Tribal Aggregate Business Development: Why should I do it?

Duane Matt

CONFEDERATED SALISH AND KOOTENAI TRIBES/NORTHERN CHEYENNE

Solid Minerals Branch Chief/Geologist

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Duane Matt *CONFEDERATED SALISH AND KOOTENAI TRIBES/NORTHERN CHEYENNE*

Acting Solid Minerals Branch Chief/ Geologist

Solid Minerals

Duane Matt is a Geologist and holds a master's degree in Geology and a bachelor's degree in both Geology and English/Secondary Education. He has numerous years of work experience with a variety of organizations: Office of Surface Mining Reclamation and Enforcement (OSMRE), Land Management (Initial Attack Fire Dispatcher), Scientific Applications International Corporation (Field Geologist), Bureau of Reclamation (Geological Intern), and the Confederated Salish and Kootenai Tribes Minerals Department. Duane is a founding board member of the Society of American Indian Government Employees (SAIGE).

Outline: The "Who, what, where, when and how's"

- Who is the Division of Energy and Mineral Development (DEMD) and what do we do?
- Where are we located and whom do we serve?
- Why should a tribe develop its aggregate resource?
- How can a tribe develop its aggregate resources, benefit from developing those resources, and how can DEMD assist Tribes??

Agenda

DEMD Overview

Solid Mineral Branch Overview

Aggregate Topics:

- Aggregate Basics
- Tribal Competitive Advantage
- Income Generation
- Cost Savings
- Benefits of Owning a Tribal Business
- Examples of current tribal operations

Business Branch Overview

Business structures

DIVISION OF ENERGY AND MINERAL DEVELOPMENT

Assistant Secretary – Indian Affairs

Principal Deputy – Assistant Secretary

Director Bureau of Indian Affairs

Director Bureau of Indian Education

Deputy Assistant Secretary Policy and Economic Development

Office of Indian Services

Office of Trust Services

DEMD is one of 14 divisions and 48 programs under OTS

Division of Energy & Mineral Development (DEMD)

DEMD 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.

DIVISION OF ENERGY AND MINERAL DEVELOPMENT

FLUID MINERALS

Team of professionals provides technical support, mineral assessments, economic analysis, lease negotiations and recommendations for all oil and natural gas energy resources.

SOLID MINERALS

Solid Minerals staff supports Tribes and allottees in assessing and developing their mineral and aggregate resources, resource evaluation and bringing resources into production and profitable joint ventures.

GEOTECHNICAL DATA SERVICES

Geotechnical Data Team maintains seismic datasets and provides data to oil and gas companies or other investors who are interested in exploration and developing new reserves on Indian lands.

NIOGEMS

NIOGEMS is a map-oriented computer software application for managing reservation oil and gas lease, well, production, and other energy/mineral resource data. Training and support are all provided at no cost.

RENEWABLE & DISTRIBUTED GENERATION

Renewable and distributed energy team is committed to helping Tribes formulate and implement energy development strategies, pre-feasibility studies, and consultation to best fit with their unique circumstances and long-term visions.

Our Mission

DEMD Branches provide the best technical assistance to federally recognized Tribes, including Alaska Native Villages to identify and implement opportunities to maximize their revenue stream and resource development.

BUSINESS SERVICES

Business Services provides strategic and economic planning guidance and business structure. Grant Programs and Marketing services.

What We Do

- DEMD is the only national Governmental Agency that deals solely with energy and mineral development on Indian lands.
- Majority of DEMD staff has extensive prior industry experience, making them uniquely suited to facilitate communication between Tribes / allottees and industry.
- We are hands-on and proactive
- Our goal is development – not merely assessment
- Provide technical, engineering and economic advice to Indian landowners seeking to manage and develop their energy and mineral resources
- Generate effective energy and mineral development strategies

Technical and Business Advisory for Tribes

Technical Assistance

- Resource Analysis
- Economic Analysis
- Technical Advisement
- Grant Assistance
- Project Planning
- Project Management
- Due Diligence
- And more

Develop Potential Partnerships

- Business Planning & Entity Formation
- Business Partnering, Deal Structuring & Evaluation

Project & Resource Mapping

- NIOGEMS
- Data On Financial, Realty, Geo-technical Information
- Leasing, Developing, and Managing Energy & Mineral Resources
- Mapped Ownership Tracts and Energy Leases

Marketing Assistance

- Marketing Collateral
- Tradeshow Graphics
- Design Assistance
- And more

DEMD Services

DEMD Grants: TEDC & EMDP

To develop tribal economies and promote development that maximizes the economic impact of energy resources on tribal lands

Energy and Mineral Development Program (EMDP)

~$6 MM
Awarded Annually

20-30
Projects Funded

$50k – $2 MM
Award Range

Assess, evaluate and promote development of tribal energy and mineral resources.

Tribal Energy Development Capacity Program (TEDC)

~$1-2MM
Awarded Annually

15-25
Projects Funded

$50k – $1 MM
Award Range

Develop tribal managerial, organizational, and technical capacity to maximize the economic impact of energy resource development on Indian land.

Tribal Energy Development Capacity Program (TEDC)

Recently closed
January 11, 2024

Next TEDC
Summer 2024

tedcgrants@bia.gov

No Cost Match program to develop tribal managerial, organizational, and technical capacity to maximize the economic impact of energy resource development on Indian land.

- Establish Tribal Energy Development Organizations
- Developing legal infrastructure for business formation
- Establishing tribally chartered corporations under tribal corporation codes
- Establishing tribal business charters under federal law (IRA Section 17 corporation)
- Establish Tribal Utility Authority
- Developing or enhancing tribal policies, codes, regulations, or ordinances related to regulating and developing energy resource(s)
- Land lease regulations for energy development purposes
- Adopting secured transaction codes and subsequent joint power agreement with the tribe's respective state.

FY 2022
$2.8 MM
Awarded

FY 2022
19
Projects Funded

$6.9MM
Requested
FY 2022

34
Proposals
Received
FY 2022

Tribal Energy Development Capacity Program (TEDC)

Develops a predictable and competitive business climate on reservations.

- Helps in establishing business entity structures and/or organizational structures related to energy resource development. This is referred to as “Business Development Capacity”
- Helps in developing and/or enhancing key regulatory activities

Now Open

Close: May 24

emdpgrants@bia.gov

Energy and Mineral Development Program (EMDP)

- NO COST MATCH program to assess, evaluate and promote development of tribal energy and mineral resources.
- Pre-construction project development work for renewable energy, conventional energy, and mineral resources.
  - Resource assessments
  - Feasibility studies
  - Engineering design
  - And more
- Pre-Development Studies are essential for informed decisions. Produce documents that you can take to the bank.

