



Indian Lands Energy

Investments and Prospects:

**Developing Mature Fields
on Indian Lands**

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Indian Lands Energy – Investment and Prospects

Developing Mature Fields on Indian Lands

Percentage of U.S. Energy Resources

Within the Tribal Landbase (Estimate)

- 4% of Oil
 - 9% of Natural Gas
 - 30% of Coal
 - 40% of Uranium
 - World Class Renewable Resources
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■ Tribal Energy Resources

- ~ 10% of U.S. Energy Resource
Lie Within the Tribal Landbase
- ~ 15% or Greater with Renewable Resources

■ Energy Economy

- \$300 Billion / Year U.S. Coal and Natural Gas **
- \$30 Billion / Year Tribal Parity
- ~ \$1 Billion / Year Actual Tribal Energy Economy
- Renewable Factor TBQ (To Be Quantified)

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- 3 Basic Scenarios

- The “Impermeable” Map Boundary
 - Multinational / Major Oil Corporation Economic Criteria 1
 - Multinational / Major Oil Corporation Economic Criteria 2
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- Criteria 1

- Pay Zone Thickness and Quality

- 500' Net or Greater
 - High Sp and Rs Kicks
 - Mud Shows
 - Etc . . .

- No? Plug and Abandon

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- Criteria 1a
 - Pay Zone Thickness and Quality
 - Yes? Myopic Exploitation
 - Set Pipe Short of TD
 - Completion Design for Pay Target Only
 - Imprudent Reservoir Management
 - Single Target Depletion Strategy
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- Re-Examination of Field Development
On Indian Lands: circa 1900 – 1982
 - Then-Current Corporate Culture
 - Non-Finite Resource
 - Wildcat and Exploratory Data
 - Lease Agreement “Highly Favorable”
 - Technology: GeoScience, Materials, Techniques
 - PRE-COMPUTATIONAL INFO AGE !!
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- Re-Examination of Field Development
On Indian Lands: circa 1982 – 2005
 - Tribal Involvement
 - Tribal Realization of “Development Techniques”
 - Tribal Reluctance
 - Past Agreements
 - Environmental Awareness
 - Cultural Component
 - Renewed Tribal Vision
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- Re-Development of Tribal Resources in an Evolved Era - 2006 and Beyond
 - High Energy Value
 - National Security Issues
 - Competitive GLOBAL Marketplace
 - Increasing Population
 - Community Priorities
 - National Tribal Energy Vision
 - Sustainable Economies
 - 7th Generation
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- Application of Prior Knowledge and Future Abilities
 - Resource Development Alliances
 - Tribal Nations
 - Industry
 - Governments and . . .
 - Academia
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- Application of Prior Knowledge and Future Abilities
 - Experiences and Experiments
 - 2' – 4' Sandy Shale (Shaly Sand?)
 - 50 bopd to 120 bopd
 - Extended Moratoriums imposed on O/G Development
 - Historical Oversights and Accidents
 - Amour Piercing Perforation Technology
 - 10' – 40' versus 10" – 40"
 - Unknown quantities in Known Geological Regions
 - San Juan Basin, Aneth Basin, Colorado Plateau
 - Greater Unknowns in Unknown Regions
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- Application of Prior Knowledge and Future Abilities
 - Experiences and Experiments
 - Horizontal Drilling Accuracy
 - Coiled Tubing Operations
 - Re-Entering Shut-In Wellbores
 - Tailored Stimulation Techniques
 - Total Resource Consumption
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- Application of Prior Knowledge and Future Abilities
 - Resource Data Repositories
 - Application of GeoScience
 - Application of Industry Technology
 - Stakeholder Participation
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■ Forward Visions

- Peak Oil
 - Cheap Oil
 - Easy Oil

 - Oil AND Gas
 - Integrated Resource Development
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Developing Mature Fields on Indian Lands

- Forward Visions

- Industry => NPV
 - Government => You and Me
 - Tribal Nations => Parity
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