



Solar Project Development

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Overview



About NREL



Renewable Energy Project Development



The RFP Process



Tribal Assistance Programs and Resources

National Renewable Energy Laboratory

at a Glance

1,700

Employees,

plus more than

400

early-career
researchers and
visiting scientists



World-class

facilities,
renowned
technology
experts

nearly
750

Partnerships

with industry,
academia, and
government



Campus

operates as a
living
laboratory

\$375M
annually

**Research
Budget**

Implementation Activities

- **Pre-construction**
 - Financial closing (if applicable)
 - Project kickoff
 - Design and construction documents, plans/schedules, submittals
- **Contract execution**
 - Contract oversight/quality control
 - Change control
- **Interconnection**
 - Application review and approval process
 - Final building inspection
 - Paperwork submittal to utility
- **Project Construction**
 - Contract oversight/quality control
 - Change control
- **Commissioning**
 - Testing and verification
 - Interconnection verification (utility)
 - Utility permission to operate
- **O&M**



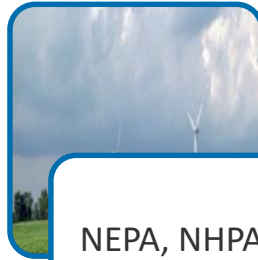
Project Considerations



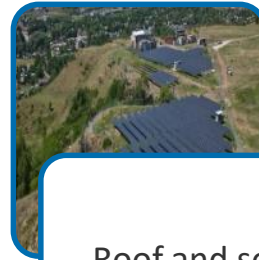
Economic
feasibility and
project sizing



Site electrical
connection
and system
impact



NEPA, NHPA,
FAA, other
compliance



Roof and soil
condition



Construction
considerations
and
requirements



PPA legality,
other policy
issues and
required
approval



Compatibility
with mission
and future
site plans,
agency
policies



Competitive
electricity
supply &
distribution
system
ownership



Utility
coordination



Site control
(site access
agreement)



U.S. DEPARTMENT OF
ENERGY

Office of
Indian Energy

Google Earth is a Useful Tool

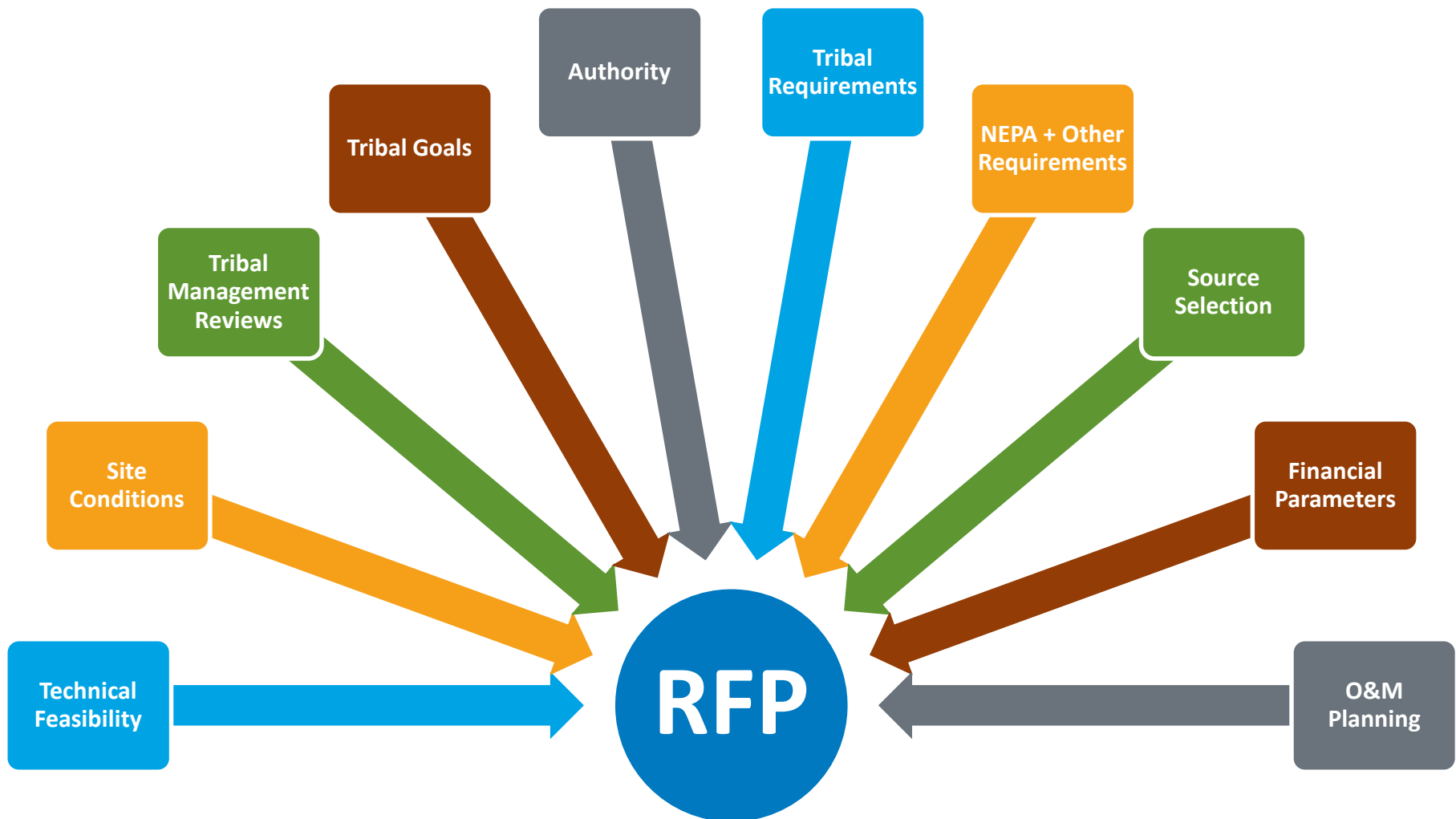
- Determine areas available
- Determine distance to nearest substation
- Google Earth can also be used during the procurement Phase



