Tribal Energy Development – Process & “Guide”
http://www.eere.energy.gov/tribalenergy/guide

Tribal Objectives
• Energy Reliability & Security
• Off-Grid Electrification
• Minimize Environmental Impacts
• Supply Diversification
• Use of Local Resources
• Economic Development
  • Jobs
• Build technical expertise
• Respect for Mother Earth
• Others??

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The Development Process
The development process presented here can help you shape your tribe’s energy future. It is not prescriptive, nor does it require you to follow a timeline or order. The development process is designed to help you and your tribe understand the decisions necessary to move forward in securing your energy future.

To continue, select a step in the strategic planning process:
• Strategic Planning: Where do you want to end up, and how can you get there?
• Evaluating Alternatives: Where does your future lie?
• Organizational Development: The leadership and change
• Product Development: Where will the future lead the road?

Establish organizational and human resource needs

Integrate supply and demand alternatives

Demand-Side Options
• Develop a community energy baseline
• Develop a common Tribal energy vision
• Identify and support a Tribal champion
• Identify culture and environmental constraints
• Identify and evaluate resource options

Supply-Side Options

Integrate supply and demand alternatives

Establish organizational and human resource needs

Strategic Plan

Programs & Projects
Strategic Energy Planning

Defining where you are,
Where you want to go, and
Developing a plan to get there.
Develop a community energy baseline

Develop a common Tribal energy vision

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Energy Needs and Forecasts

Any form of energy planning—whether it be for an individual building, a tribe, or a country—necessarily starts with understanding the building, tribe’s or country’s energy needs. What is the load? What are the services that are being provided or need to be provided? How much is being provided today? By what energy sources? And finally, how are these energy needs expected to grow in the future, as population expands and as local economic activities develop?

As the strategic plan begins to take shape and the focus on specific options narrows, more detailed load assessments may need to be done. At this stage, the objective is to understand the big picture, and be able to answer the following basic questions.

- Developing answers to these questions will help the tribe understand the present “as is” situation, or energy baseline. The gap between the energy baseline and the vision needs to be filled through the action of the strategic plan. Every journey has a beginning and an end. Answering these questions helps define the beginning, the energy baseline.

- Who are your current energy service providers?
- How are energy supplies presently distributed to the tribe?
- Are both gas and electricity available?
- How much of each is used on a monthly basis (monthly load profiles for tribe as a whole or for major industrial loads)?
- What is the per-unit cost of various energy supplies? What is the electricity tariff structure now? Is the tribe’s energy use being measured?
- How do you expect the tribal load to major loads of concern to increase in the future? What will be a concentration of new load or will it be dispersed?
- What are the economic development interests of the tribe that would impact the need for additional energy supply?

Developing the answers to these questions builds the foundation upon which new energy planning takes place. It is a truism in today’s energy economy that it is often easier to avoid energy problems than it is to solve them. Several of the steps above are designed to help avoid energy needs. Establishing an awareness of where and how major energy costs are impacting the tribe is the first step. That step will also help the tribe to define the energy efficiency opportunities that should be integrated into the strategic energy plan.
Develop a community energy baseline

Community Energy Audit
• All individual energy flows, in detail
• Buildings, Transportation, Agriculture, Water

Forecast of New Loads
• Markets, Coops, Housing, Lodging, Casino, Warehouse

Details of current Service Providers
• Who, where, how much, tariffs, level of cooperation
• Electric, Gas, Propane, Wood
• Load profiles, in detail

Local Energy Supply Options
• RE and fossil fuel inventory

Add it all up, categorize by load type, quantify load growth
Integrate supply and demand alternatives

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Develop a common Tribal energy vision

• Place a “marker” on where the tribe wants to be – in 5, 10, or 20 years

• A statement, or resolution, approved by the Tribal Council following input from broader tribal community

• The vision sets clear direction, but is not too prescriptive

Examples of possible tribal energy vision statements might include:

- Establish tribal energy independence, self-sufficiency, and security through development of indigenous resources, capabilities, and institutions within the next generation.
- From the Navajo Tribal Utility Authority:
  "To provide electric, natural gas, water, wastewater treatment and related services at competitive prices, while contributing to the economy of the Navajo Nation, consistent with the improvement of the health and wealth of the residents of the Navajo Nation, and the employment of the Navajo people."
- From the Hopi Hopi Potawamait — Energy Related Goals:
  "To provide affordable and environmentally safe energy for local residents and businesses for the purpose of economic self-sufficiency."
- From the Cow Creek Band of Umpqua Tribe of Indians, Tribal Legal Code, Title 300 (PDF 239 KB) Download Acrobat Reader:
  "The purpose for which the Utility is organized is to provide an entity through with the Tribe may exercise all natural gas utility, electrical utility, other energy utility, water and sewer utility, telecommunications utility, and mineral use and development functions for the benefit of the Tribe, and to regulate all such utility matters of third parties on the Reservation."
- From the charter of the Aha Macav Power System (AMPS), the tribal utility for the Fort Mojave Indian Tribe:
  "The Fort Mojave Tribal Council hereby finds and declares that the creation of AMPS is necessary and desirable in order to promote the development of the Tribe’s resources, to promote the prudent economic vitality of the Reservation and surrounding communities, to protect the health and welfare of tribal members and to provide employment and training opportunities for tribal members."
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Integrate supply and demand alternatives
Establish organizational and human resource needs
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Programs & Projects
Identify and support a Tribal champion

A tribal champion (or team) is key - empowered to lead the strategic energy planning process forward

Tribal Council

Legal
- Sovereignty, Codes & Standards, Contracts

Environment
- Earth, Air, Water, Sacred Sites

Financing
- Tribal Resources, RUS Loans, Federal Grants, “Green Tag” Sales

Tribal Energy Use & Growth
- Existing Residential, Commercial & Industrial Loads & Growth

Technology
- Energy Resources, Technology Options

Power Markets
- On-Site Energy Displacement, Merchant Power Sales, “Green Tag” Sales

Tribal Champion Or Team

NREL National Renewable Energy Laboratory
Integrate supply and demand alternatives

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Cultural Issues

As the population on tribal lands grows and the pressing need for economic development and an improved quality of life on the reservation continues, tribes are increasingly faced with the challenge of meeting their energy needs. For tribes, part of that challenge is to meet their energy needs while maintaining their cultural identity and values.

Energy development on tribal lands is a balancing act. Energy development can provide local jobs, tribal income, and the satisfaction of energy self-sufficiency, while also providing important contributions to the broader energy-hungry U.S. economy. At the same time, energy development can damage the earth, streams, air, and even tribal culture if not carried out in an environmentally and culturally respectful manner. Thus is the challenge.

Some key questions for tribes include:

- How to change with the times in a way that works for the entire community?
- How can this be accomplished in a manner that respects tribal needs and values?
- What are the tradeoffs in between quality of life, economic development, and the environment?

To paraphrase the challenge: "Western development looks at things as resources. We look at them as relatives."

When considering energy alternatives, consider renewable energy. There is an inherent compatibility between renewable energy and traditional values that respect the earth, air, and water. Renewable power plants provide power without exhausting the resource and without polluting the environment. They are sustainable—the resource will be there for generations to come. They fit well within the web of nature.

This handbook is intended to provide useful information to help make the best energy decisions for your tribe. The following are some aspects of the balancing act between energy development and tribal cultural values that you may wish to consider:

- The Impacts of an Energy Project
- Sovereignty and Energy Decisions
- Working with Outside Organizations and Companies
Identify culture and environmental constraints

- Natural Resource Valuation
  - Water and Air
  - Wildlife Habitat
  - Forests, rangelands, wetlands, other
- Technology Effects
  - Emissions, Aesthetics, Noise
- Economic Development Trade-offs
- Cultural Impacts — (Sacred Sites, Plants, Burial Grounds)
- Tribal Impact — Community & Government
- Other Considerations

- Holistic Approach to development
Assessing Energy Resources

All tribal lands have some usable energy resources, although the extent and variety of available energy sources vary widely, as do the economics of using those energy resources. For instance, even the smallest tribal lands have solar energy available to them, and solar electricity is feasible for some uses even in cloudy or far northern climates.