FY 2022
$11.2 MM
Awarded

FY 2022
32
Projects Funded

$44.9MM
Requested
FY 2022

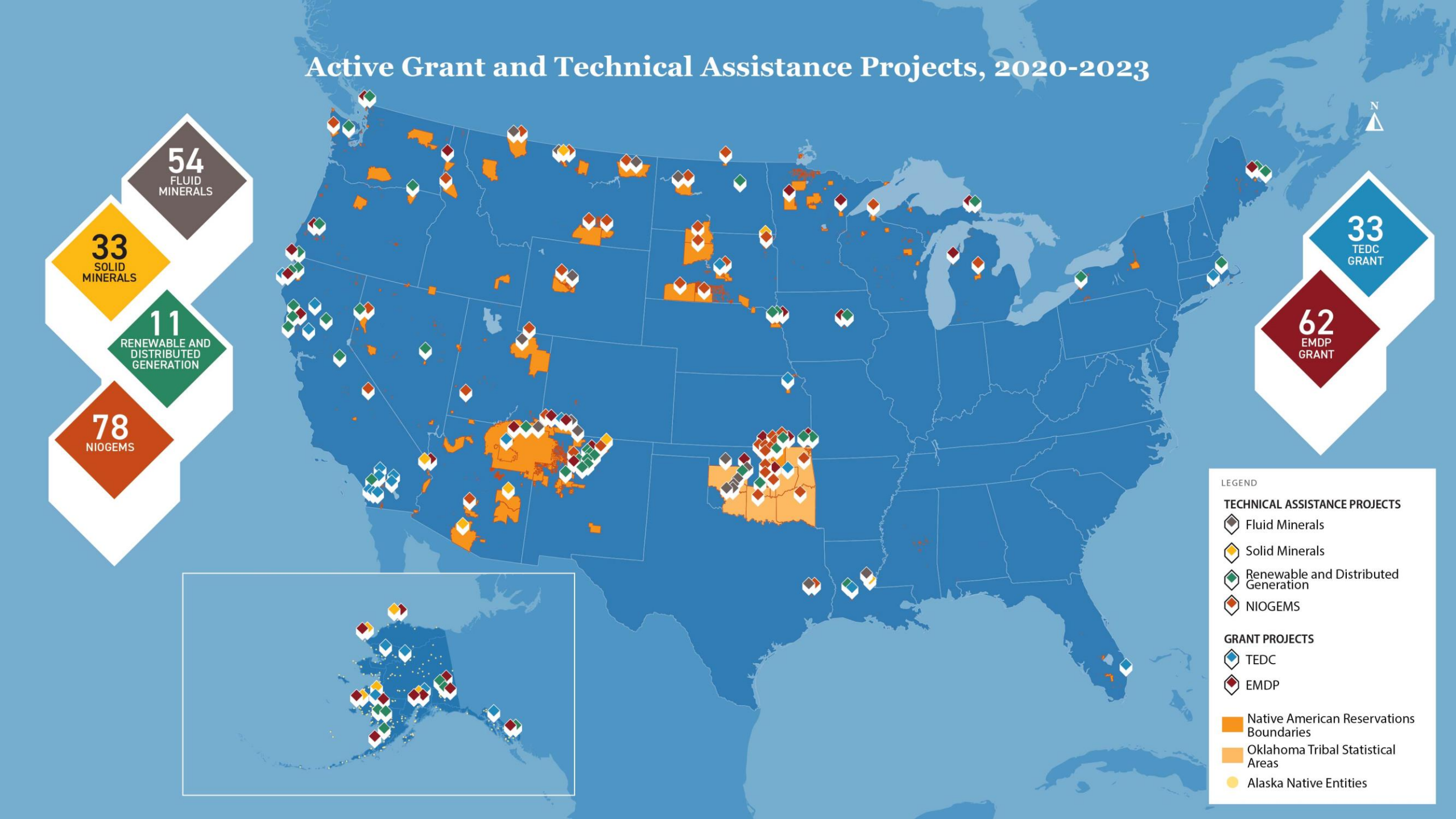
79
Proposals Received
FY 2022

Energy and Mineral Development Program (EMDP)

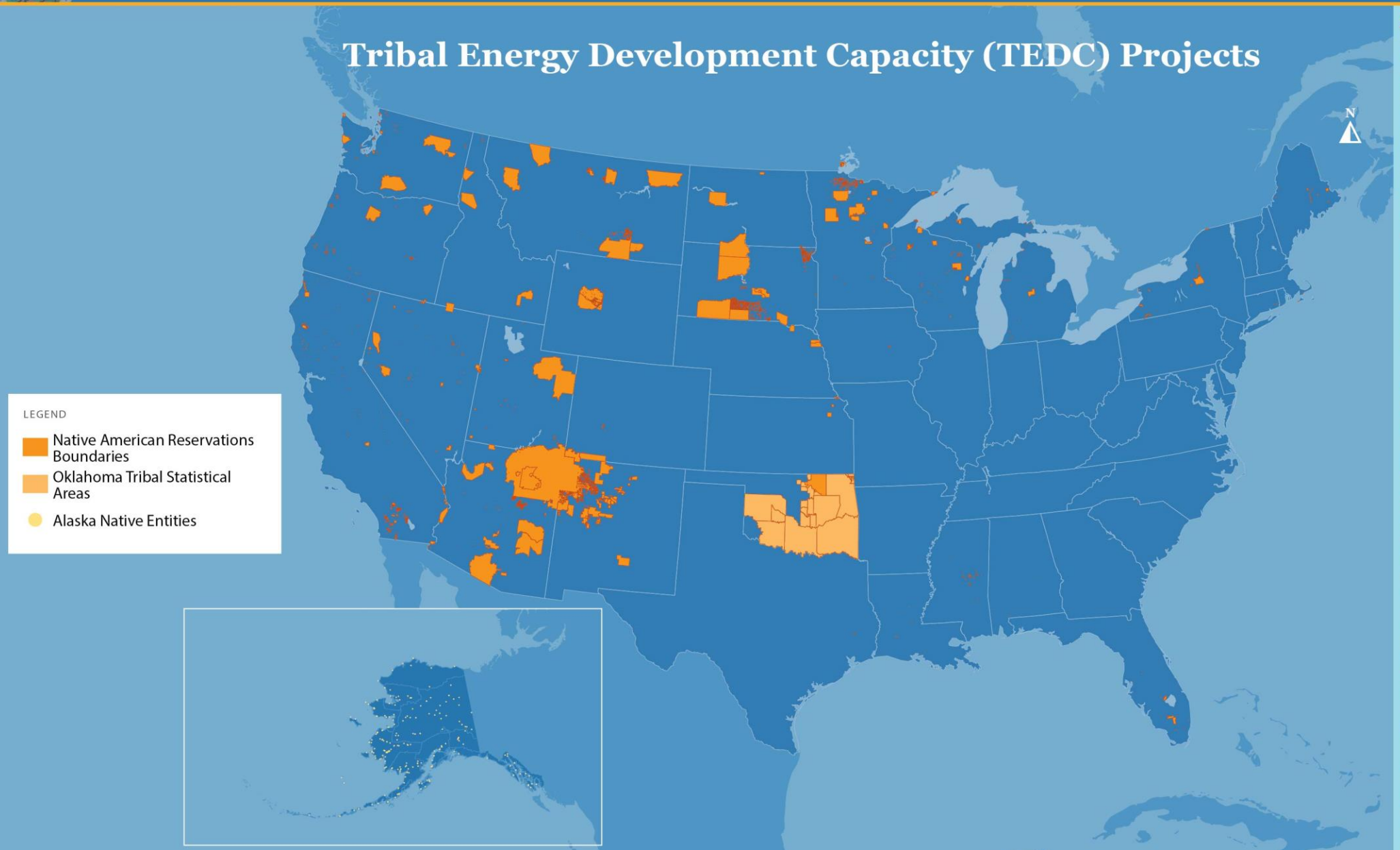
DEMD's annual, competitively judged grant program

- Available to Tribes and Tribal Corporations
- Information, application, guidelines, etc. are at: *grants.gov*
- Funding is for resource assessment, marketing studies, laboratory testing, etc., but not for tribal salaries or equipment.
- Funding has consistently increased as a result of Tribal project success.

Active Grant and Technical Assistance Projects, 2020-2023



Tribal Energy Development Capacity (TEDC) Projects



2015-2023 TEDC Projects

- 29 Palms
- Agua Caliente
- Angoon Community Association
- Bad River
- Bay Mills Indian Community
- Bear River Band of the Rohnerville Rancheria
- Big Sandy Rancheria
- Big Valley Band of Pomo Indians
- Blue Lake Rancheria
- Bristol Bay Native Corp.
- Cabazon Band of Cahuilla Indians
- Chemehuevi
- Citizen Potawatomi
- Colville
- Coushatta
- Coyote Valley
- Fond du Lac
- Forest County Potawatomi
- Hopi
- Hualapai
- Hughes
- Jemez Pueblo
- Kiana
- Kwethluk
- Leech Lake
- Lower Brule
- Mashpee Wampanoag
- Mesa Grande
- Middletown Rancheria of Pomo Indians
- Morongo
- Muscogee Creek
- Nambe Pueblo
- Northern Cheyenne
- Pascua Yaqui
- Paskenta Band of Nomlaki Indians
- Passamaquoddy Tribe of Indian Township
- Pechanga
- Port Graham
- Prairie Band Potawatomi Nation
- Pueblo of Jemez
- Pueblo of Nambe
- Pueblo of Taos
- Pueblo of Zia
- Red Lake
- Rincon
- San Pasqual
- Seneca
- Seminole Tribe of Florida
- Soboba
- Southern Ute
- Spirit Lake
- Spokane
- Taos Pueblo
- Ute Mountain Ute
- Wichita and Affiliated Tribes
- Winnebago Tribe of Nebraska
- Zia Pueblo

Solid Minerals

Staff supports Tribes and allottees in assessing and developing their mineral and aggregate resources, resource evaluation, and bringing those resources into productive and profitable development.

» Stimulate sustainable economic development and job creation in Indian country through technical assistance to Tribes and Allottees requesting assistance with exploration, development, or management of solid mineral natural resources

» Offers direct assistance for DEMD Program Grants, which includes the Energy and Mineral Development Program (EMDP) and the Tribal Energy Development Capacity (TEDC)

DEMD's Approach to Tribal Technical Assistance

It employs an across-the-board utilization of DEMD staff's multiple skill sets.

This technical assistance is hands on and proactive. It incorporates the full spectrum of services required to change resources into viable economic engines.

- Assessment of a resource's quality and quantity
- Feasibility Study- equipment needs, Capex/Opex calculations, financial analysis, business structure
- Marketing- local/regional sales forecasts, market forecasting, existing and future competition, branding assistance
- Financial- Financial statement creation and analysis, short/long term income streams, potential lenders, government grants, other potential sources of capital
- Loans-BIA/DOE/USDA/SBA Loan Guarantees, working with local/regional/national lending institutions
- Land Management-consolidation of Tribal lands, identification of desirable land acquisitions, fee to trust

Question?

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

Aggregate!

Sand

Gravel

Crushed Rock

How does aggregate present an opportunity?

Aggregate is used for everything!

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

Aggregate and its Impact

Aggregate (Crushed stone plus sand & gravel)

Crushed stone: $21.00 B/yr. with total production of 1.42 Billion tons/year

Sand & Gravel: $ 10.40 B/yr. with total production of 0.96 Billion tons/year

Aggregate Total: $31.40 Billion/year with total production of 2.38 Billion tons/year.

All Industrial Minerals (e.g., Aggregate, Limestone, clay, etc.) combined is $63.5 Billion/year

All Metals (e.g., gold, silver, copper, etc.) combined is $34.7B

(source - USGS Commodity Summary 2022)

Why Should a Tribe Develop its Aggregate Resources?