Permitting and Regulatory Key Considerations

Action	Applicability	Timeline	Contacts
Interconnection	If on grid (with a utility)	Communicate with utility early; this should be one of the first topics that is discussed and finalized before construction	Local utility
Net metering	If available in state (check) (dsireusa.org)	Communicate with utility before construction	Local utility
Local tribal permitting	• Internal tribal process approvals • For off-reservation projects, state permits may apply	Determine permitting requirements early	Tribal Historic Preservation Office (THPO) and local tribal government
Environmental	Impacts to: • Wetlands/waterways • Wildlife, habitat, flora • Cultural resources	• May not be necessary • Determine applicability early	Applicable federal agency

Bringing It All Together: RFP and Other Solicitation Documents



The RFP Process

An RFP is a significant undertaking. Consider project funding sources and potential fatal flaws prior to starting the process.

Develop
RFP

Issue RFP

Administer
the RFP

Proposal
Evaluation

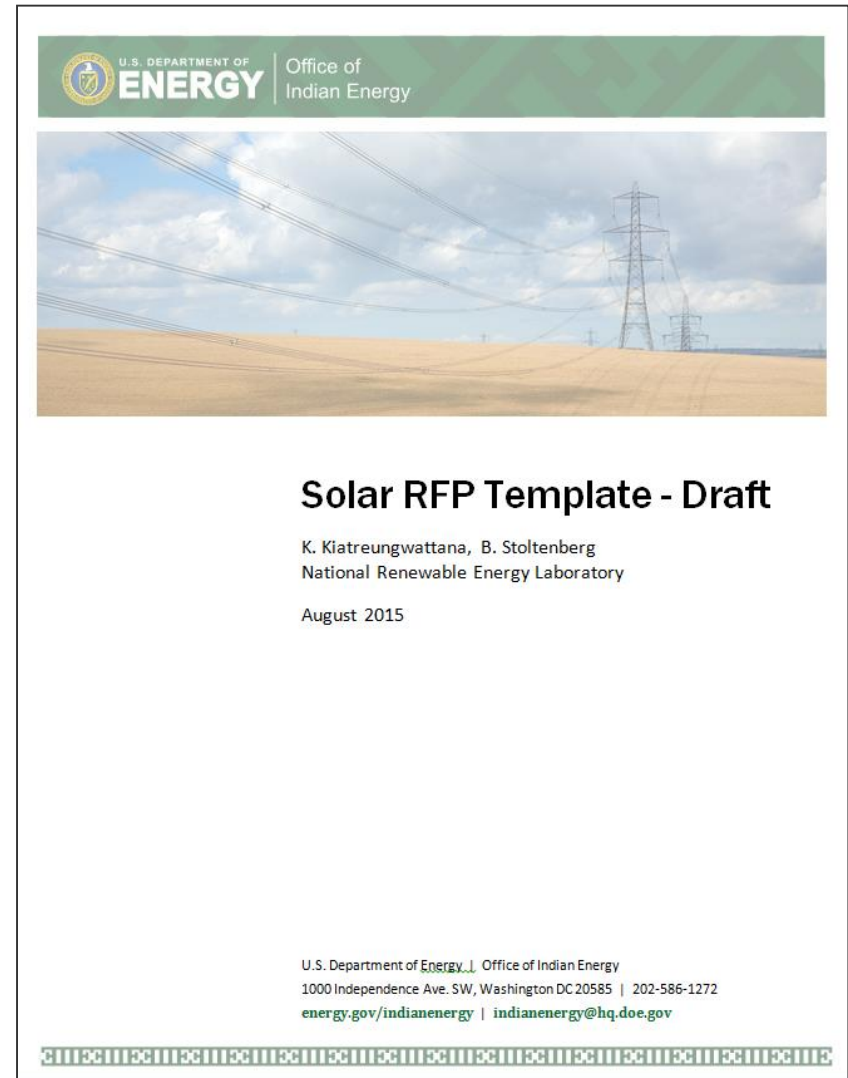
Award
Contract



Solar RFP Template

- **Audience:** Tribes seeking to develop grid-tied solar projects
 - roof-mounted
 - ground-mounted
 - carport
- **Goal:** Competitive bid process to achieve the best possible pricing and system quality
- **Approach:** Tribe-owned or power purchase agreement?
 - **This RFP template is for a tribe-owned project**
- PPA Considerations:
 - Fixed electricity price
 - Rate escalator
 - Term length
 - Liability
 - Buy-out terms
- A starting point for Tribes
 - users may use, modify the template to suit their needs and projects

<https://www.energy.gov/indianenergy/downloads/doe-office-indian-energy-solar-rfp-template-draft>



Solar RFP Template

Primary tribe RFP Inputs in blue:

- Project Details
 - Site Assessment Results
 - Load Data
 - Site Visit Dates
 - Site Maps/Plans
- Background
 - Objective:
 - Job creation/training/economic benefits
 - Start with a well-defined goal for bidders
 - Focus on outcome-based metrics, like production guarantees
 - Project Scope and Schedule
 - Design Guidelines
 - Rooftop and carport (structural calculations)
 - ground-mounted

Request for Proposal

[TRIBE name] is soliciting proposals from a qualified contractor to design, fabricate, deliver, install, and maintain a [select: rooftop, ground mounted, carport] utility-interactive solar photovoltaic system.

