Energy and Mineral Development Program (EMDP):

- Provides financial assistance and in-house technical support to Tribes for performing data collection and investigations of their energy and mineral potential.
- An annual program using a competitive evaluation process to select proposed projects from tribes.
- Tribes use this information to
  - plan where they want development to occur;
  - promote their lands to industry partners;
  - negotiate the best economically beneficial agreement with partners;
  - develop the resource themselves
2014 EMDP Grant Awards

• DEMD received a total of 79 proposals from tribes totaling just over $28 million
• Over $9.46 million was awarded to 45 tribal projects for the 2014 EMDP grant year

Funded Project by Commodity

<table>
<thead>
<tr>
<th>COMMODITY</th>
<th>NUMBER</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewable Energy</td>
<td>17 projects</td>
<td>$2,059,413</td>
</tr>
<tr>
<td>Conventional Energy (Oil &amp; Gas, Geothermal)</td>
<td>10 projects</td>
<td>$2,504,883</td>
</tr>
<tr>
<td>Mineral</td>
<td>13 projects</td>
<td>$1,996,000</td>
</tr>
<tr>
<td>Navajo Coal</td>
<td>1 project</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Hydro Projects</td>
<td>4 projects</td>
<td>$1,900,000</td>
</tr>
</tbody>
</table>
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.
Tribal Economic Development through Renewable Energy Development

Primary reasons behind a Tribe’s desire to develop renewable energy projects included one or more of the following topics:

• Sovereignty
• Energy Independence, Security, and Diversification
• Environmental Benefits and Sustainability
• Economic Impact
• Dissatisfaction with the current electricity supplier

One project often cannot address all of these topics – so must either assess resource opportunities and match to goals, or prioritize goals and assess resource opportunities that align with top goal(s).

“If you don’t know where you are going, you’ll end up someplace else.” - Yogi Berra
Average Residential Electricity Rates

<table>
<thead>
<tr>
<th>State</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>$0.12/kWh</td>
</tr>
<tr>
<td>Minnesota</td>
<td>$0.12/kWh</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>$0.14/kWh</td>
</tr>
<tr>
<td>Michigan</td>
<td>$0.14/kWh</td>
</tr>
<tr>
<td>Iowa</td>
<td>$0.12/kWh</td>
</tr>
</tbody>
</table>
Midwest Region – Heating Market

Rising Fuel Prices:

- Frigid temperatures
- Increased demand for drying crops
- Supply shortages
Energy Development Strategies

Local resources → Local energy → Local economic impact
Renewable Energy Resources

Secondary (Waste) Products for Local Energy

Biomass Wastes
- Food wastes
- Saw mill waste
- Forest waste
- Municipal solid waste
- Crop waste
- Animal waste
- Waste water treatment plants
- Any other waste from nearby industry, including heat waste

Cogeneration
- Utilize both heat and power
- Increased system efficiency
- Greater rate of return on investment

Natural Gas:
- Gas from nearby pipeline
- Heat from nearby compressor station
Opportunities in the Midwest Region

BIOMASS

- **Community Scale**
  - Wood chips or pellets for boilers/stoves

- **Industrial Scale**
  - Chip and/or pellet manufacturing
  - Combined heat and power (CHP)

- **Utility Scale**
  - Large power plants are tough

**Feasibility Considerations**
- Existing building energy systems
- Detailed resource assessment
- Complimentary to forest management

### DEMD Biomass Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bad River CHP for Casino</td>
<td>CHP for Casino and community</td>
</tr>
<tr>
<td>Bois Forte District heating</td>
<td>District heating for tribal buildings</td>
</tr>
<tr>
<td>Fond du Lac Wood boiler</td>
<td>Wood boiler for heating community buildings</td>
</tr>
<tr>
<td>Fond du Lac Micro wood chipping</td>
<td>Micro wood chipping study</td>
</tr>
<tr>
<td>Forest County Potawatomi Anaerobic Digestion</td>
<td>Anaerobic Digestion</td>
</tr>
<tr>
<td>Ho-Chunk Anaerobic Digestion</td>
<td>Anaerobic Digestion</td>
</tr>
<tr>
<td>Ho-Chunk Waste Gasification</td>
<td>Waste Gasification</td>
</tr>
<tr>
<td>Menominee CHP for MTE saw mill</td>
<td>CHP for MTE saw mill</td>
</tr>
</tbody>
</table>
Opportunities in the Midwest Region

NATURAL GAS

• Community Scale
  o Home heating

• Industrial scale
  o Combined heat and power

Feasibility Considerations
  o Access to pipeline infrastructure
Blue Lake Rancheria

Combined Heat and Power Project
Utilizing Sawmill Wood Waste

• **Goal:** create local heat and power supply that can be used when the local grid experiences power outages.

• **Resource:** sawmill wood waste

• **Project:**
  
  o Wood waste is used to create a synthetic gas, which is purified and used in a fuel cell to create reliable electricity for the casino/convention center.
  
  o The casino/convention center is the local meeting area during power outages.

**Anticipated outcome:**

- Jobs – power plant operations
- Reliable electric supply
- Decrease use of diesel during power outages
Opportunities in the Midwest Region

ENERGY EFFICIENCY

• Easiest way to save
  o Change your light bulbs
  o Reduce heat loss

• Generally not funded through EMDP

Emerging opportunity
• Carbon credits from efficiency upgrades

Fond Du Lac Case
LED light upgrade at Black Bear Casino
Paid for itself after one year of energy savings
Opportunities in the Midwest Region

**Geothermal**

- **Community Scale**
  - Geothermal Heat pumps
  - Some limitations in the Midwest

**Feasibility Considerations**

- Geology
- EMDP can support engineering work
Opportunities in the Midwest Region

HYDRO

- Industrial/Utility Scale
  - Retrofit existing dams or irrigation systems

Feasibility Considerations
- Cost to retro-fit
- Dam safety upgrades
- Access to transmission lines

Menominee Case
Feasibility to retrofit Neopit dam
Payback 20+ years
Could revisit with BIA if/when upgrades occur
Opportunities in the Midwest Region

**SOLAR**

- **Community Scale**
  - Roof-top PV, net meter
  - Solar thermal heating
  - Incentive driven
    - New Minnesota RPS solar carve out
    - 1.5% by 2020 for public utilities
    - 10% must be solar PV systems <20 kW each

### Feasibility Considerations
- Companies will assess for free
- EMDP can pay for engineering work

### DEMD Solar Project

<table>
<thead>
<tr>
<th>Fond du Lac</th>
<th>Engineering for 1 MW ground mount near Casino</th>
</tr>
</thead>
</table>
Opportunities in the Midwest Region

WIND

• **Community Scale**
  - Small scale, net meter
  - Historical challenges with O&M

• **Utility scale**
  - Land lease
  - Dwindling incentives, uncertain future

Feasibility Considerations
  - Policy incentives
  - Net metering rules

White Earth Case
50 kW @ Naytahwaush
Humanity Center

35 kW @ Ojibwe
Building Supply

New 750 kW
## Contact Us!

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter Jojola-Talburt</td>
<td>720-407-0668</td>
<td><a href="mailto:winter.jojola-talburt@bia.gov">winter.jojola-talburt@bia.gov</a></td>
</tr>
<tr>
<td>Jennifer Reimann</td>
<td>720-407-0669</td>
<td><a href="mailto:jennifer.reimann@bia.gov">jennifer.reimann@bia.gov</a></td>
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Assistant Secretary – Indian Affairs

Division of Energy and Mineral Development

Website:

http://www.bia.gov/WhoWeAre/AS-IA/IEED/DEMD/