DOE’s Tribal Energy Program

Pathways to Energy Development & Energy Security

March 24, 2013
Lizana Pierce, Project Manager
Pathway to Project Development

- Creating a roadmap
- Possible roads to the future
- Vehicles of change
- Where the rubber meets the road
Begins with an Energy Vision

“The Energy Vision of the Penobscot Nation is to maximize the efficiency of energy usage and develop energy resources in ways that will sustain current and future generations by addressing the economic, environmental, and social issues of energy within the context of Penobscot Indian Nation culture, traditions and established tribal policies for the wise use of our forest, water, and wind resources.” (Courtesy of Penobscot Nation Grant DE-FG36-05GO15175)

“The Organized Village of Kasaan’s energy vision is of a healthy, efficient, sustainable community, having our own renewable energy system which supplies Kasaan as well as other communities with reasonably priced power, improving the overall well-being of our area.” (Courtesy of Organized Village of Kasaan DE-EE0005050)
Strategic Energy Planning
1) Defining where you are,
2) Where you want to end up,
3) What are your energy options, and
4) Developing a plan to get there.

Intended to result in a long-term sustainable plan for energy sufficiency or energy development on tribal lands.
Strategic Energy Planning

- **Consumer Energy Efficiency** — home weatherization, energy-efficient appliances, lighting, heating and air conditioning, water heating, duct repair, motors, refrigeration, energy-efficient construction, appliance timers and controls, thermal storage, and geothermal heat pumps
- **Utility Energy Conservation** — load management, high efficiency motors, and reduced transmission and distribution losses
- **Rates** — time-of-use, interruptible, and revenue decoupling
- **Renewables** — solar heating and cooling, photovoltaics, passive solar design, EPA-approved wood heating stoves, and daylighting

- **Conventional Power Plants** — fossil-fuel, nuclear, extending the life of existing plants, hydro/pumped storage, repowering, and utility battery storage
- **Non-Utility-Owned Generation** — cogeneration, independent power producers, and distributed generation
- **Purchases** — requirement transactions, coordination transactions, and competitive bidding
- **Renewables** — biomass, geothermal, solar thermal, photovoltaics, hydropower, and wind

- **Energy Vision**
  - Where do you want to end up?

- **Champions**
  - Who’s going to lead the charge?

- **Energy Needs & Forecasts**
  - Defining the problem (energy baseline & future energy needs)

- **Energy Options**
  - Understanding energy options (supply-side and demand-side options)

- **Preliminary Choices**
  - Choosing the best options

- **Setting Priorities**
  - Identifying your tribe’s priorities

- **Writing a Strategic Plan**
  - Putting it all together (The Roadmap)
Strategic Energy Planning

Planning for Energy Development
Moderator: Lizana Pierce (DOE, Golden Field Office)

- 3:50 p.m.  Project Overview & Introductions  Lizana Pierce
- 4:00 p.m.  Cabazon Band of Mission Indians – Strategic Energy Planning: Renewable Energy Demonstration Center (CA)  Becky Ross
- 4:30 p.m.  Confederated Tribes of the Colville Reservation – Tribal Utility Development (WA)  Cary Tonasket

MONDAY, MARCH 24th (1:00 p.m. – 6:30 p.m.) – Continued

<table>
<thead>
<tr>
<th>TIME</th>
<th>DESCRIPTION</th>
<th>PRESENTERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:00 p.m.</td>
<td>Quinault Indian Nation – Comprehensive Biomass Strategic Planning Project (WA)</td>
<td>Jesse Cardenas</td>
</tr>
<tr>
<td>5:30 p.m.</td>
<td>Santa Ynez Band of Chumash Indians – Strategic Energy Planning and Capacity Building Project (CA)</td>
<td>Lars Davenport</td>
</tr>
<tr>
<td>6:00 p.m.</td>
<td>Yerington Paiute Tribe – Building Organizational Capacity for Renewable Energy Projects (NV)</td>
<td>Ginny Hatch</td>
</tr>
</tbody>
</table>

- Where do you want to end up?
- Who’s going to lead the charge?
- Defining the problem (energy baseline & future energy needs)
- Understanding energy options (supply-side and demand-side options)
- Choosing the best options
- Identifying your tribe’s priorities
- Putting it all together (The Roadmap)

Setting Priorities
Writing a Strategic Plan
Preliminary Choices
Energy Options
Energy Needs & Forecasts
Champions
Energy Vision
Possible Roads to the Future

Now that you have a Energy Plan (or Roadmap), what next?