Statement of Work Design Build Guidance Criteria

[Select: Roof Mounted, Ground Mounted, and Carport]

Utility-Interactive Photovoltaic System

1. PROJECT IDENTIFICATION

- 1.1. Project: [select: Roof Mounted, Ground Mounted and Carport Mounted Grid Tied PV System]
- 1.2. Location: [include address]

2. BACKGROUND

2.1. Objective. Contractor shall provide a total "turnkey" project including all necessary equipment, materials, design, manufacturing and installation services for the installation of a [enter from 1.1 project type] utility-interactive photovoltaic system that shall produce a minimum of [enter min production] kWh AC per year at the point of interconnection, approximately [enter capacity] kW DC capacity. Larger capacity systems that produce more than the minimum are an alternative and will be evaluated but the proposed system shall not produce more than [enter max production] kWh per year. The contractor should prepare system summary detailing each location, applicable equipment/size, predicted system energy production (kWh). In relations to any building mounted system, the contractor shall evaluate roof conditions and may remove the existing roof system and replace it with either an integrated roof/PV system or a new roof with PV system installed. See roofing specification for these requirements. This project shall meet all requirements of this Statement of Work and other specifications included that apply.

2.2. Scope. The contractor shall perform all professional services as necessary to provide [Tribe name] with a complete design package including the requirements outlined in this Statement of Work. The contractor shall install the project such that it is operational and compliant with all applicable standards, building codes, UTILITY interconnection requirements, and STATE requirements. The contractor shall include specifications, calculations and drawings in the design package, and turn it over to [Tribe name]. After approval by [Tribe name] of the final design package, the contractor shall provide all necessary construction to successfully complete the photovoltaic system installation. The awarded contractor shall apply for and manage the rebate funding under a utility and with renewable energy certificates (RECs) paperwork.

