Indian Energy START Program & Capacity Building

2012–2013 Success Highlights

U.S. DEPARTMENT OF ENERGY | Office of Indian Energy

Potential for Renewable Energy Generation on Tribal Lands: Takeaways

- American Indian land comprises 2% of U.S. land but contains an estimated 5% of all renewable energy resources.
- The total technical potential that exists on tribal lands for electricity generation from ...
  - Utility-scale rural solar resources is about 14 billion MWh, or 5.1% of total U.S. generation potential
  - Wind resources is about 1.1 billion MWh, or about 3.5% of the total U.S. technical potential
  - Hydropower resources is about 7 million MWh, or about 2.9% of the total U.S. technical potential.

Download a summary of this data and read the full report at ***www.energy.gov/indianenergy/resources***.

In Indian Country, Opportunity Awaits

American Indian land represents about 2% of U.S. land but contains an estimated 5% of the nation's renewable energy resources, according to an updated estimate of renewable energy potential on Indian lands commissioned by the U.S. Department of Energy Office of Indian Energy Policy and Programs (DOE Office of Indian Energy). More significantly, the analysis, conducted by DOE's National Renewable Energy Laboratory (NREL), revealed that those tribal energy resources represent a significant share of total U.S. energy generation potential. The total technical potential on tribal lands for electricity generation from utility-scale solar resources alone is about 14 billion megawatt-hours (MWh), more than 5% of the total U.S. generation potential.[1]

Yet despite the ample resource potential that exists on Indian lands, energy security is of particular concern in many Native American communities. Rural reservation environments have made affordable access to energy difficult, resulting in disproportionately high electricity rates. In addition, aged and constrained transmission is often an issue, even if energy prices are competitive.

DOE research has revealed that the availability of household electricity is significantly lower on Native American reservations compared to the rest of the country. Additionally, Native Americans spend a disproportionate percentage of their household income on electricity compared to the rest of the U.S. population. Not surprisingly, this and inadequate electrical infrastructure contribute to a lower standard of living for residents and hinder economic growth by limiting Tribes' ability to attract new community investments.

The DOE Office of Indian Energy is tasked by Congress to provide technical and financial assistance to tribal and Alaska Native governments to support tribal energy development and electrification in Indian Country. Since 2011, the Office has established new technical programs and instituted leadership priorities for the effective coordination of DOE tribal energy grant financial assistance. By leveraging technical and financial support within DOE and with other federal agencies, the Office of Indian Energy is committed to bringing a broad array of technical resources to Indian Country to support the next generation of tribal energy development. The Office is also tasked with supporting technical capacity building in Indian Country, which is a key component of its innovative technical assistance programs. Technical mentoring and highlighting best practices at the community level have been effective strategies to support the most important capacity for Tribes—human capacity.

[1] Doris, E.; Lopez, A.; Beckley, D. (2013). *Geospatial Analysis of Renewable Energy Technical Potential on Tribal Lands.* NREL/TP-7A30-56641. Golden, CO: National Renewable Energy Laboratory. *www.nrel.gov/docs/fy13osti/56641.pdf.*

From Vision to Action: DOE Office of Indian Energy Supports Successful Tribal Energy Development

Renewable energy development offers potential solutions to many well-known energy challenges—consistent with traditional tribal values of community sustainability and stewardship of the Earth. Recognizing this as a potential opportunity to strengthen their communities and sustain future generations, many tribal councils and communities have developed clear, forward-thinking energy visions with sustainability in mind.

Often lacking in-house technical expertise to lead the strategic and typically complex development of their renewable resources, Tribes can find it challenging to transform their energy vision into action.

Under the Energy Policy Act of 2005, the DOE Office of Indian Energy is authorized to fund and implement a variety of programmatic activities that assist Tribes and Alaska Native villages and corporations with energy development, capacity building, reduction of energy costs, and electrification of Indian lands and homes.

The Office also oversees tribal grants to support the evaluation, development, and deployment of energy efficiency and renewable energy projects on tribal lands that help save energy, expand the use of clean energy resources, and promote tribal economic development. After surveying and consulting with tribal leadership, the Office is utilizing these authorities to address the specific needs identified through early and regular discussions with Indian Country.

Partnering with Indian Country to Build Technical Capacity

Through its Strategic Technical Assistance Response Team (START) Program launched in December 2011, the DOE Office of Indian Energy is empowering tribal leaders to tap into their clean energy resources by offering Tribes the tools and on-the-ground resources needed to lead strategic energy project development that can foster energy self-sufficiency, sustainability, and economic competitiveness.

The START Program is a competitive application process where Tribes apply for and are selected to receive unbiased, experience-based assistance with project planning, development, and financing. Working collaboratively with tribal leaders, the team helps build the community-based skills and capacity needed to drive the successful deployment of next-generation energy projects on Indian lands in the 48 contiguous states and Alaska.

