Hualapai Renewable Energy Development
DOE-Tribal Energy Program
Peer Review Meeting 2012
Hualapai Project Description

- Wind Farm Development
  - 200MW Grand Canyon West
- Solar Power Plant Development
  - 50MW - Clay Springs
  - 30-40MW - Nelson
- Community Solar
  - 1MW - GCW
Hualapai Status

- Completing the Final Feasibility Report
  - For Tribal Council
  - For Wind Developers
  - For Solar Developers

- Wrap Up Activities
  - Critical Issues Analysis
  - Avian Studies
  - Site Optimization
  - Pro-Forma Cost Analysis
  - Constructability Survey
  - Business modeling
  - START Community Education
Feasibility Report

- MJH Consulting
  - Wind Development Expert
  - Putting it all together
- SWCA - Priority Activities
  - Critical Issues Analysis
  - Eagle Use Survey
  - Fall Raptor Migration Survey
  - Visual Simulations
- V-Bar-Production Estimates
  - 12/24 Analysis
12/24 Analysis GE 1.7/100 NCF

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Year: 27.06
Feasibility Report - Table of Contents

- Wind resource potential
- Critical Issues Analysis - Environmental
- Results of optimization studies for best sites
- Transmission and Interconnection
- Permitting Assessment
- Preliminary costs estimates
- Preliminary project pro forma
- Preliminary project business plan
Wind Resource Potential

- Data from Two MET Tower Sites
  - Grand Canyon West - 4 years
  - Clay Springs - 2 years
- Initial Turbine Array Siting
  - Tribal Trust Land 100MW
  - Adjacent BLM Land 50MW
Environmental

- Critical Issues (Fatal Flaw) Analysis
  - NEPA Checklist Desktop Review
  - Field Surveys
    - Cultural
    - Biological

- Important Studies
  - Eagle Use Study
  - Fall Raptor Migration Study
  - Visual Simulations
Optimization

- WAPA Interconnection 250MW
- 200MW Wind, 50MW Solar
- Select Wind Turbine Models
  - GE 1.7/100
  - Acciona 3.0
- Calculate production for each turbine
  - Net Capacity Factor GW1.7 27.6%
  - Annual Production 435,000MWH
Transmission and Interconnection

- Regional Possibilities
  - WAPA 345kV Mead-Liberty
  - WAPA 500kV Mead-Phoenix
  - APS 500kV Moenkopi-Eldorado
  - Centennial Clean line - 2017
WAPA 345 Mead-Liberty IR

- IR Application (January 2012) $10,000
- System Impact Study $50,000
- Environmental Deposit $75,000
- Facilities Study $100,000
- Transmission Service Request
  - Deposit
  - Prepaid Transmission Service Fees
- Mead Upgrades scheduled for 2013
  - Additional 600MW Capacity currently unavailable
- Transmission Infrastructure Program (TIP)
Permitting Assessment

- Critical Issues Analysis
  - NEPA Checklist
- Birds and Bats
  - 2 years of studies
    - Anabat studies
    - Fall Raptor Migration Studies
  - Eagle Protection Plan
- Cultural Impacts
- Visual Impacts
- EIS Requirement
- Line Siting Committee
Cost Projections

- Constructability Survey
  - Roads and Power lines
  - Highway and Rail Access
  - Geotech Report
  - Terrain Assessment
- Turbine Cost
- Balance of Plant Cost
- Transmission and Interconnection
- Development Fees
- Financing Cost
Pro Forma Projections

- Installed Cost
- Financing Terms
- Transmission Costs
- Operating Costs
- Profit Margin
- Energy Production

PPA Price > $70 MWH
Business Planning

- Formation Options
  - Lease Terms
  - Non-Recourse Financing
  - Tax Financing
    - Production Tax Credits
    - Tax Equity
    - Accelerated Depreciation
- Legal Considerations
  - Sovereignty - Ownership - Dispute Resolution
- Risk vs Reward
Developer Interest

- Solicitations of Interest
- Vetting Process
- NDAs
- Negotiations
Helps

- Perrin Ranch Wind Farm
- DOE-OIE START Program
  - Public Education
  - Validation of Study
  - Strategic Energy Planning
- Executive Orders-- Improving Performance of Federal Permitting and Review Processes
So You Really Wanna Go There ? !

- Tribal Vision
- Community Buy-in
- Leadership
- Tribal Capacity Building
- Community Capacity Building
- Stick-to-it-ive-ness
Benefits

- Long-term Revenue
  - Supports Tribal Programs
- Job and Training Opportunities
- Business Opportunities
- Pride