RFP Best Practices

“Measure twice and cut once”: Issuing an RFP will lock in your project requirements and may be too restrictive or make future changes more difficult.

Consider an RFI: A Request for Information (non-binding public request for information to inform an RFP) can make you aware of other options for your project that you may not have considered.

Thoughtful Information Requests: Requesting enough information to make an informed decision, but not so much that vendors are discouraged from responding by the volume of information requested.

Use appropriate evaluation metrics: The lowest cost system may not provide the most value. Using metrics like projected annual savings or production guarantees may provide more benefit.

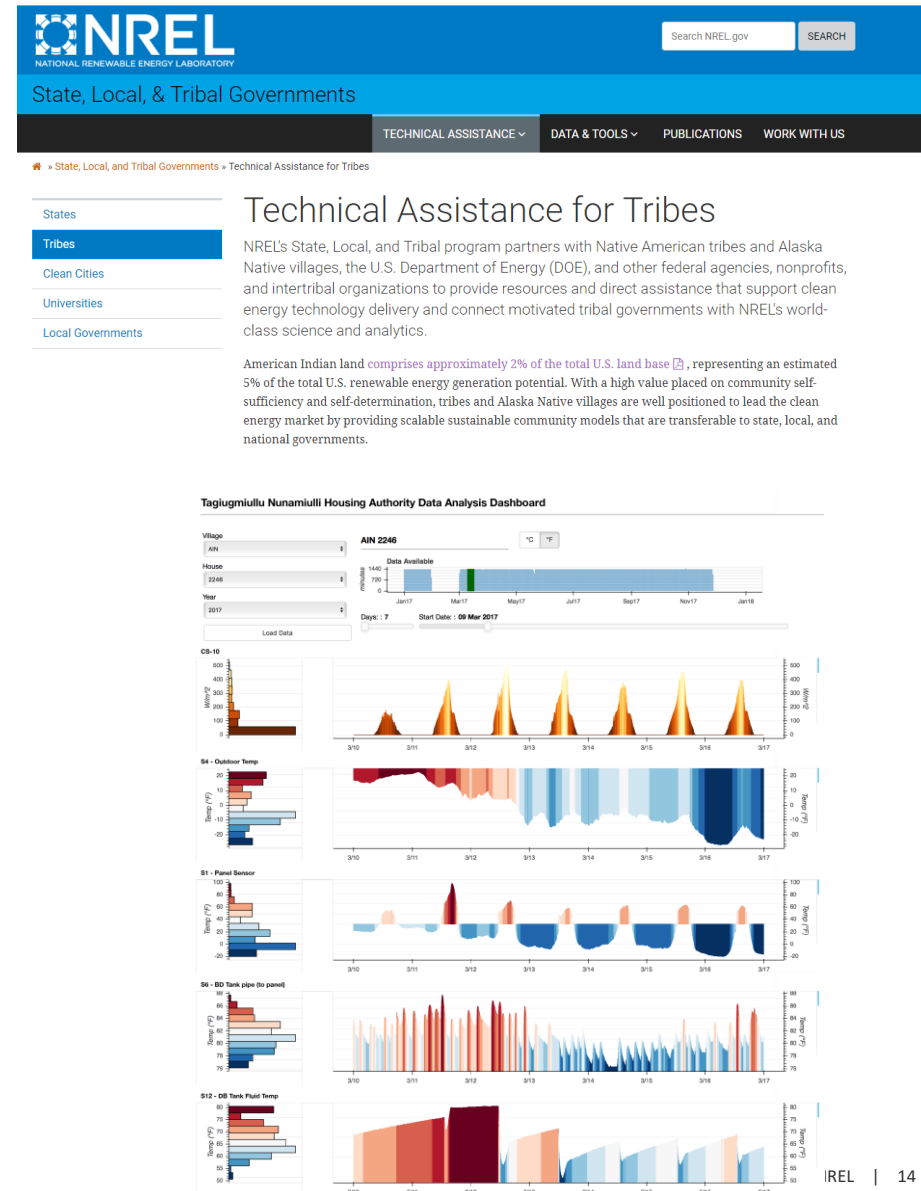
Resources:

- Draft Tribal RFP Template
 - <https://www.energy.gov/indianenergy/downloads/doe-office-indian-energy-solar-rfp-template-draft>
- Detailed steps to an RFP
 - <https://www.thesolarfoundation.org/steps-to-a-successful-solar-request-for-proposal/>
- Industry Tips for an RFP
 - <https://www.borregosolar.com/blog/the-no-bs-guide-to-a-solar-rfp>
- Solar Decision Tree (EPA)
[https://www.epa.gov/sites/production/files/2015-10/documents/repower technologies decision tree.pdf](https://www.epa.gov/sites/production/files/2015-10/documents/repower_technologies_decision_tree.pdf)

