



Division of Energy and Mineral Development

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Summary of Economic Activity on Indian Lands (FY 2019)

DOI Activity (FY 2019)	Direct Economic Contribution (sales in billions)	Jobs	Value Added (billions, \$)	Total Economic Contribution (billions, \$)
Grazing	0.03	864	n/a	0.07
Irrigation water*	1.07(13%)	28,331(36%)	1.57(16%)	2.86(18%)
Energy**	6.63 (83%)	46,946 (60%)	7.82 (81%)	12.59 (78%)
Other minerals***	0.20(2%)	1,714(2%)	0.24(2%)	0.41(3%)
Timber	0.05	465	0.03	0.13
Total Contributions to the National Economy	7.98	78,320	9.66	16.06

- Includes value of crops and jobs produced from irrigation water

** Renewable energy. Tribal renewable energy production was associated with about \$100 million in value added, about \$171 million in economic output, and supported an estimated 775 jobs.

*** Sand and gravel or other industrial minerals. Tribal sand and gravel production was associated with about \$240 million in value added, about \$410 million in economic output, and supported an estimated 1,714 jobs.

Source: U.S. Department of the Interior Economic Report, Fiscal Year 2019



Tribal Economic Development

Foundational Industries spur Economic Development

Foundational Industries					Economic Development				
Source of Cash Flow, Infrastructure & Materials for Economic Development									
Power	Mineral Fluids, Gases, Steam	Mining	Broadband	Biomass	Construction	Materials Manufacturing	Farming	Tourism	Consumer Products
Solar	Hydrogen	Aggregate	Telecom	Forrest Mgmt.	Roads	Stone, Bricks	Table Food	Lodges	Furniture
Wind	EOR	Limestone	AI	Grassland Mgmt.	Industrail	Lumber	Feed	Casinos	Arts & Crafts
Hydro	Helium	Rare Earths	Data Center	Carbon Credits	Commercial	Plastics	Livestock	Hotels	Machine Parts
Natural Gas CC	Geothermal	Metals	IOT	Pellet Mfg.	Residential	Fertilizer	Hemp	Museums	Clothing
Cogen	Natural Gas	Quarry Stone	Bitcoin Mining	Hemp Waste		Metals Fabrication			Foods, Oils, etc.
Microgrids	Oil EOR - Net Zero					Textiles			Other



Programs and Services

Mission: Provide the best possible technical and economic advice and services in assisting Indian mineral owners to achieve economic self-sufficiency by creating sustainable economies through the environmentally sound development of their energy and mineral resources.