START Assistance in the Lower 48

In 2012, START teams consisting of DOE, NREL, Kabotie Consulting, and The Dearhouse Group delivered customized on-site technical expertise to support the following six Tribes in the 48 contiguous states with pursuing the development and financing of specific renewable energy projects.

CAMPO BAND OF THE KUMEYAAY NATION

Campo, California

Community energy challenge: The Campo Band already has one wind farm on reservation land and is interested in pursuing another, larger one—this time leveraging the experience and lessons learned from the Tribe's earlier wind farm to inform project development decisions. The Tribe is looking to expand its revenue base and views this project as a way to generate valuable funding for other community and economic development projects.

Solution: Develop a 160-megawatt (MW) commercial-scale wind farm to generate power for the Tribe to use and sell.

Key START accomplishments and potential project benefits:

- Completed a comprehensive analysis of the Tribe's renewable energy market and resource potential
- Explored several partnership structures and financing options for the Tribe
- Identified a new ownership option with the developer that provided greater opportunity for tribal participation in the project and increased revenue opportunities
- If implemented, a 160-MW wind farm could power an additional 190,000 California homes.

START team members conducted a wind site assessment on the Campo Indian Reservation in San Diego County, California, in September 2012. From left to right: Bob Springer of NREL, Laura Quaha of the Campo Kumeyaay Nation, Melissa Estes with the Campo Environmental Protection Agency, and Robi Robichaud from NREL. Photo by Alex Dane, NREL 22724

FOREST COUNTY POTAWATOMI COMMUNITY

Crandon, Wisconsin

Community energy challenge: The Forest County Potawatomi Community's ambitious energy and greenhouse gas emissions-reduction goals, and the dated heating systems of its government complex in Crandon, Wisconsin, led the Tribe to explore utilizing its abundant biomass resource to meet building energy needs while pursuing those goals.

Solution: Build a renewable energy system that uses local nonfood biomass feedstock to supply heat for tribal government facilities.

Key START accomplishments and potential project benefits:

- Provided technical specifications for suggested biomass system design, sizing, and feedstock
- Completed a comprehensive analysis of the Tribe's renewable energy market and resource potential
- Facilitated a strategic energy planning workshop that resulted in the formation of a Tribal Energy Working Group
- Provided information, tools, and resources that positioned the Tribe to make informed decisions regarding energy projects that align with tribal priorities
- The biomass district-heat system suggested by the START team has the potential to reduce the Tribe's annual heating fuel costs by $70,000.

The inside of a gas production module that converts wood chips into producer gas, including the gasifier, tar reformer, heat exchangers to recover process heat, and a dry gas cleanup train. The recovered heat is used to dry the wood chips fed into the system. Photo by Jim Yost, NREL 11915

HUALAPAI TRIBE

Peach Springs, Arizona

Community energy challenge: The Hualapai Tribe's Grand Canyon West development area is an energy island with extremely high costs for electricity supplied entirely by diesel generators. Old photovoltaic (PV) arrays at the site no longer function.

Solution: Install a microgrid at the Tribe's Grand Canyon West development to be optimized for the reintegration of the old 33-kilowatt (kW) PV system and implementation of an additional 100 kW of PV to help reduce on-site fuel use.

Key START accomplishments and potential project benefits:

- Analyzed and provided suggestions for recommissioning the site's existing PV system
- Provided technical guidance and suggestions for current and future PV system integration
- Conducted market and economic analyses of various project options
- Guided a collective tribal discussion exploring the various project options during a strategic energy planning workshop
- The solution suggested by the START team has the potential to reduce fossil-fuel use at the development area by more than half.