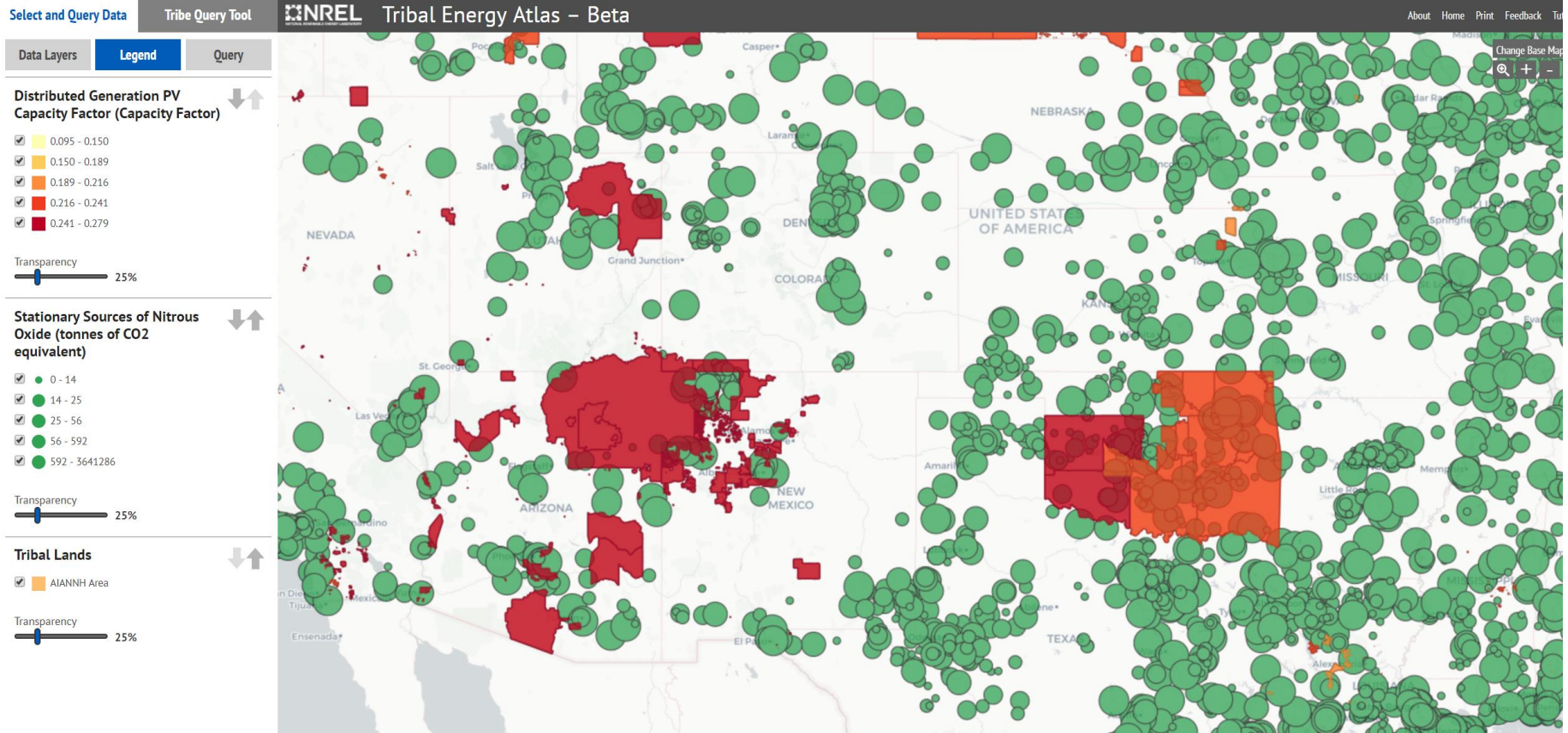
NREL Tribal Programs

- Technology and Market Analytics
- Direct Technical Assistance
- Capacity Building
- Resilience Assessment and Planning
- Energy Modeling