- ✦ Technical Assistance and Business Advising
- ✦ Grant Programs

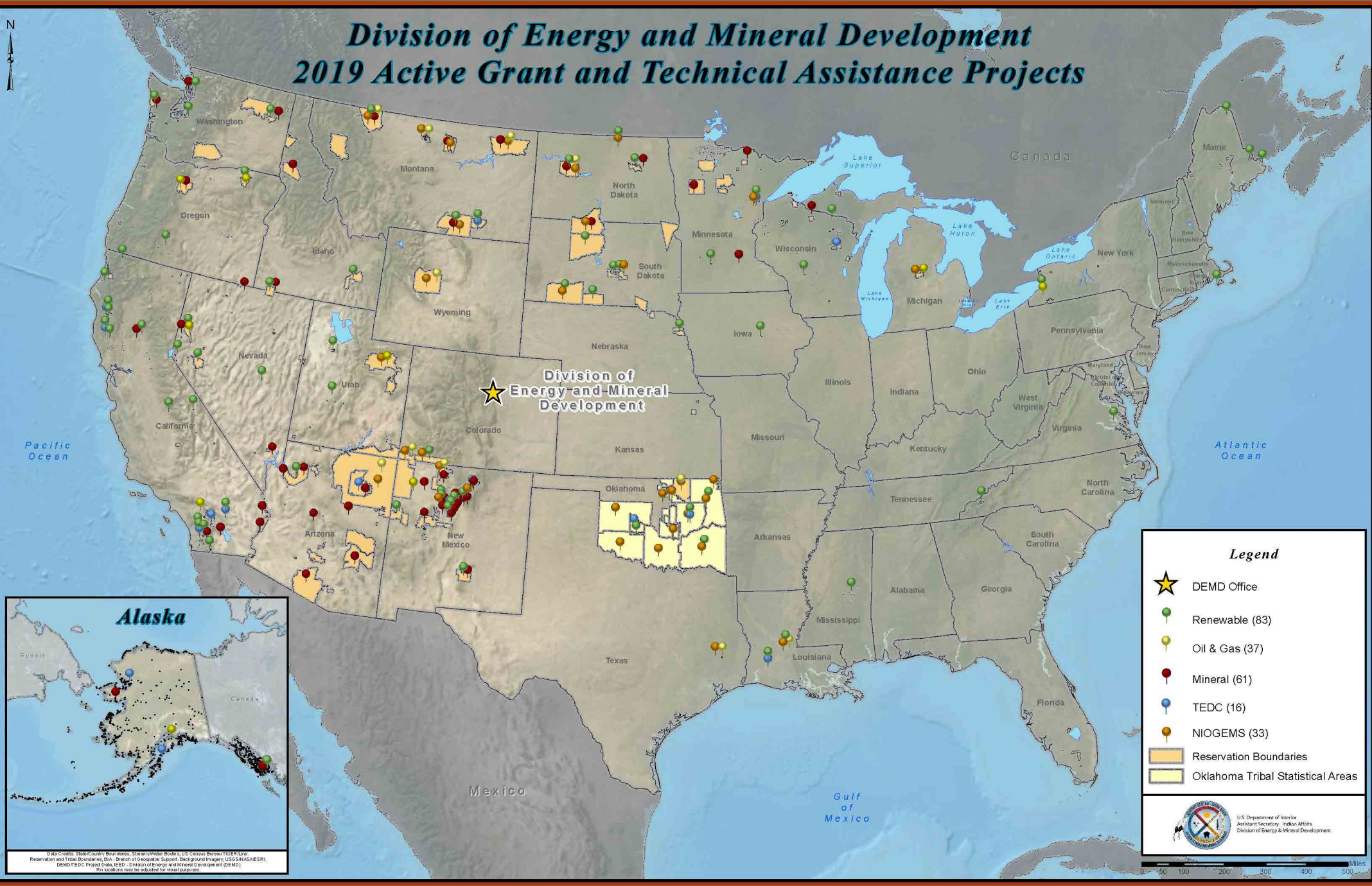




How DEMD is Unique

- ✦ Many staff members come from the energy and mineral private sector.
- ✦ It is akin to a medium sized consulting firm consisting of geologists, engineers, marketers, and economists.
- ✦ The technical assistance covers the entire spectrum of energy and mineral resource development.
- ✦ The assistance is hands-on, project specific, and lasts throughout the life of projects, beginning with resource assessment and culminating in signed agreements to develop tribal resources.

Division of Energy and Mineral Development 2019 Active Grant and Technical Assistance Projects





Department of the Interior Initiatives

- ✦ Economic recovery
- ✦ Environmental Justice
- ✦ Advance Equity in Climate Adaptation
- ✦ Clean Energy
- ✦ Infrastructure

Tribal Energy and Minerals– A way forward, not the goal itself

- ✦ Resources are better viewed as tools, not the goals
- ✦ What problem are we solving?
 - Develop jobs
 - Economic growth
 - Diversify the economy
 - Provide reliable energy
 - Increase Tribal Sovereignty
 - Keep circulating funds
- ✦ Choose the tool that solves the problem