Most fossil-fuel resources on tribal lands are targeted in cooperation with industrial partners and provide a royalty stream back to the tribe for its benefit and use. In most cases, these projects contribute little or nothing to the tribe's energy self-sufficiency. But if natural gas is available--either on tribal lands or from outside tribal lands via a pipeline--it can serve as an energy source in ways similar to electricity. Natural gas can be used as both a heating source and a means of generating power on both small and large scales. For more information on your fossil-fuel options, see Fossil-Fuel Resources.

In contrast to fossil-fuel resources, renewable energy resources are usually either used at their location or are converted into electricity, which can be used onsite or fed into the power grid. The sole exception to that rule is biomass, which in some forms (such as wood) can be shipped short distances. Although tribes may choose royalty-stream arrangements for some large-scale renewable energy projects, tribes would likely see the benefits more rapidly by owning the projects themselves and using their energy production as they see fit. For more information, choose from the renewable energy sources listed below:

- Biomass
- Geothermal
- Hydroelectric
- Solar
- Wind

Security
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Develop a community energy baseline

Develop a common Tribal energy vision

Identify and support a Tribal champion

Identify culture and environmental constraints

Identify and evaluate resource options

Integrate supply and demand alternatives

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Identify and evaluate resource options

- Geothermal
- Biomass
- Solar
- Wind
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Demand-Side Options

Supply-Side Options

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- Fuel Switching (electricity, gas, propane, wood)
- Weatherization
- Efficiency
  - Appliances
  - Lighting
- Heating & Cooling Systems
- Commercial & Industrial Loads
- Demand Response and Load Shifting
- Direct Load Control
- Considerations
  - Quantifying available resource
  - Measuring effects of actions
Supply-Side Options

• Conventional Technologies
• Cogeneration
• Renewable Technologies
• Attributes to Consider
  • Plant Capacity
  • Fuel Type
  • Efficiency
  • Reliability
  • Capital, Operating & Lifecycles Costs
  • Lifetime & Decommissioning
  • Environmental Impacts
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Supply-Side Actions

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Merchant Power Activities
Organizational Development

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The foundation of organizational development is human capacity. Effective strategic energy planning requires addressing a host of issues including legal, environmental, finance, energy end-use, technology, and market elements. The section on Human Capacity Development describes these elements. Ideally a tribe would have all the expertise in-house, but very seldom does, relying instead on consultants and other outside experts. While this is often necessary to begin with, tribes should be working to build this internal capacity. Going through the strategic planning process will help build this capacity, but the more a tribe can build this internal capacity, the more sovereign it becomes, and the faster it can make effective decisions to promote economic development opportunities, in energy and elsewhere.

There are many organizational options. The "organization," in this context, refers to the legal business structure that is set up to implement energy projects. Energy projects are usually long-term (10-, 20-, 50-year) commitments and require a stable professional business-like structure to sustain the project performance (operations and maintenance, revenue collection, and debt payment) after construction. Energy efficiency projects can be accomplished without a formal organization, but they are more effective, more comprehensive, and can reach more tribal homes and commercial buildings if they are well organized. The following sections describe four of the most common options.

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Program & Projects

Characteristics of a Solution

• Rapid
• Technically & Institutionally Sustainable
• Maximize Coordination
• Politically Feasible
• Attracts Financing, Capital, Sweat Equity
• Reinforces tribal enterprises
Opportunities & Strategies

- Tribal utility formation
- Strategic industry partnerships
- Tribal cooperatives
- Energy service companies
- Small businesses
- Education (link Tribal Community Colleges with Tribal needs)
Barriers Identification

- Financing
- Human Capacity Development
- Organizational Development
- Tribal Laws and Regulations
- Clear Decision Making Process
- Stable Leadership
Congratulations!

Those of you that make it through this process will be well on your way to tribal energy sovereignty.
www.eere.energy.gov/tribalenergy/guide