Energy Efficiency
The Low Hanging Fruit

(Demand-side)

Elements of an energy efficiency feasibility study:
- Conducting energy audits;
- Documenting current energy consumption;
- Assessing the economics;
- Conducting preliminary engineering for the development of material lists for energy efficiency improvements;
- Projecting energy savings or fossil fuel reduction; and
- Assessing potential financing options for implementation.

- Creating a roadmap
- Possible roads to the future
- Vehicles of change
- Where the rubber meets the road
Possible Roads to the Future

Energy Efficiency – The Low Hanging Fruit

- Creating a roadmap
- Possible roads to the future
- Vehicles of change
- Where the rubber meets the road
Now that you have a Energy Plan (or Roadmap), what next?

Renewable Energy Options
(Supply-side)

Elements of a renewable energy feasibility study:
- Site-specific renewable resource assessment(s);
- Tribal energy load assessment(s), if for local consumption;
- Export markets, transmission and inter-connections;
- Technology analysis;
- Economic analysis;
- Environmental assessment (i.e., benefits and impacts);
- Benefit assessment (e.g., employment, cultural and social);
- Preliminary system design(s);
- Training and other tribal professional development planning;
- Long-term operating and maintenance planning; and
- Business planning for implementing a sustainable renewable energy development project.

- Creating a roadmap
- Possible roads to the future
- Vehicles of change
- Where the rubber meets the road
Possible Roads to the Future

Supply-side Renewable Energy Options

**TUESDAY, MARCH 25th (8:30 a.m. – 5:30 p.m.) – Continued**

<table>
<thead>
<tr>
<th>TIME</th>
<th>DESCRIPTION</th>
<th>PRESENTERS</th>
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</thead>
<tbody>
<tr>
<td>9:00 a.m.</td>
<td>Feasibility of Renewable Energy Development (Continued)</td>
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</tr>
<tr>
<td>9:15 a.m.</td>
<td>Gila River Indian Community – Renewable Energy Feasibility Study (AZ)</td>
<td>Dale Anderson</td>
</tr>
<tr>
<td>9:30 a.m.</td>
<td>Iowa Tribe of Oklahoma – Assessment of Wind Resource on Tribal Land (OK)</td>
<td>Michelle Holiday</td>
</tr>
<tr>
<td>10:00 a.m.</td>
<td>Pine Ridge Tomah Nation – Renewable Energy Feasibility Study (CA)</td>
<td>Zack Rampoel</td>
</tr>
<tr>
<td>10:15 a.m.</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>11:00 a.m.</td>
<td>Feasibility of Renewable Energy Development (Continued)</td>
<td></td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>Te-Mahe Tribe of Western Shoshone – Feasibility Study for Battle Mountain Renewable Energy Park (NV)</td>
<td>Rhonda Hicks Gefford Jim Donna Hill</td>
</tr>
<tr>
<td>12:00 p.m.</td>
<td>San Carlos Apache Tribe – Solar Feasibility Study (AZ)</td>
<td>Gail Haas</td>
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**WEDNESDAY, MARCH 26th (8:30 a.m. – 4:00 p.m.)**

<table>
<thead>
<tr>
<th>TIME</th>
<th>DESCRIPTION</th>
<th>PRESENTERS</th>
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<tbody>
<tr>
<td>8:30 a.m.</td>
<td>Welcome &amp; Introductions</td>
<td>Lizane Pierce</td>
</tr>
<tr>
<td>8:45 a.m.</td>
<td>Feasibility of Renewable Energy Development (Continued)</td>
<td></td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>Pascua Yaqui Tribe – Solar Feasibility Study (AZ)</td>
<td>Maria Araya</td>
</tr>
<tr>
<td>9:15 a.m.</td>
<td>Stockbridge-Munsee Community – Feasibility of Using Solar to Power the Health and Wellness Center (WI)</td>
<td>Greg Bunker</td>
</tr>
<tr>
<td>9:30 a.m.</td>
<td>Ute Mountain Ute Tribe – 2MW Solar Farm Feasibility Study (CO)</td>
<td>Tawine Knight</td>
</tr>
<tr>
<td>10:15 a.m.</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>10:30 a.m.</td>
<td>Feasibility of Renewable Energy Development (Continued)</td>
<td></td>
</tr>
<tr>
<td>11:00 a.m.</td>
<td>Te-Mahe Tribe of Western Shoshone – Feasibility Study for Battle Mountain Renewable Energy Park (NV)</td>
<td>Rhonda Hicks Gefford Jim Donna Hill</td>
</tr>
<tr>
<td>11:15 a.m.</td>
<td>San Carlos Apache Tribe – Solar Feasibility Study (AZ)</td>
<td>Gail Haas</td>
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Registration starts at 11:00 p.m. on Monday and at 8:00 a.m. each morning Tuesday through Thursday.
Organizing and Skills for Success