Optimize Tribal Energy and Mineral Portfolios

✦ Tribe set Strategic Goals

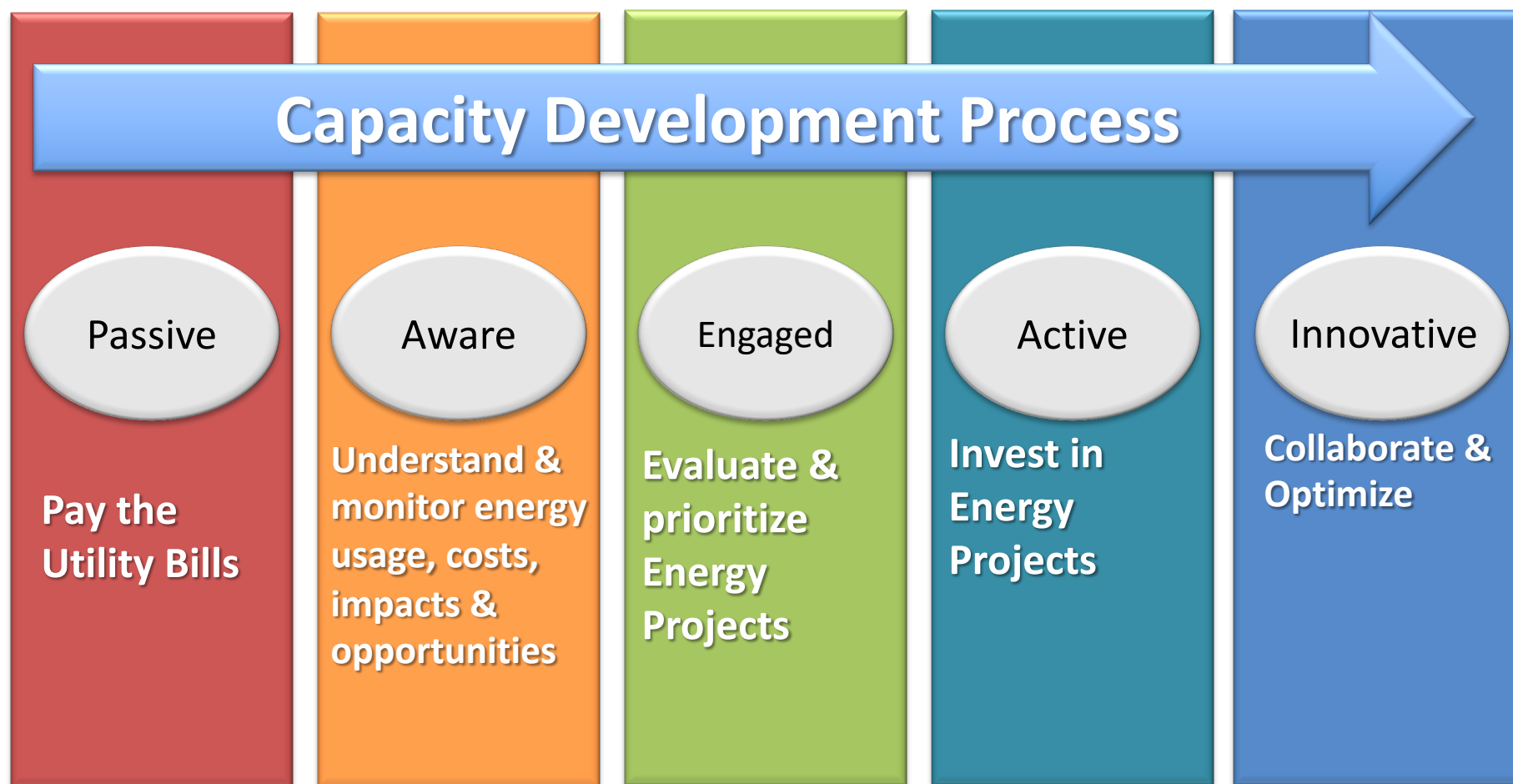
- Increase income and jobs through new ventures
- Strategic Planning

✦ DEMD focus is on developing resources to meet these goals

- Develop Businesses that enables diverse Economic Development
- Identify quick start opportunities
- Evaluate future opportunities



Energy and Mineral Development Capacity



Source: Midwest Tribal Energy Resources Association (MTERA)



Energy Initiatives

Microgrids

- ✦ Local Energy Resiliency

Tribal Utility Authorities

- ✦ Local Energy Resiliency
- ✦ Ownership and Control of Utilities

Biomass

- ✦ Pellets - Address Fluctuating Propane and Fuel Oil Pricing
- ✦ Wildfire Mitigation

Fluid Minerals

- ✦ Opportunity to take over leases
- ✦ Helium



Solid Mineral Initiatives

Coal

- ✦ Where does the market remain?
- ✦ Other Uses - Economic Development Options

Critical Minerals

- ✦ Essential to Clean Energy Manufacturing

Roads

- ✦ 83% of roads in Indian Country are inferior
- ✦ Use local material for tribal roads and for nearby highway projects



Programs and Services

- **Technical Assistance**
 - Liaison between Tribes and Industry
 - Consultation on developing business models on reservations
 - Assist Tribes with negotiation of resource development agreements
 - Strategic and economic planning
- **Energy and Mineral Development Program**
 - Grant program to assess, evaluate and promote development of tribal energy and mineral resources
- **Tribal Energy Development Capacity Program**
 - Grant program to develop tribal managerial, organizational, and technical capacity to maximize the economic impact of energy resource development on Indian land.
- **National Indian Oil and Gas Evaluation and Management System (NIOGEMS)**
 - NIOGEMS is a map-oriented computer application for managing reservation oil and gas lease, well, production, and other energy/mineral resource data.