- Safe Roads
- Emergency Preparedness
- Inherent Economic Advantages
- Job Creation
- Income Generation
- Economic Diversity

Road Construction and Maintenance

<u>According to the Bureau of Indian Affairs, 83%</u> of Tribal roads are classified as "not acceptable."

- 80% of reservation roads are unpaved gravel roads.
- Maintenance of the existing roads is vital.
- New road construction provides a safe and reliable mode of travel.
- Native Americans have the highest per capita number of road deaths of any demographic group in the USA.

Emergency Preparedness

- Development of a resource before a disaster occurs.
- Readily available resources during a disaster.
- Access to resources after the disaster.

Cochiti Pueblo Flooding 2011

Santa Clara Pueblo Flooding 2013

Spirit Lake Flooding

When FEMA arrives, that typically means a disaster has already happened!

Summary

"Good quality roads lead to safe and reliable transportation which is a cornerstone to successful commerce. Children need to get to school, employees need to get to work, and goods need to get to markets."

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.

Economic reality on reservations

Most construction projects on or near reservations rely on supplies of aggregate resources from non-Indian, off Reservation sources. This can be costly.

- A typical sales radius is 30 miles. This is a reason why aggregate is so expensive. Transportation costs. About $8.40/ton to transport 30 miles by truck ($0.28/T per mile.)
- Remote reservations have paid up to THREE times as much for materials than consumers in metropolitan areas due to the high cost of transportation.
- Solution: A tribe can develop its own aggregate resources, and/or, develop their own trucking company. If not, this represents a lost economic opportunity.

Benefits of a Tribal Operation

Inherent Economic Advantage

By using all its inherent economic advantages, a Tribe is poised to be a serious competitor in the aggregate market. Some of these advantages are:

- Inherent Tax Structure benefits
- Ability to establish Enterprise Zones
- Qualifying for Disadvantaged Business status

Another inherent economic advantage of doing business on tribal land

IF a tribe develops its aggregate resource within the boundaries of its own tribal trust lands, then:

- The tribe can hire a contract mining company through a business contract (not a lease) to mine the resource, and:
- The tribe remains the wholly owned operator of that aggregate resource,

THEN (potentially), since this is a trust asset that has not been conveyed (via a lease), there MAY be no Federal Action. If there is no Federal Action, there is no trigger to the NEPA process.

But…The BIA still retains signature authority.

Income creation

- The average income on many reservations is at or below poverty level.
- Good paying jobs benefit both the individual and/or families employed by an aggregate operation as well as providing a benefit to the community via money spent within the community rather than off-reservation.
- Aggregate operations tend to be “long lived.”

Tribal Aggregate Operation: Benefits

Competitive Sand and Gravel Operation - Price Analysis - Arizona State 100,000 tpy		
Scenario	Used Equipment Lease 5-Year Term $/T	Used Equipment Purchase 7 Year Loan $/T
Case 2: Tribe Hires Contract Miner	$8.97	$10.31
	8.0 % *	8.0 % *
Case 3: 100% Tribally Owned and Operated	$8.05	$9.40
	8.0 % *	8.0 % *
Case 4: 100% Company Owned and Operated	$10.29	$11.75
	8.0 % *	8.0 % *

Margin: Case 4: 100% Company Owned minus Case 2: Tribe Hires Contract Miner	$1.32	$1.44

Margin: Case 4: 100% Company Owned minus Case 3: 100% Tribally Owned	$2.24	$2.36

* Company Owned - Profit/Total Cost

AZ known Taxes:
1. INCOME TAX
2. PROPERTY TAX CALCULATION

Specific State Examples: Washington

Competitive Sand and Gravel Operation - Price Analysis – Washington State		100,000 Ton per Year
Scenario	Used Equipment Lease 5-Year Term $/T	Used Equipment Purchase 7 Year Loan $/T
Case 2: Tribe Hires Contract Miner	$8.97	$10.31
	8.0 % *	8.0 % *
Case 3: 100% Tribally Owned and Operated	$8.05	$9.40
	8.0 % *	8.0 % *
Case 4: 100% Company Owned and Operated	$11.45	$13.15
	8.0 % *	8.0 % *

Margin: Case 4: 100% Company Owned minus Case 2: Tribe Hires Contract Miner	$2.48	$2.83

Margin: Case 4: 100% Company Owned minus Case 3: 100% Tribally Owned	$3.40	$3.75

* Company Owned - Profit/Total Cost

Washington Taxes:
1. NO INCOME TAX
2. SALES AND USE TAX: STATE TAX 6.5% LOCAL 8.7%
3. PROPERTY TAX CALCULATION - PRESENT VALUE OF OPERATION TIMES $11.45/$1,000
4. BUSINESS AND OCCUPATION TAX - $4.48/$1,000 TIMES GROSS SALES
5. NO SALES TAX ON MINING EQUIPMENT

Tribal Aggregate Operation: Benefits

Margin: Case 3: 100% Company Owned minus Case 1: Tribe Hires Contract Miner	Lease	Purchase
Michigan	$0.80	$0.93
Wisconsin	$0.88	$1.02
Minnesota	$1.00	$1.14
Iowa	$1.01	$1.15
Average	$0.92	$1.06

Margin: Case 3: 100% Company Owned minus Case 2: 100% Tribally Owned	Lease	Purchase
Michigan	$1.72	$1.84
Wisconsin	$1.80	$1.93
Minnesota	$1.92	$2.05
Iowa	$1.93	$2.06
Average	$1.84	$1.97

Challenges UNIQUE to Alaska:

Accessibility: Most Alaska tribal lands are remote. Many are accessible only by plane, barge, boat, or snow mobile. Available roads are in dire need of aggregate.

Transportation costs: Local and regional need for gravel is significant, yet it is cost prohibitive to purchase and transport to a village.

Examples: There are five Alaska Native villages located on Nelson Island. The nearest gravel source to these villages is Nome, Alaska. Purchase and transportation costs are approximately $750/cubic yard.

As the village is only accessible by water or air travel, gravel must be transported via chartered barge. Utqiagvik may be barging aggregate from as far away as Seward, AK (2000 miles away!)

Using a very conservative job multiplier effect, each job created at the aggregate site creates an additional 1.5 jobs within the community.

- this is the economic multiplier effect.

The number of jobs is dependent on the amount of material being mined.

- A 50,000 tons/yr. operation: 4 direct and 6 indirect jobs will be created (10 total)
- At 500,000 tons/yr. operation: 8 direct jobs and 12 indirect jobs will be created (20 total)

Income generation

» **Individual income:** Based on the following factors:

- State of California operation, production at 50,000 tons/yr., 100% tribally owned.
- 4 direct jobs and 6 indirect jobs will be created (10 total): refer to the economic multiplier

- Foreman: $65,000/yr.
- Front End Loader: $43,680/ yr. ($21/hr.)
- Laborer: $37,440/yr. ($18/hr.) X 2= $74,880
- Total: $183,560 (wages for 4 people/yr.)

PLUS

- 6 additional minimum wage jobs: ($15/hr. in CA in 2022 = $31,200/yr.) = ($187,220/6 jobs/yr.)
- A GRAND TOTAL of $370,780 could be generated in and around the general vicinity of the aggregate operation that employs 4 people.
- *Note: Aggregate operations tend to be “long lived.”

Cost Savings

Most construction projects on or near reservations rely on supplies of aggregate resources from non-Indian, off Reservation sources. This can be costly.

- This is because aggregate is expensive to transport. About $8.40/ton to transport 30 miles by truck ($0.28/T per mile.)
- Remote reservations have paid up to THREE times as much for materials than consumers in metropolitan areas due to the high cost of transportation.
- Solution: A tribe can develop its own aggregate resources, save money, maintain more roads and stretch its road budget.

Aggregates: Benefits of Owning and Operating the Business

Tribal Sovereignty in Action:

- **Tribal Independence**

- **Control over production of tribal resources**
  - **operations, managing costs, higher revenues, more jobs (tribal hiring preference)**
  - **no lease burdens**
  - **tailor future development plans to Tribe's needs, not developer's needs**

  - **Additional income supports additional economic development**
  - **economic engine, integrating strategic development projects**
  - **secondary markets**

Sand and Gravel: Benefits of Owning and Operating the Business

Tribes are able to control operations, manage costs and keep profits

- Tribal operations avoid federal and state taxes through correct company tax structure
- Able to access low-cost loans to support business needs
- Additional income supports additional economic development

Tribes can hire a contractor to run the day-to-day operations

- Contractor can be changed if they do not perform as expected
- Can require the contractor to hire qualified tribal members. Results in new tribal jobs and stable employment
- Can prioritize to allow for first providing products to Tribe and Tribal members

Tribes can expand the operations as they see fit

- Able to access grants to support further resource evaluation
- Can sell additional products to outside markets to grow the business