Vehicles of Change

- Creating a roadmap
- Possible roads to the future
- Vehicles of change
- Where the rubber meets the road

Common organizational options are:
- Tribal utility authority
- Cooperatives
- Energy service companies
- Joint ventures
- Small businesses

Knowledge and skills are essential to developing, implementing and sustaining clean energy projects
Project Development & Deployment

Where the rubber meets the road

Energy Efficiency
The Low Hanging Fruit
(Demand-side)

Energy Efficiency Improvements
Building envelope improvements leading to significant reductions in heating and/or cooling costs, space heating and cooling, water heating, lighting, appliances, office equipment and building electrical equipment.

- Creating a roadmap
- Possible roads to the future
- Vehicles of change
- Where the rubber meets the road
Project Development & Deployment

Energy Efficiency – The Low Hanging Fruit

• Creating a roadmap
• Possible roads to the future
• Vehicles of change
• Where the rubber meets the road
Where the rubber meets the road

Renewable Energy Options

(Supply-side)

“Renewables for Buildings” (Community-scale)

Power (electricity) specifically for buildings includes, photovoltaic (solar electric) or wind power physically attached to the building or ground-mounted in close proximity to the building.

Heating or cooling applications include, the use of biomass for high efficiency stoves, boilers or furnaces, active or passive solar thermal systems for space or water heating, direct heating or cooling using geothermal resources (including ground source heat pumps), or other renewable energy hybrid systems for the production of heat or air cooling.
Project Development & Deployment

Supply-side Renewable Energy Options

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<tr>
<td>1:40 p.m.</td>
<td>Gwich'yaa Zhee Gwich'in Tribal Government (GZTG) – Gwich'in Solar and Energy Efficiency in the Arctic (AK)</td>
<td>Walter Peter, David Pelano-Messer</td>
</tr>
<tr>
<td>2:10 p.m.</td>
<td>Alaska Native Tribal Health Consortium (ANTHC) – Energy Efficiency Upgrades for Sanitation Facilities in Selawik (AK)</td>
<td>Rebecca Fells</td>
</tr>
<tr>
<td>3:10 p.m.</td>
<td>Break</td>
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</tr>
<tr>
<td>3:30 p.m.</td>
<td>Kootznoowoo Incorporated – 1 MW Thayer Creek Hydro-electric Development Project (AK)</td>
<td>Peter Navrat</td>
</tr>
<tr>
<td>4:00 p.m.</td>
<td>Yukon River Inter-Tribal Watershed Council (YRITWC) – Energy Efficiency for Nunamuit People of Anaktuvuk Pass (AK)</td>
<td>Dan Goodman</td>
</tr>
<tr>
<td>4:30 p.m.</td>
<td>Aleutian Pribilof Island Association’s – False Pass Tidal Energy Feasibility Project (AK)</td>
<td>Bruce Wright, Monty Washington (ORPC)</td>
</tr>
<tr>
<td>5:00 p.m.</td>
<td>Port Graham Village Council – Community Building Biomass Heating Design Project (AK)</td>
<td>Charles Sink</td>
</tr>
<tr>
<td>5:30 p.m.</td>
<td>Tlingit Haida Regional Housing Authority (THRIA) – Energy Centers Program – Household Energy Use Assessments, Monitoring and Household Energy Education (AK)</td>
<td>Tasha McCoy</td>
</tr>
<tr>
<td>6:00 p.m.</td>
<td>Adjourn</td>
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Clean Energy Development in Alaska (Continued)
Moderator: Jami Alley (CNPV, Golden Field Office)
Registration starts at 12:00 p.m.

- Creating a roadmap
- Possible roads to the future
- Vehicles of change
- Where the rubber meets the road
Project Development & Deployment

Where the rubber meets the road

Renewable Energy Options
(Supply-side)

Development (Pre-construction) Activities:
Environmental assessments; detailed design or engineering drawings; interconnection assessments for grid-connected projects; negotiations for utility grid interconnect agreements and power purchase agreements; permitting; finalizing business agreements; conducting due diligence on selected technologies; and negotiating and obtaining financial commitments.

Deployment (Construction):
Installation of renewable systems for export of power.

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Project Development & Deployment

Supply-side Renewable Energy Options

- Creating a roadmap
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Questions?