NIOGEMS

National Indian Oil & Gas, Energy and Mineral System

Problem: The need for timely processing of Energy and Mineral permits

- Users had to access multiple databases to obtain all relevant information.
- There was a lack of geospatial tools and data management tools.
- Data quality was poor.



NIOGEMS

National Indian Oil & Gas, Energy and Mineral System

Solution: NIOGEMS provides efficient access to permit related information and other data

- NIOGEMS pulls from TAAMS, BLM, Commercial (IHS), ONRR, State, USGS, Census, USDA, Tribal, and others – so that NIOGEMS users can access data from just one source.
- Provides NIOGEMS users with data management and map-based tools.
- NIOGEMS staff regularly updates data and conducts data scrubbing & quality control.



Examples of Actual NIOGEMS Uses BIA - Wind River Agency

Realty Department NIOGEMS Uses	Number of NIOGEMS Users	Description of NIOGEMS Tasks	Average Use of NIOGEMS (hours per day)	Time w/o NIOGEMS (hours)	Time Saved (hours)
Probates	4	Maps for owners, view of land	1	10	9
Acquisition and Disposal	2	Maps for owners, view of land	2	20	18
Rights of Way	3	Maps from legal descriptions	1	10	9
Surface Leasing	2	Homesites, leases, tracts	1	10	9
Minerals	2	Leases, descriptions, production	2	20	18

Probates - Works with ownership and heirs. The owners want to know where their land is and what it looks like. The program allows this to be accomplished and eliminates a lot of discussion regarding leases and type land.

Acquisition and Disposal - Uses the mapping program for parcel generation, owners review of exchanges, and trust to fee transactions. It is very helpful to have this program explain 89% of the questions.

Rights of Way - Uses the program in a variety of ways to explain access issues to customers. It is agreed it would be a long process if the program was not available.

Surface Leasing - Handles homesites, business leases, communication towers, etc.

Mineral Leasing - Uses this program for all types of data. This program is extremely important to identify the management of mineral resources.