Solid Mineral Business Development

Strategy

100% Tribal ownership of Sand and Gravel Company

- Exercise Tribal Sovereignty
- Utilize local and external markets

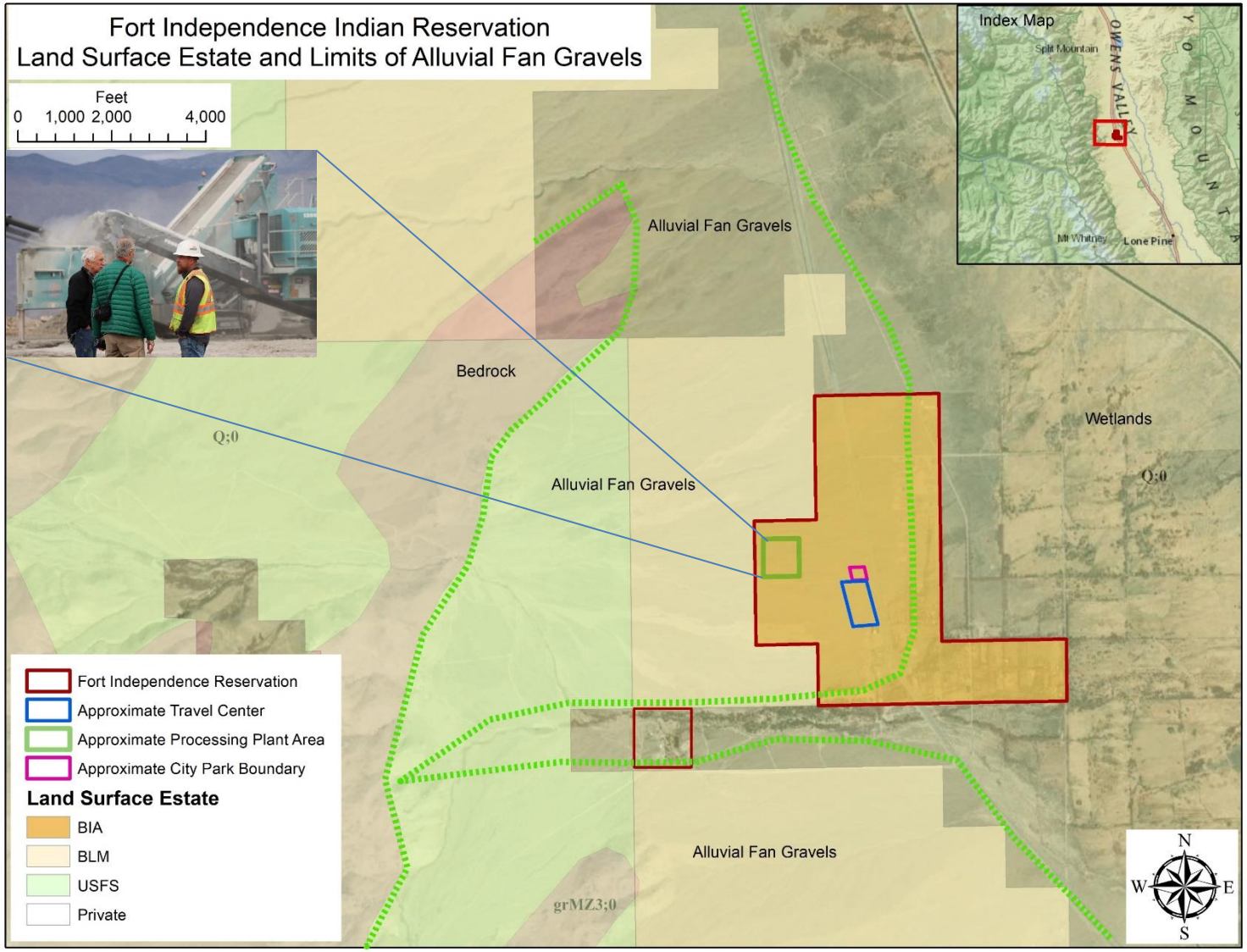
Create a Portfolio of Complimentary Projects

Fort Independence

- Portfolio of Complimentary Businesses and Projects
- Leverage grants and assistance from multiple Agencies
  - Housing Development (HUD grant)
  - Travel Center (EDA grant)
  - Sand & Gravel (DEMD Technical & Business Services)
  - Power production (DOE – Thermal & Wind)

Fort Independence Indian Reservation, CA Aggregate Business

- Tribe owns about 600 acres along U.S. Highway 395 with substantial high quality aggregate resource from alluvial fan gravels.
- Tribe requested DEMD technical assistance to start an aggregate business
- Tribe has four current projects that will yield approximately 1,100,00 tons of aggregate.
- Tribe is pursuing opportunities to purchase land to the west for possible future expansion.
- Tribe needs an EMDP grant to assess future long-term potential for additional reserves
- Five-year undiscounted income stream totals could be tens of millions of dollars.



Development Planning Team Members

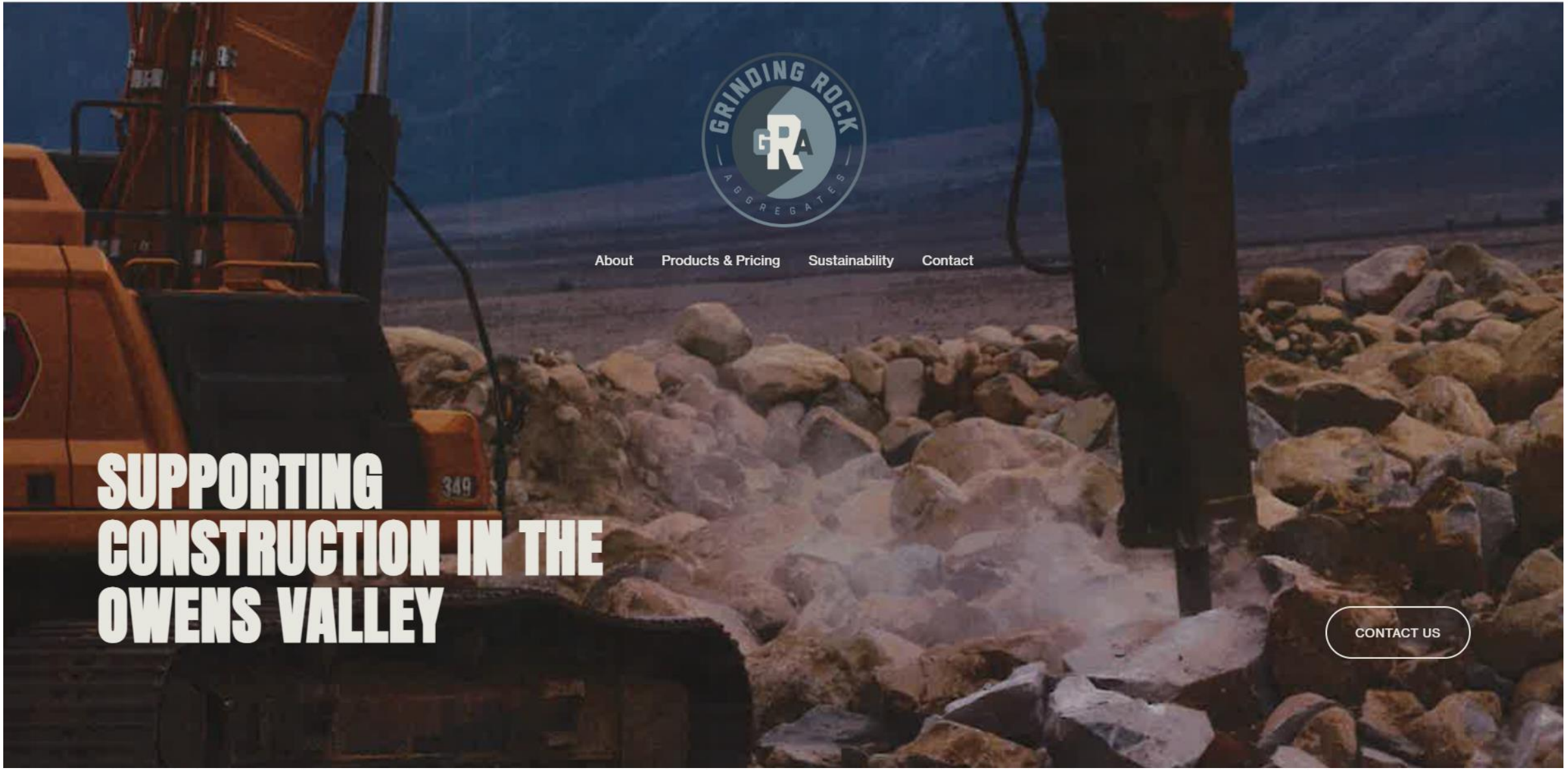
- Tribal Executives – Ft Independence Paiute Tribe
- Construction Manager – Ft Independence Contractor
- Product Marketing Specialist - Ft Independence Contractor
- Team Manager - DEMD
- Mining Engineer – DEMD
- Solid Minerals Geologist – DEMD
- Economics & Business Management Specialist (MBA) - DEMD
- Finance & Business Architecture Specialist (MBA) - DEMD
- Business Marketing & Branding Team – DEMD
- Loan Guarantee Program – Division of Capital Investment (DCI)

Services Provided to the Tribe

- Project Structuring – DEMD
- Basic Geologic Assessment - DEMD
- Volume/Year - DEMD
- Plant Design - DEMD
- Capex/Opex - DEMD
- Cash Flow Analysis - DEMD
- Internal/External Market Analysis - DEMD
- Business Plan – DEMD
- Sales Contracts - DEMD
- Land Acquisition Planning and Assistance - DEMD
- Mine Life Estimate – Tribe applied for EMDP grant – DEMD
- Branding/Production of Marketing Material - DEMD
- Indian Loan Guarantee Program Requirements – Division of Capital Investment (DCI)

SOLID MINERALS

Grinding Rock Aggregates Website (https://grinding rocks.com)



Fort Independence Paiute Chairman's Comments

Closing Remarks about DEMD, at the conclusion of the First Development Team Meeting

"I feel like we have a dream team working together with us"

- Chairman Carl Dahlberg
Fort Independence Paiute Tribe

Questions?