PASCUA YAQUI TRIBE

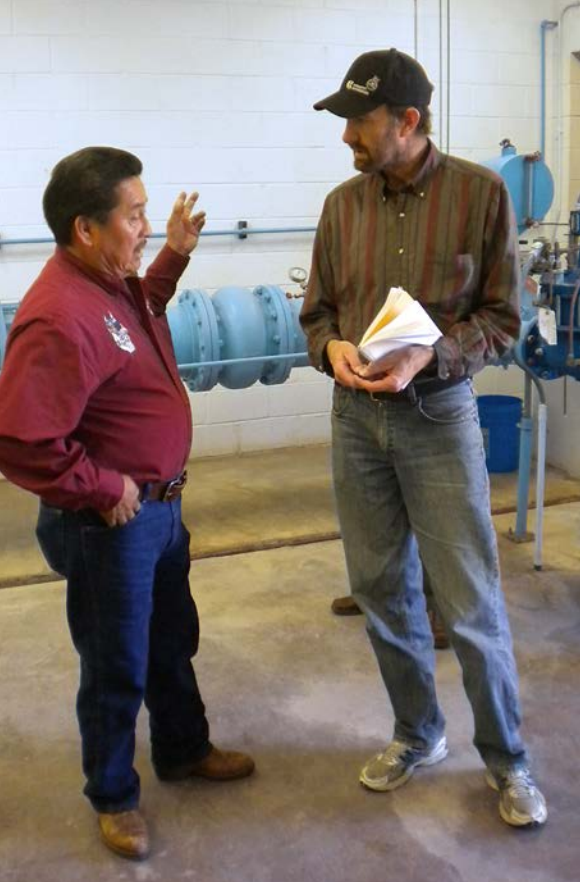
Tucson, Arizona

Community energy challenge: The Pascua Yaqui Tribe is located in one of the best solar energy resource areas in the United States. The Tribe seeks to leverage that resource to reduce its energy costs, advance its sustainability goals, and achieve greater energy independence. The tribal casino, with its high energy load, presents an excellent opportunity to take advantage of this ample resource.

Solution: Install a facility-scale rooftop PV array to generate power for the Tribe's casino.

Key START accomplishments and potential project benefits:

- Provided suggested design specifications and system sizing options for roof-mounted PV arrays on the Tribe's casino and adjacent parking garage
- Conducted a strategic energy planning workshop wherein the Tribe identified project development and community outreach strategies
- Helped identify an opportunity for the Tribe to partner with the tribal utility to conduct energy planning outreach at community events and lobby the tribal council to support energy planning efforts
- Implementing the solution suggested by START would help shield the Tribe from rising electricity prices while increasing its energy independence and advancing its sustainability goals.



During a START site visit to the Zuni Pueblo in New Mexico, NREL's Otto VanGeet (right) discusses the layout of the site's water well with Strallie Edaakie Sr. of the Zuni Utility Department. Photo by Colton Heaps, NREL 23642

PASSAMAQUODDY TRIBES OF INDIAN TOWNSHIP AND PLEASANT POINT

Maine

Community energy challenge: Along with expanding their agricultural business, the Passamaquoddy Tribes seek to identify and pursue new paths for generating additional tribal revenue.

Solution: Develop a commercial-scale wind farm on previously leased federal land the Passamoquoddy Tribes recently procured.

Key START accomplishments and potential project benefits:

- Validated existing wind resource data and siting
- Trained tribal leaders and project teams on the New Markets Tax Credit Program
- Held a strategic energy planning workshop that brought both communities together to identify past challenges, explore how they overcame those barriers, refine their shared vision for renewable energy development, and determine next steps
- By following the strategic planning process and leveraging the opportunities presented by the START team, tribal leaders will be better positioned to make informed procurement and ownership decisions regarding the proposed wind development.

PUEBLO OF ZUNI

Zuni, New Mexico

Community energy challenge: The sole fresh water supply of the Zuni Pueblo is located at the end of a 15-mile long, tenuous power transmission line, and the Tribe incurs more than $100,000 per year in electrical costs to operate the well facility, which has no back-up power. The Tribe seeks to utilize a diesel generator along with PV to increase water and energy security while simultaneously reducing energy costs.

Solution: Install a solar PV system up to 350 kW in size to support the Pueblo's water supply with a sustainable, distributed energy source.

Key START accomplishments and potential project benefits:

- Analyzed the potential power generation and payback period for a PV system
- Assessed the viability of various financing vehicles and performed an in-depth review of a government-funded loan and subsidy program for public water infrastructure projects
- Provided suggested design specifications and system configurations for integrating PV into the existing drinking water well facility and a generator backup system currently under development
- Completed a comprehensive analysis of the Tribe's renewable energy market and resource potential
- Installing a Tribe-owned system following the START team's suggestions would increase water and energy security and independence while potentially reducing energy costs by more than $50,000 each year.

Project Case Study: Market Analysis Reveals Solar Resource Options for Tribe

For the Forest County Potawatomi Community in Wisconsin, a market context analysis performed by the START team showed tribal leaders their land had a better solar resource than previously thought.

With a goal of being energy independent by using carbon free or carbon neutral renewable energy resources, the Community applied for and received technical assistance from the START Program. The original project scope was focused on exploring the feasibility of deploying a small-scale biomass system on the Forest County Potawatomi Reservation, but the analysis led the Tribe to investigate other potential opportunities.

"DOE's resource assessment and market context provided a surprising assessment of the Community's solar resources. Based on the location of its reservation, the Community had generally assumed that solar projects would not work as well as other renewable energy projects," said Nathan Karman, a member of the Tribe's legal department.