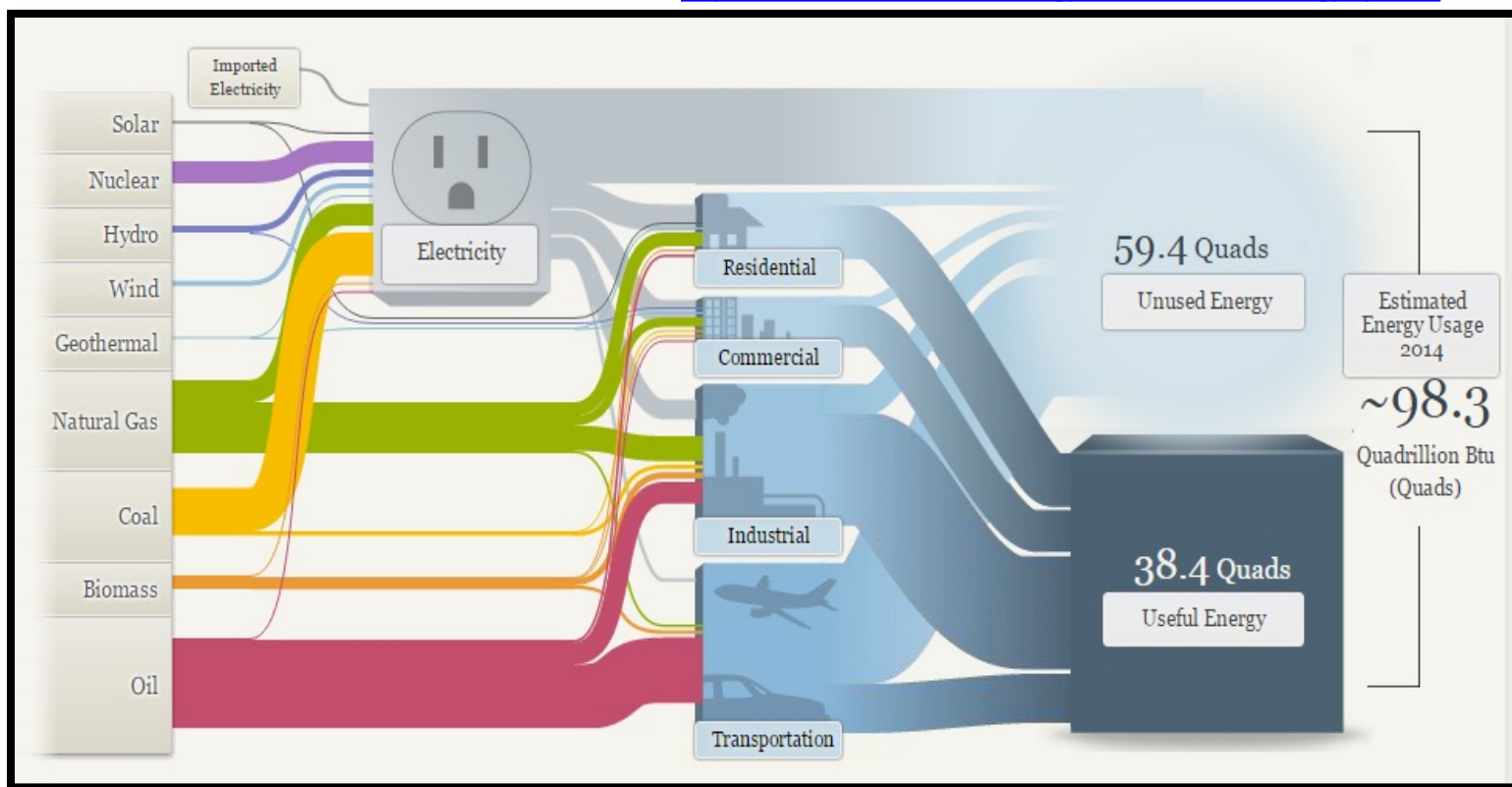
Realty - Could not keep up with the workloads required and the information that we need to identify on a day to day basis without NIOGEMS. It is agreed that it would take 10 times as long to identify the necessary data if the above listed tasks were done the old way.



U.S. Energy System

2014 U.S. Energy Snapshot

<http://needtoknow.nas.edu/energy/interactive/our-energy-system/>



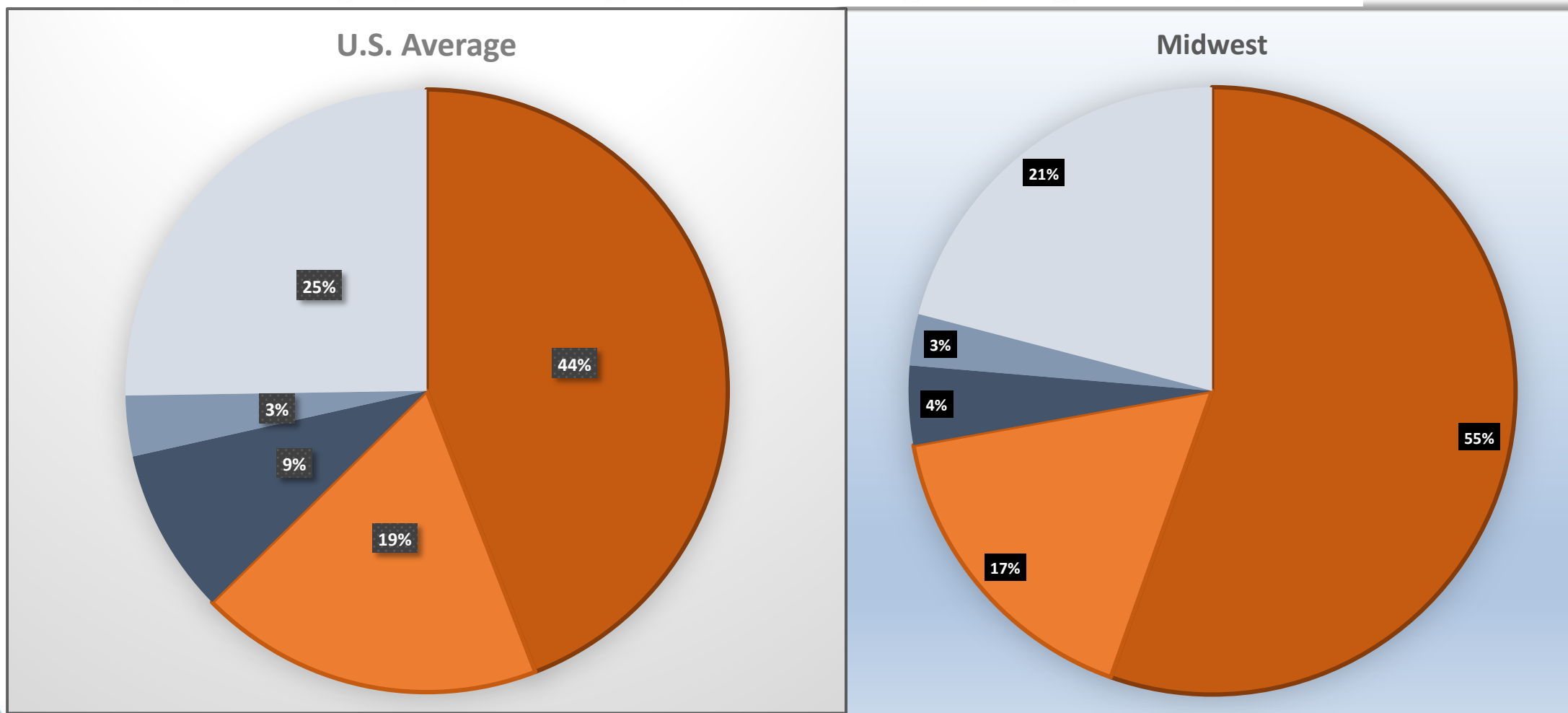
Tribal energy opportunities depend on both local and regional energy systems