Additional Information

- Critical Elements (Executive Order 14017): Importance of developing critical elements (and Rare Earth Elements (REE)).
- Hydrogen (Types/sources)
- All Metals mined (graphical representation)

SOLID MINERALS

Chart of the Week

THE 35 MINERALS CRITICAL TO U.S. NATIONAL SECURITY

This draft list of minerals deemed essential to the economic and national security was released Feb 16, 2018

> "...our nation's mission [is] to reduce our vulnerability to disruptions in the supply of critical minerals. Any shortage of these resources constitutes a strategic vulnerability for the security and prosperity of the United States."
>
> —Dr. Tim Petty, Assistant Secretary of the Interior for Water and Science

How to read this

INDICATES GOVERNMENT STOCKPILE

LESS RELIANT ON IMPORTS → COMPLETELY RELIANT ON IMPORTS

Critical Minerals List	NET EXPORTER / NET IMPORT RELIANCE	EXAMPLE USES
HAFNIUM	E	*Nuclear control rods, alloys, ceramics*
HELIUM	E	*MRIs, lifting agent, research*
BERYLLIUM	14%	*Alloying agent in aerospace and defense industries*
MAGNESIUM	47%	*Furnace linings for manufacturing steel and ceramics*
GERMANIUM	50%*	*Fiber optics, night vision applications*
LITHIUM	50%*	*Batteries*
TUNGSTEN	50%*	*Used in wear-resistant metals*
ZIRCONIUM	50%*	*High-temperature ceramics production*
ALUMINUM	61%	*Used in almost all sectors of the economy*
PLATINUM-GROUP METALS	68%†	*Catalytic agents*
CHROMIUM	69%	*Stainless steel, other alloys*
COBALT	72%	*Rechargeable batteries, superalloys*
TIN	75%	*Coatings and alloys for steel*
BARITE	78%*	*Cement and petroleum industries*
TELLURIUM	78%*	*Steelmaking, solar cells*
RHENIUM	80%	*Lead-free gasoline, superalloys*
ANTIMONY	88%	*Batteries, flame retardants*
TITANIUM	91%	*White pigment, metal alloys*
POTASH	92%	*Fertilizer*
BISMUTH	96%	*Used in medical and atomic research*
VANADIUM	100%	*Used for titanium alloys*
CESIUM	100%	*Used in research and development*
FLUORSPAR	100%	*Aluminum manufacturing, gasoline, uranium fuel*
GALLIUM	100%	*Integrated circuits, optical devices (e.g. LEDs)*
GRAPHITE	100%	*Lubricants, batteries, fuel cells*
INDIUM	100%	*LCD screens*
MANGANESE	100%	*Steelmaking*
NIOBIUM	100%	*Steel alloys*
RARE EARTHS	100%	*Batteries, electronics*
RUBIDIUM	100%	*Research and development in electronics*
SCANDIUM	100%	*Alloys, fuel cells*
STRONTIUM	100%	*Pyrotechnics, ceramic magnets*
TANTALUM	100%	*Electronic components (e.g. capacitors)*
ARSENIC	100%	*Lumber preservatives, pesticides, semi-conductors*
URANIUM	?**	*Nuclear fuel*

HELIUM

The Federal Helium Reserve is the world's only sizable long-term storage facility for crude helium. In recent years, the U.S. has become the world's major source of helium as global demand has risen sharply.

In the summer of 2017, an embargo of products from Qatar caused a temporary shortage of Helium.

ALUMINUM

U.S. production of primary aluminum decreased for the fifth consecutive year and is now at its lowest level since 1951.

PGMs

The price of platinum was down slightly due to a decrease in demand for diesel automobiles, in which platinum is used in catalytic converters.

Conversely, the other metals in the group saw significant average price increases in 2017:

Iridium	Up 55%	Palladium	Up 39%
Rhodium	Up 51%	Ruthenium	Up 45%

COBALT

About 45% of the cobalt consumed in the United States was used in superalloys, mainly in aircraft gas turbine engines. As well, cobalt is a key component in many lithium-ion batteries.

Congo (Kinshasa) continued to be the world's leading source of mined cobalt, supplying more than one-half of world cobalt mine production.

VANADIUM

Increased environmental inspections in China have continued to temporarily, or in some cases permanently, close some vanadium producers. As a result, ferrovanadium prices reached their highest point since November 2008.

RARE EARTHS

Rare earth compounds and metals are widely used in batteries and electronics. China is the source of nearly 80% of U.S. imports.

URANIUM

About 11% of the uranium delivered to U.S. reactors in 2017 was produced in the United States and 89% came from other countries.

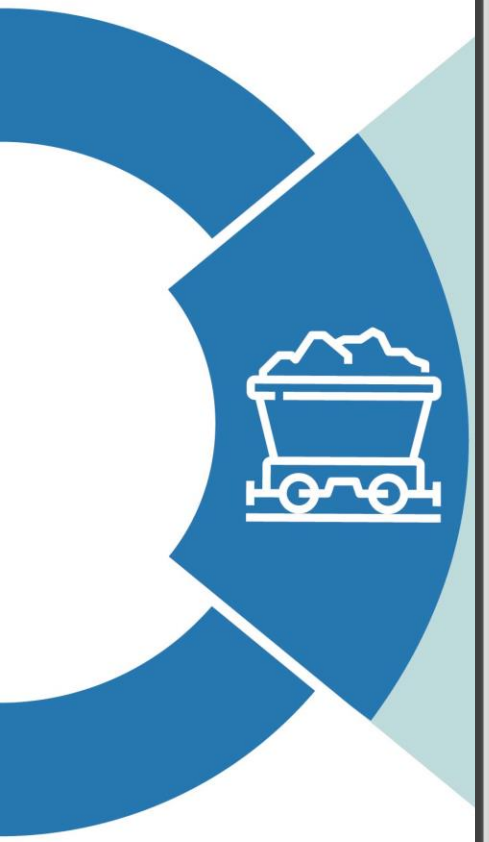
> "Today's extreme dependence is not a matter of foreign competition legitimately underpricing domestic production. It is the result of certain foreign state-subsidy policies that undermine U.S. companies who could otherwise compete fairly on a global basis."
>
> —Energy Fuels and Ur-Energy Petition

SOURCE: U.S. Department of Interior, Bureau of Land Management

*Estimate †Net import reliance total for platinum specifically **No data available

visualcapitalist.com

THE COLORS OF HYDROGEN



GREEN

Hydrogen produced by electrolysis of water, using electricity from renewable sources like wind or solar. Zero CO_2 emissions are produced.

BLUE

Hydrogen produced from fossil fuels (i.e., grey, black, or brown hydrogen) where CO_2 is captured and either stored or repurposed.

GREY

Hydrogen extracted from natural gas using steam-methane reforming. This is the most common form of hydrogen production in the world today.

PURPLE/PINK

Hydrogen produced by electrolysis using nuclear power.

TURQUOISE

Hydrogen produced by thermal splitting of methane (methane pyrolysis). Instead of CO_2, solid carbon is produced.

BROWN/BLACK

Hydrogen extracted from coal using gasification.

YELLOW

Hydrogen produced by electrolysis using grid electricity from various sources (i.e., renewables and fossil fuels).

WHITE

Hydrogen produced as a byproduct of industrial processes. Also refers to hydrogen occurring in its (rare) natural form.

Applied Economics Clinic

ALL THE METALS WE MINED
IN 2021

The world produced roughly **2.8 billion tonnes** of metals in 2021.
Here are all the metals we mined, visualized on the same scale.