<https://www.nrel.gov/technical-assistance/tech-assistance-tribes.html>



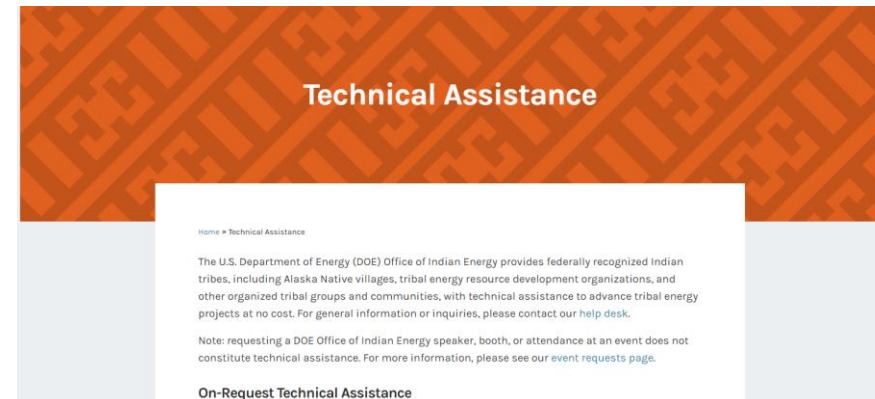
Tribal Energy Atlas



<https://maps.nrel.gov/tribal-energy-atlas>

Department of Energy Technical Assistance

- Energy Planning
- Housing and Building Efficiency
- Project Development and Finance
- Resilience
- Alaska Village Power
- Policy and Regulation



<https://www.energy.gov/indianenergy/technical-assistance/request-technical-assistance>

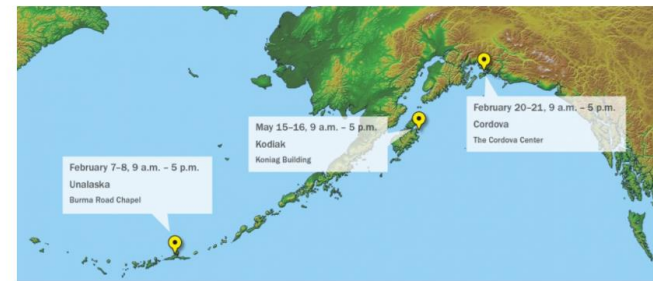
Department of Energy Capacity Building

- Workshops
 - Typically 5-6/year
 - Regionally focused
 - Topics include
 - Project Development and Finance
 - Energy Planning
 - In-depth trainings on energy evaluation tools
- Webinars
 - Monthly
 - Topics on energy development finance, partnerships, and business structures

2018 Alaska Regional Energy Workshops

Home » 2018 Alaska Regional Energy Workshops

February 7, 2018 7:00AM AKST to May 16, 2018 3:00PM AKDT



<https://www.energy.gov/indianenergy/events/2018-alaska-regional-energy-workshops>

Department of Energy Funding



Office of
INDIAN ENERGY POLICY AND PROGRAMS

About Us

TECHNICAL ASSISTANCE

EDUCATION & TRAINING

FUNDING

PROJECTS



DOE Announces Up to \$11.5 Million Available for Energy Infrastructure Deployment on Tribal Lands

Register for Alaska Workshops

Apply for Free Technical Assistance

<https://www.energy.gov/indianenergy/>

Indian Energy and Economic Development

- Tribal Energy Development Capacity Grant
- Usually comes out in the fall
- Funds projects such as
 - Leasing property
 - Forming joint ventures
 - Structuring tribal business charters
 - Structuring tribal utility authorities
 - Creating energy offices



Overview	Tribal Energy Development Capacity Grant Program
Capital Investment	TRIBAL ENERGY DEVELOPMENT CAPACITY (TEDC)
Economic Development	GRANT FUNDING PROGRAM
Energy and Mineral Development	The Division of Energy and Mineral Development (DEMD) will evaluate TEDC grant proposals received from Federally recognized tribal organizations, Alaska Native Villages, and Tribal Energy Development Programs. The purpose of the TEDC grant program is to develop tribal managerial, organizational and technical capacity needed to maximize the economic impact of energy resource development on Indian land. The TEDC grant gives tribes the ability to develop or enhance their business and regulatory environment for energy resource development.
Tribal Economic Development Principles at a Glance Series	

<https://www.bia.gov/as-ia/ieed/division-energy-and-mineral-development/tedcp>

Contact Info

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Thank You

www.nrel.gov

NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, operated by the Alliance for Sustainable Energy, LLC.