Renewable Energy is also Renewable Heat

Residential Energy Consumption Survey (EIA 2015)

■ Space Heating ■ Water Heating ■ Air Conditioning ■ Refrigerators ■ Other



Small, portable pellet manufacturing

❖ Small scale pellet Manufacturing

- Stable supply of low cost material.
 - Waste from forest management?
- Existing or potential local wood pellet markets.

❖ EMDP grant can help with energy market studies



TRIBAL UTILITY AUTHORITY FEASIBILITY WORK

The Tribal Energy Development Capacity (TEDC) Grant Program has funded nearly 30 TUA projects in FY 2015 - FY 2020. The below information is a case study from a FY 2015 TEDC Project.

Analyze Energy Infrastructure

Existing Infrastructure



There is local gas and electric infrastructure that could provide ready access to wholesale markets

Current Consumption Electric

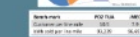


Estimated total electrical load: ~2,234 MWh/year

Cost-of-service



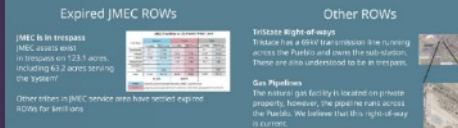
The "rate to beat" is \$0.132/kWh. Annually, the tribe pays \$331,000 of which \$132k is for "non-energy".



Generation vs. Distribution Payments

Review Legal & Regulatory Issues

Right-of-ways



Zia has significant leverage over JMEC as a consequence of the expired ROWs

State and Tribal Laws



Baker Tilly has not identified any legal/regulatory "fatal flaws", but legal counsel is needed

Assess Business Entity Options

Organizational options



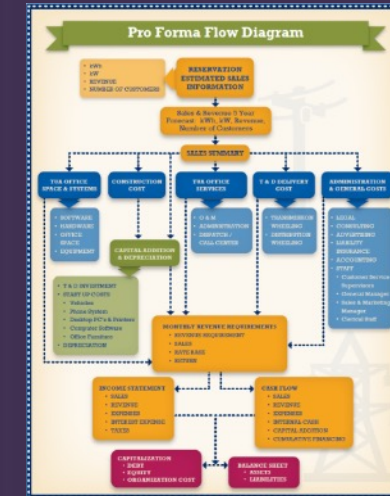
Org. Chart

- Key position: GM!
- The same positions exist in water, waste water, and electric utilities
- Big opportunities for efficiency!