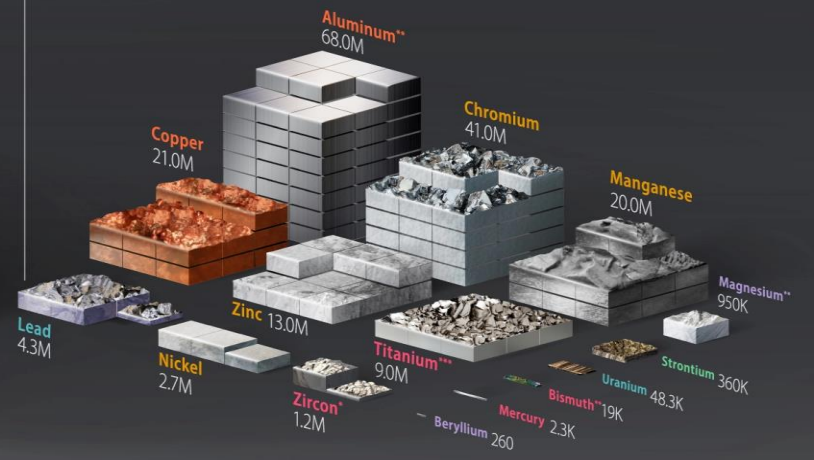
IRON ORE
2,600,000,000 tonnes*

= 1,000,000 tonnes

LARGEST END-USE

- Steelmaking
- Construction
- Chemicals
- Alloying Agents
- Energy/Batteries
- Magnets
- Electronics
- Other

INDUSTRIAL METALS
181,579,892 tonnes



TECHNOLOGY AND PRECIOUS METALS
1,474,889 tonnes

ELEMENTS

Source: *USGS Mineral Commodity Summaries (2022)*

**Ore production does not reflect actual metal production as metals only make up a certain portion of ores.*

***Smelter/refinery production.*

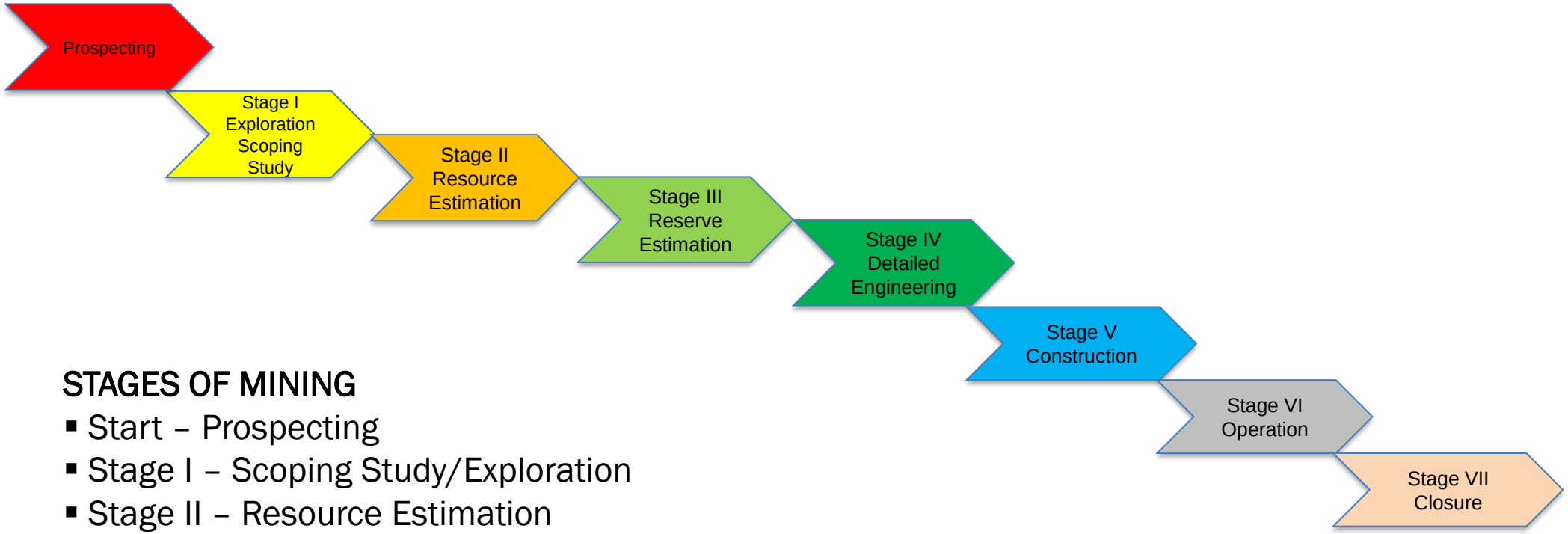
****Represents titanium mineral concentrate production.*

ELEMENTS.VISUALCAPITALIST.COM

Work DEMD Solid Minerals does (behind the scenes)

- The next few slides are graphical examples of what we (DEMD) does in assisting tribes identify, plan, develop, close and reclaim an aggregate operation…

Importance of the Prospecting and the Initial Scoping Study in the Development Stages of a Mining Project



STAGES OF MINING

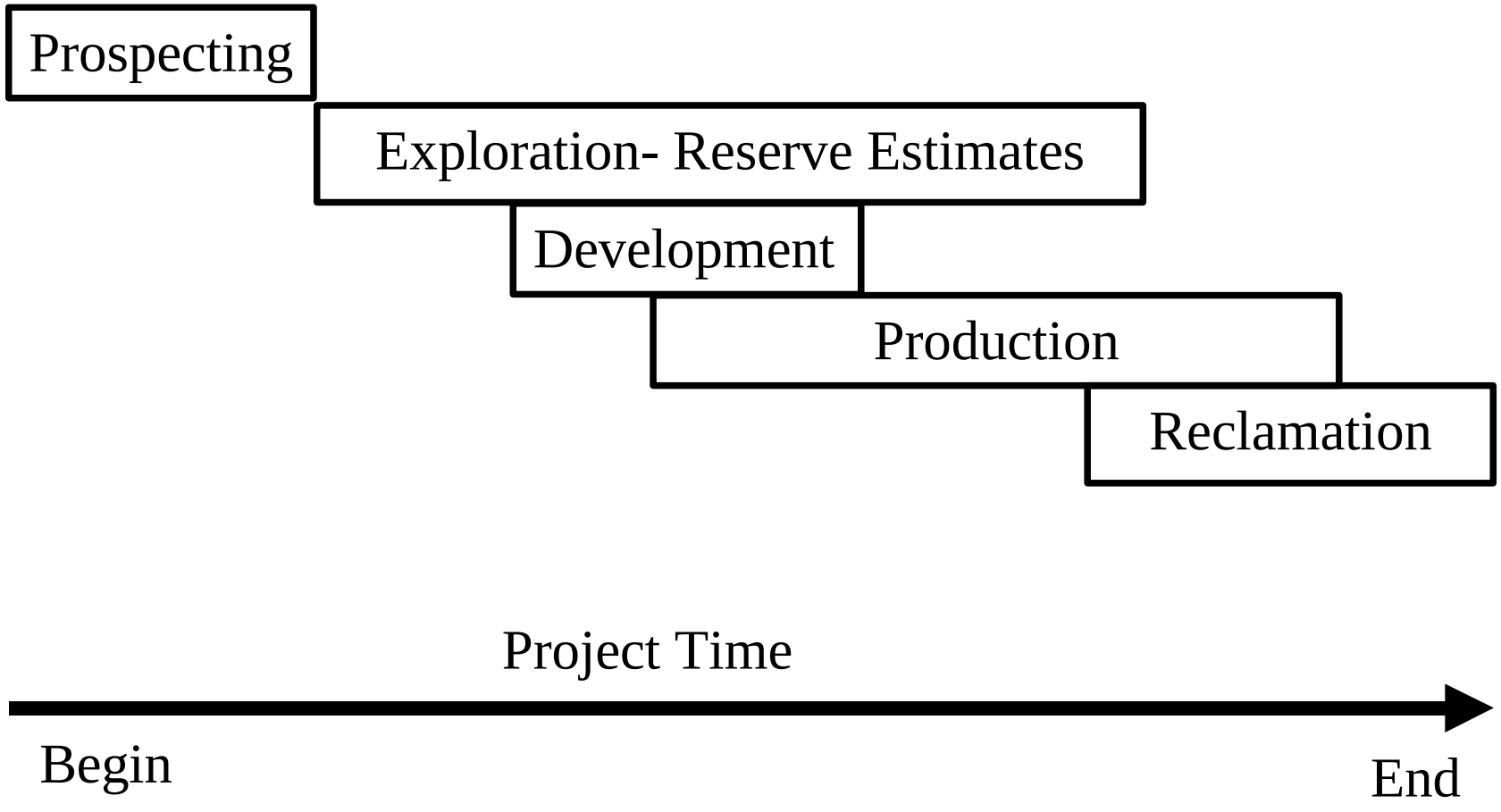
- Start – Prospecting
- Stage I – Scoping Study/Exploration
- Stage II – Resource Estimation
- Stage III – Pre-Feasibility Study/Reserve Estimation
- Stage IV – Feasibility Study/Detailed Engineering
- Stage V – Construction
- Stage VI – Operation
- Stage VII - Closure

Mining Studies Chart

Criteria	Technical & Economic Studies		
Study	Preliminary Economic Assessment (PEA)	Prefeasibility Study (PFS)	Feasibility Study (FS)
Concept	"What it could be"	"What it should be"	"What it will be"
Objective	Early stage conceptual assessment of the potential economic viability of mineral resources	Realistic economic and engineering studies sufficient to demonstrate economic viability and establish mineral reserves	Detailed study of how the mine will be built, used as the basis for a production decision
Cost Accuracy	+/- 50%	+/- 25%	+/- 15%
Engineering	<1%	1-5%	5-25%
Mineral Estimate Inputs	Inferred/Indicated/ Measured Resources	Indicated & Measured Resources	
Mineral Estimate Outputs	Inferred/Indicated/ Measured Resources	Probable & Proven Reserves	

Source: SmallCapInvestor. A Beginners Guide to PEA's and Feasibility Studies.

