfolio Standards 2
- Climate Change Impacts 1



Cultural Acceptance

- Scale of project significant 6
- Landscape / Viewshed 4
- Support renewable energy 4
- Each tribe is unique 3
- Environmental protection low priority 2



Tribal Sovereignty

- Limited waivers of sovereignty common 7
- Providing energy important 5
- Regulatory Authority (RPS/Transmission) 3
- Capacity building 2
- Detrimental to development 2



Finding 1: Financing and Funding

- **Lack equity**
- **Tribes are risk adverse + not willing/unable to take on debt**
 - **Do not have credit history to do so.**
- **Markets for renewable energy**
 - **Renewable Energy Tax Credits**
 - **State RPS Standards**
- **Remote locations often far from infrastructure**
- **Finding a partner + customer can be difficult**
 - **Section 17 Corporations**

Finding 2: Tribal Leadership and Staff

- Many Tribal governments lack capacity
- Increasing the capacity at staff level
 - 1-2 year term limits and governance structure
- Tribal and federal experts agree there is a continued need and room for expansion for federal technical assistance
 - Partnerships (making better ones)
 - Risk management



Finding 3: Cultural acceptance issue of scale

- **RE –consistent with many tribes’ cultural values**
 - preservation and protection of the environment
- **Acceptance is contingent upon the scale of a project**
 - Negative impacts on cultural resources, sacred sites, landscapes, view sheds and plants/wildlife
 - May not see natural resources as economic resources
 - For whom and by whom



Finding 4: Tribal Sovereignty

- **Motivation to provide energy for community**
 - Tribal utilities
 - Facility and community scale projects
- **Not a barrier to development**
 - Waiving is a necessary business transaction
- **Decision not to waive sovereign immunity**
 - Mistrust of outside entities
 - Outside investors including other tribes
 - Perceived investment risk
- **Regulatory authority and RPS**

Conclusions and Future Work

- Each tribe is unique and faces a host of barriers
- Previous research does not effectively capture barriers
- Expand federal capacity building opportunities
 - Strategic energy planning sessions, webinars, conferences, technical assistance, financial funding
- Address project risk management concerns
- Improve Partnerships
 - Mistrust (Osage)
 - Funding / financing
 - Customer (PPA)

Acknowledgements

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