Many positions exist today, or can be filled by contract. Exceptions: GM and Meter Reader

Financial Analysis





Business Entity Options: Major Considerations

Financing the Project: Often, this will drive the business structure of the project

- Grants
- Commercial Bank Loans and Loan Guarantees
- Tax Equity (leveraging the ITC/PTC) - Mr. Clancy will discuss more on this
- NMTC - Mr. Bland will discuss more on this.

Ownership Model:

- 100% Tribally owned
- Non-Tribal Equity Investors
- Tax-Equity Partners
- Lease (where the Tribe is effectively only a Landlord)

Other considerations:

- Existing Tribal Legal Infrastructure (LLC, Corporations Codes, UCC, etc.)
- Current Tribal Org. Chart (Where does this new entity fit?)
- Taxation



Financial Analysis

	Tribal Utility Alternative	Estimated Upfront Cost	Potential Annual Savings	Benefits	Potential Issues & Risks
More Complex	1 Full Tribal Utility	\$5-10 Million	0%* <i>*Unlikely to achieve short term savings</i>	<ul style="list-style-type: none">• Reinvest utility revenues• Full control over power supply and cost• Ability to add jobs	<ul style="list-style-type: none">• Tribe solely responsible for service reliability• High up-front cost
	2 Outsourced Tribal Utility	\$2-8 Million	9%	<ul style="list-style-type: none">• Reinvest utility revenues• Full control over power supply and cost• Possibility to add jobs in future	<ul style="list-style-type: none">• Need to coordinate with third parties to ensure service reliability
	3 Control Power Supply Only	\$0-800 Thousand	4%	<ul style="list-style-type: none">• Full control over power supply and cost• No change in provider	<ul style="list-style-type: none">• Need to establish regulatory framework• Need to negotiate with Trico to allow power purchase
	4 Control Service Territory Only (Not a Tribal Utility)	\$0-800 Thousand	15%	<ul style="list-style-type: none">• Ability to select electric service provider• Residential rates most likely to go down	<ul style="list-style-type: none">• No benefits of tribal utility• Likely to pay charges related to infrastructure• Fully reliant upon new provider• No control over future cost or power supply
Less Complex	- Status Quo (Not a Tribal Utility)	\$0	0%	<ul style="list-style-type: none">• No change to Trico service	<ul style="list-style-type: none">• Reliant upon Trico• No control over cost or power supply



Question

What mineable commodity generates the most money in sales in the United States?



Aggregate!

- Sand
- Gravel
- Crushed Rock





Aggregate

Aggregate

Crushed stone - \$16.80B for 1.42 B tpa

Sand & Gravel - \$ 8.97B for 0.96 B tpa

Total \$25.77B for 2.38 B tpa

All Industrial Minerals \$58.2B

All Metals All \$28.1B

Solid Mineral Projects

- Construction Aggregate
- High Performance Adobe
- Proppant (Frac) Sand
- Limestone
- Gypsum
- Other Industrial Minerals
- Coal
- Metallic Minerals





How does aggregate present an opportunity?

Aggregate is used for everything!

- Construction and maintenance of roads.
- Construction projects.
- Emergency preparedness.
- Economic development.



Aggregate: Why isn't it marketed like gas or tobacco?





Aggregate: Why isn't it marketed like gas or tobacco?

- There is no good reason.
- Aggregate production shares the one economic parameter that allows Tribes to corner the market on gas and tobacco.
- That shared economic parameter is the inherent tax advantages of Tribes compared to non-Indian owned businesses.

Road Construction and Maintenance

- 83% of reservation roads are classified as “not acceptable.”
- 80% of reservation roads are unpaved roads.
- Maintenance of the existing roads is vital.
- New road construction provides a safe reliable mode of travel.
- Native Americans have the highest per capita number of road deaths of any demographic group in the USA.





Construction Aggregate's role in Emergency Preparedness

- The development and availability of the primary raw material required to mitigate, prepare, respond, and recover buildings, infrastructure, roads, bridges, and homes.
- That raw material is **Construction Aggregate**





Bad River Flooding 2016



Economic reality on reservations

Most construction projects on or near reservations rely on supplies of aggregate resources from non-Indian sources. It can be costly to import aggregate.

- Typical sales radius: 30 miles.
- Remote reservations have paid up to THREE times as much for materials than consumers in metropolitan areas.
- This represents lost economic opportunities.



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