Prospecting



Elements of a Mine Scoping Study

1 Introduction	Site location/topography map and history
2 Geology and exploration	Geological description, drilling, and sampling
3 Resource sand reserves	Resources and reserves analysis details
4 Mining	Mining method and capital/operation cost estimate
5 Processing	Engineering of process and design
6 Infrastructure	Power, facilities, and communications
7 Hydrology	Water resources and dewatering requirements
8 Development schedule	Project development plan and master schedule
9 Capital cost estimate	Basis, unit cost, and accuracy
10 Economic evaluation	Financial and marketing analysis
11 Risk evaluation	Project risk assessment

Main Features of a Prefeasibility Study

- Location and description of the project
- Regional and local geology
- Mineral resource estimate and model
- Reserve conversion
- Preliminary studies completed on geotechnical, environmental and infrastructure requirements
- Mine design based on a resource model, best alternatives selected from a range of alternatives
- Mine sections and level plans
- Mining method(s) and extraction sequence

- Ore handling
- Bench scale metallurgical tests and preliminary process design completed
- Process plant
- Mill flow sheet
- Pre-production construction schedule
- Production schedule
- Capital and operating cost estimate
- Preliminary financial evaluation and risk analysis.

Elements of a Feasibility

1. Executive Summary
2. Introduction
3. Property Description
4. Accessibility, Climate, Local Resources, Infrastructure and Physiography
5. History
6. Geological Setting, Mineralization and Deposit
7. Exploration
8. Sample Preparation, Analysis and Security
9. Data Verification
10. Mineral Processing and Metallurgical Testing
11. Mineral Resource Estimate
12. Mineral Reserve Estimate
13. Mining Method
14. Processing and Recovery Methods
15. Infrastructure
16. Market Studies
17. Environmental studies, permitting, and plans, negotiations, or agreements with local individuals or groups
18. Capital and Operating Costs
19. Economic Analysis
20. Adjacent Properties
21. Other relevant data and information
22. Interpretation and Conclusions
23. Recommendations
24. References
25. Reliance on information provided by the registrant

Business Structures

Business Services

Provides strategic financial analysis, business structure consultation, and economic development planning guidance across all energy and mineral development projects.

Key Services offered to Tribes:

- Strategy and Portfolio Development
- Business Planning, Entity Formation & Project Management
- Deal Structuring & Evaluation
- Financial Analysis
- Assistance Accessing Grant Funding and Loan Guarantee Financing
- Marketing Department offers a wide variety of marketing services to energy and mineral projects

Payton Batliner | Branch Chief of Business Services

Business Team Advisory Initiatives

Strategic Planning

- Tribe Specific & Regional Alignment
  - Portfolio Evaluation & Development
  - Financial Analysis
- Interagency Alignment
  - DEMD, DOE, EDA, FEMA, USDA, etc.

New Ventures

- Business Planning
- Deal Structuring & Evaluation
- Financial Modeling
- Project Finance
  - Access to Grants, Loan Guarantees, and other sources of funding

Questions?

Time for a

Break

(5 minutes)

*Optional information on types of tribal business structures

The Tribal Corporation

- Tribally-chartered corporation
- Section 17 federal corporation
- Tribally Chartered LLC
- State corporation
- State Limited Liability Company (LLC)

Section 17 Corporation

Federally-chartered (Section 17 of Indian Reorganization Act of 1934)

Charter may be general (any legal activity) or specific, such as mineral only

Board of directors can include non-tribal members

Tribal Council may assign a lease to a Corporation

- » Corporation may operate the property itself
- » Corporation may sublease to a third party
- » Corporation may form a joint venture with a third party

Any lease assignment or agreement with a third party is subject to approval by Tribal Council and BIA

Section 17 (continued)

- **Traditional corporations (Federal, State, Tribal) all have common components:**
  - They are all operationally more rigorous
  - They all have strict requirements such as requiring:
    - A board
    - quarterly meetings
    - annual reporting
    - etc.

Tribally Chartered LLC

- **Tribally chartered LLC**
  - Can only be utilized if business codes are already in place.
  - Its's quick and easy!
  - The structure is a widely understood corporate structure (e.g., with groups and institutions such as potential business partners, banks, equipment manufacturers, etc.)
  - It provides for non-tax status

Agreement and Business Structures

- Lease
- Joint Venture
- 100% Tribally-owned operating company
- 100% Tribally-owned with a “service contract”

Lease: Potential Lease Income Sources

A lease is "A contract between a landowner and another, granting the latter the right to search for and produce oil or mineral substances upon payment of an agreed rental, bonus, and/or royalty."

Dictionary of Mining, Mineral, and Related Terms, Second Edition

The royalty should include protection from sales to other entities

- It should be based on a percentage of the gross sales amounts
- It could be based on a fixed amount of $'s per ton, or per cubic yard, with provisions for escalation
- In-kind option

Other provisions could include:

- Minimum yearly royalty (Discourages lessee from "sitting" on property)
- Advance royalty payments paid back over time from production royalties
- Bonus (non-refundable). Paid upon some milestone (e.g., signing agreement, issuance of permits)

Lease: Potential Lease Income Sources (continued)

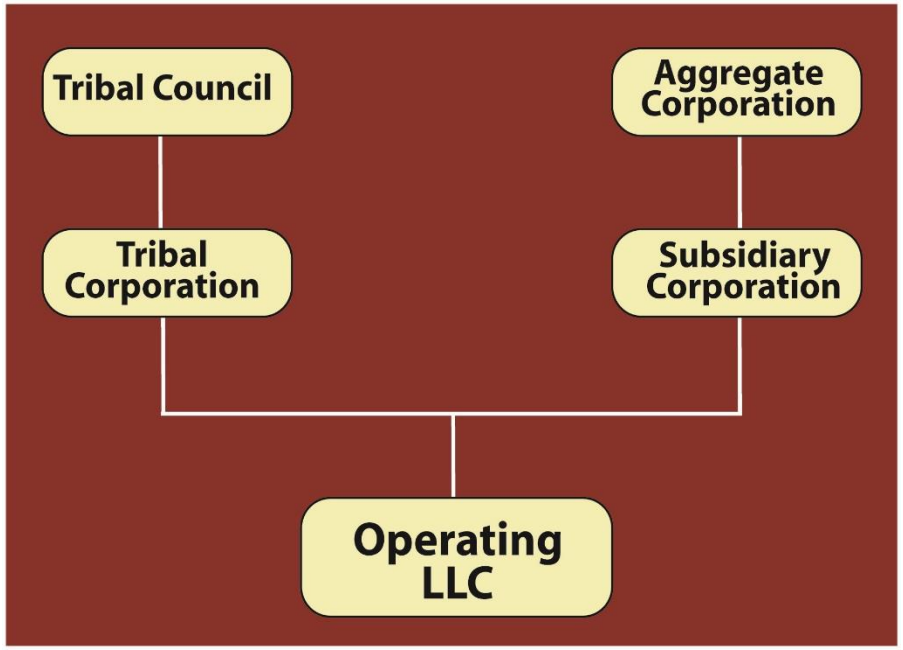
Could be based on the percentage of after-tax net profits (if any), not on a percentage of the gross sales amounts. But be aware that this could encourage the lessee to reduce tax liabilities and payments to the lessor by increasing deductible expenses such as corporate overhead, equipment purchases, etc.). This would reduce the after-tax profits of the lessee.

Other potential Tribal Income Streams:

- **Tribal severance tax**
- **Tribal Employment Rights Office (TERO) fees**
- **Tribal income tax**
- **Tribal property or other taxes**
- **Surface rental for other activities (business lease)**

Joint Venture

- Tribe supplies mineral and surface rights and perhaps some capital
- Operating partner supplies capital and expertise
- Operating partner will want to retain at least 51% to maintain control
  (Note that operating partner will pay federal and state taxes while Tribe will not)



Joint Venture Separated Model

Joint Venture Working Interest | Carried interest

- Operating partner acts as bank to finance Tribe's portion
- Tribe pays back loan from part of operating income only
- No risk to Tribe if venture fails

Joint Venture Working Interest | At risk interest

- Tribe borrows money from outside financial organization and must repay funds from operating income, bonus, royalties, savings, or other sources (federal guaranteed loan program may be available)

Joint Venture Working Interest | Granted interest

- Tribe receives percentage of operation either at outset, after capital investment has been recovered, or at some other point

100% Tribally-Owned Operation

Advantages

No taxes

Will initiate Federal contract preference and assistance, such as:

- Disadvantaged Business Enterprise (DBE) program –Department of Transportation
- Small Disadvantaged Business (SDB) program
- 8(a) Business Development program

Equivalent state programs

100% Tribally-owned but with a "service contract"

Advantages of signing a "service contract":

No taxes

Control over decision making

No Lease involved

No Federal action involved

Federal contract preference and assistance

- Disadvantaged Business Enterprise (DBE) program –Department of Transportation
- Small Disadvantaged Business (SDB) program
- 8(a) Business Development program

Business Structure Summary

Business Type	Advantages	Disadvantages
Lease (Royalty)	No capital required No marketing or technical expertise required No financial risk since royalties are paid whether operation is profitable or not	Least income to Tribe (but can still be good)
Joint Venture	Can potentially provide more income to Tribe than a lease agreement	May have to provide some capital
100% Tribal Entity (not state corporation)	Usually, greatest income to Tribe if profitable No federal taxes DBE advantage and other benefits	Tribe must obtain capital Financial risk Marketing and technical expertise required
100% Tribally owned with a "service contract"	Same as above	Same as above

Permits or Leases and Better Business Practices

- Traditionally, tribes lease their resource to a lessor, who, in turn, obtains a permit to operate.
- *Lease* means a written agreement between Indian landowners and a tenant or lessee, whereby the tenant or lessee is granted a right to possession of Indian land, for a specified purpose and duration. Unless otherwise provided, the use of this term will also include permits, as appropriate.
- *Permit* means a written agreement between Indian landowners and the applicant for the permit, also referred to as a permittee, whereby the permittee is granted a revocable privilege to use Indian land or Government land, for a specified purpose.
- "Permits" are, in essence, a standardized version of exercising better business practices.
- If a permit is NOT obtained, best business practices should ALWAYS be followed!

Tribes can Assume the Permitting Process

(But absolutely should Employ Best Business Practices)

- Utilizing a process like the 638 process
- The Tribe must demonstrate the capability to administer the permitting process
- The Tribe must demonstrate the capability to administer environmental compliance
- BIA must still sign off on the permit
- **Example: Fort Berthold: TAT has control over the entire leasing process**

By replacing the traditional NEPA permitting functions with your own, you can "get down to business" much faster!

Advantages of obtaining a permit?

- A formalized process with formalized parameters
- A permit provides assurances that the resource will be accounted for, and that a proper mining and reclamation plan will be followed
- A permit will allow for production verification and/or resource accountability
- A permit will mitigate future environmental issues
- With a certified aggregate resource and a permit to mine the Tribe is open and ready for business

Why Obtain a Permit?

Obtaining a permit to mine includes:

- Mine Plan
- Reclamation Plan
- Bonding

Disadvantages of obtaining a permit?

- A formalized process with formalized parameters. Lacks creativity, one size fits all
- Involves numerous Federal Agencies. This can lead to delays in the permitting process
- Restricts Tribal Control of the process. Tribes generally know what works best for them

- Note: The last four bullets of the previous slide can all be accomplished successfully, if the Tribe exercises “Best Business Practices”

Why Obtain a Permit?

Obtaining a permit to mine includes:

- Mine Plan
- Reclamation Plan
- Bonding

What is "Environmental Compliance?"

- Traditionally, "Environmental" usually refers to the guidelines stated in National Environmental Policy Act (NEPA)
- Other Federal/State/Local environmental laws must also be observed.
- "Compliance" means following the guidelines outlined within these laws.
- **But** if Tribes are willing to exercise their inherent sovereignty, they can assume much or all the NEPA compliance procedures
- **But** Tribes need to demonstrate that they have proper rules and regulations in place AND have trained personnel to carry out the enforcement of those rules and regulations.
- **The poster child is TAT. They control the entire permitting/ NEPA process**

Environmental Compliance

- Utilizing a process like the 638 process
- Tribe must demonstrate the capability to administer environmental compliance
- Tribe must demonstrate the capability to adhere to various federal laws (NEPA, Clean Air, Clean water, etc.) and have tribal rules/regulations in place.

Example: Three Affiliated Tribes at Fort Berthold: Tribes have control over the entire leasing process, including NEPA

Example: Oglala Sioux Tribe at Pine Ridge: Tribe has control over the NEPA process

Note: The EPA must still approve the environmental compliance, if it is an EIS

Who Approves What?
"Traditional Standard Operating Procedures"

Bureau of Indian Affairs (BIA)

- *Mineral agreements
- *Exploration and mining permits
- *NEPA

Bureau of Land Management (BLM)

- Mine and reclamation plans

U.S. Army Corps of Engineers (CE)

- Mining permit (if there is water)

*** NOTE: The Division of Energy and Mineral Development and the Office of Trust Services are spearheading an effort to provide uniformity within the Department of the Interior regarding Standard Operating Procedures.**

NEPA Categories

Categorical Exclusion (CatEx)

- Trenching
- Drilling (Depends on BIA Region)

Environmental Assessment (EA)

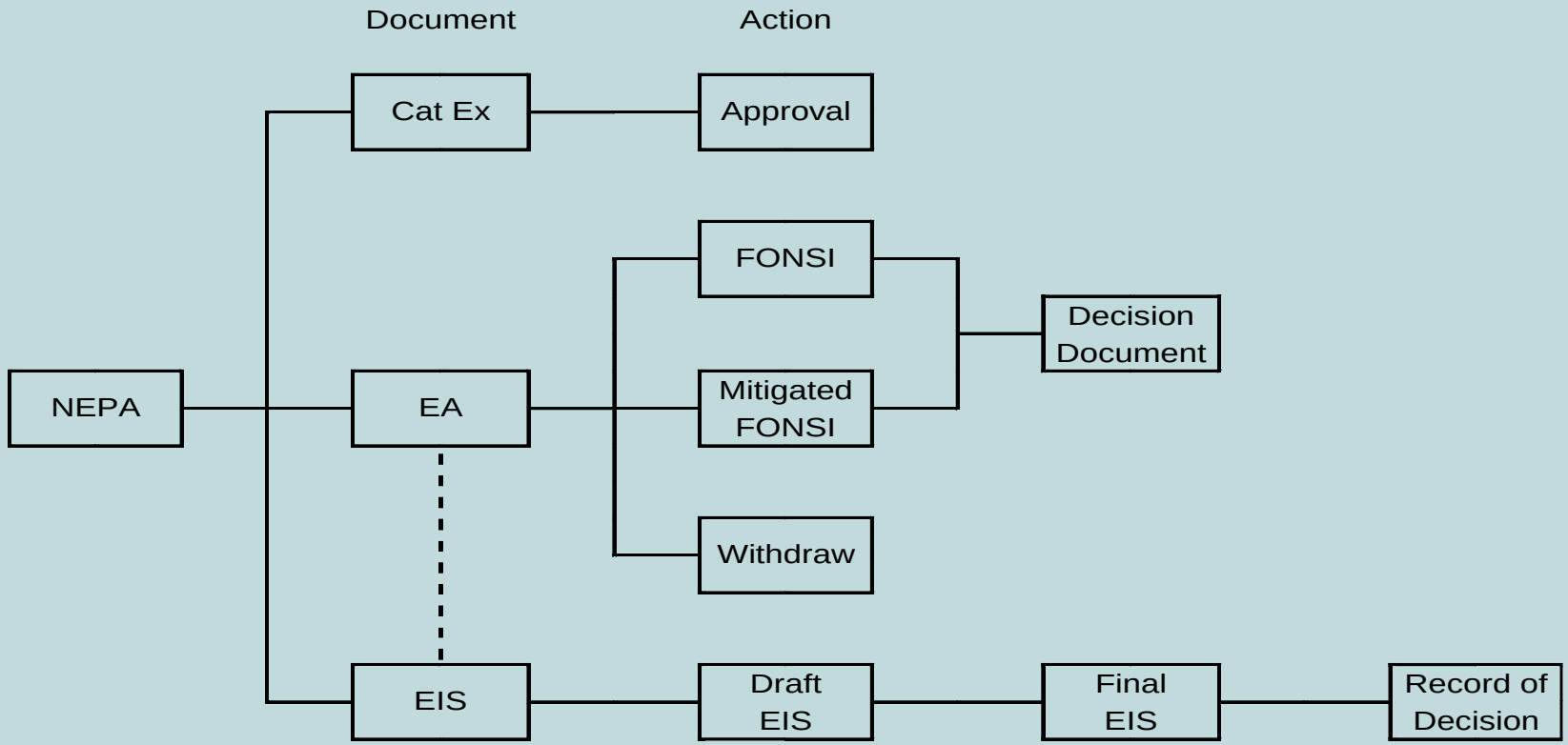
- Drilling (Depends on BIA Region)
- Mining – small or medium

Environmental Impact Statement (EIS)

- Mining – large

NOTE: The Division of Energy and Mineral Development and the Office of Trust Services are spearheading an effort to provide uniformity within the Bureau of Indian Affairs in regard to Categorial Exclusions and Environmental Assessment procedures.

The NEPA Process



NEPA: National Environmental Policy Act
Cat Ex: Categorical Exclusion
EIS: Environmental Impact Statement

EA: Environmental Assessment
FONSI: Finding of No Significant Impact

Guaranteed Loan Program Resources

- Program is for tribes and tribal members
- The Business must be at least 51% Indian-owned
- The Business does not have to be located on the Reservation or on an allotted tract
- The maximum loan amount is 80% (other 20% is equity)
- 90% of the loan is guaranteed
- Fees can be included in the loan amount

For details contact:
Division of Capital Investment
Office of Indian Energy and Economic Development

Division of Capital Investment (DCI)

- The Division of Capital Investment manages the Indian Loan Guarantee Program

"Through the Indian Loan Guarantee Program (ILGP) the Division of Capital Investment (DCI) helps American Indian and Alaska Native (AI/AN) tribes and individuals overcome barriers to conventional financing and secure reasonable interest rates, while also reducing the risk to lenders by providing financial backing from the federal government."

- DCI can provide tribes with much need financial assistance.
- DEMD has personnel to assist Tribes in the process of purchasing additional lands, distressed properties, etc. and put those properties into trust status. This process can be financed through the loan guarantee program, which is offered by its sister Division, DCI.

CONTACT

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