However, the analysis showed that the Community's solar PV generation potential is more than 2 million MWh per year. The technical potential is based on a spatial analysis of available land and resource and represents a desktop study using available geographic information, including topography. The analysis was supported by a START site visit in October 2012 to confirm topography constraints and offer more site-specific consultation.

"Seeing the solar resource information renewed an interest in pursuing solar projects on the reservation. The Community has now begun exploring potential rooftop solar deployments, trying to determine the best way (technology, size, etc.) to utilize its solar resources," Karman added. This includes solar water heaters for members' homes.

"DOE's resource assessment and market context provided a surprising assessment of the Community's solar resources. Based on the location of its reservation, the Community had generally assumed that solar projects would not work as well as other renewable energy projects.

—Nathan Karman
Forest County Potawatomi
Legal Department

START Assistance in Alaska

Led by DOE in partnership with the Denali Commission, an independent federal agency, and NREL, START Alaska technical assistance supported community-based energy planning and staff training for five Alaska Native Villages in 2012. A variety of strategic energy planning efforts and clean energy projects that were effectively implemented and had a positive impact on the local communities are highlighted below.

ARCTIC VILLAGE COUNCIL

Community energy challenge: Located 140 miles north of the Arctic Circle, Arctic Village is extremely remote and almost entirely dependent on diesel fuel, with electricity costs hovering at $0.90 per kilowatt-hour (kWh) and heating fuel at $12 per gallon. The small, Tribe-owned utility has challenges managing limited resources, collecting payments, and complying with administrative requirements to receive state rural energy support through the Power Cost Equalization (PCE) program.

Solution: Build capacity for local utility personnel, reapply to the PCE program, and explore nondiesel alternatives such as solar and energy efficiency.

Key START accomplishments and project benefits:

- Improved utility management and reinstated the PCE program in January 2013, reducing residential electricity rates by 50%
- Repaired diesel gen-sets to improve efficiency and reduce energy costs
- Installed prepay meters for residential buildings, providing instant energy feedback that resulted in reduced energy use and costs
- Identified repairs needed to optimize an existing PV system
- Explored the feasibility of community-scale solar energy generation
- Provided community energy education and utility management training
- Building human capacity at the utility level provides a lasting benefit to the community through improved management, reduced energy consumption, lower energy costs, and enhanced energy security.

NATIVE VILLAGE OF KWINHAGAK

Community energy challenge: The Native Village of Kwinhagak has experienced a housing and fuel storage crisis, with more than 40 houses condemned and inadequate fuel storage capacity for the winter. Each spring, small amounts of diesel fuel must be frequently flown in to provide enough fuel to last the village until the ice breaks and large, lower-cost barge shipments are possible. The community has a long-term goal of reducing fuel consumption so that the existing fuel storage capacity is adequate to last through the winter and early spring, eliminating the need for higher-cost supplemental shipments.

Solution: Install a heat recovery system from the diesel generator for heating the new sewer and water system to substantially reduce diesel fuel consumption, construct ultra-efficient new housing to address the housing crisis and reduce fuel use, and improve utilization of excess electricity from existing wind turbines during high wind events to produce heat and reduce diesel fuel consumption.

The combination of the Native Village of Teller's limited fuel storage capacity and a harsh winter led to a supply shortage in 2012. Photo by Alex Dane, NREL 20891

Key START accomplishments and project benefits:

- Identified a heat recovery opportunity that will substantially reduce diesel fuel needed for water and sewer system heating
- Worked with the Kwinhagak Tribe, municipality, Alaska Native Tribal Health Consortium (ANTHC), Alaska Village Electric Cooperative (AVEC), and contractors to develop a proposal that resulted in the community receiving a $660,000 grant from the Alaska Energy Authority to implement the heat recovery project
- Provided education and outreach at a community energy fair organized in partnership with the Rural Alaska Community Action Program (RurAL CAP)
- Worked with the Cold Climate Housing Research Center on design and monitoring of near net-zero energy residential building efforts to begin construction of new homes to replace condemned structures
- Conducted energy efficiency training for the community and tribal administrative staff
- As a result of this effort, AVEC has improved energy capture and management of existing wind turbines to reduce fuel consumption. In addition, there has been a substantial overall reduction of diesel fuel use.

NATIVE VILLAGE OF TELLER

Community energy challenge: The Native Village of Teller has limited fuel storage capacity, very high diesel fuel costs, poor housing stock, and numerous energy options and institutions involved in decision making.

Solution: Develop and enhance capacity for long-term community energy planning and decision making, and reduce diesel fuel consumption.

Key START accomplishments and project benefits:

- Helped to identify necessary infrastructure repairs at the local health clinic, which ultimately re-established water and sewer services with assistance from ANTHC
- Averted an energy crisis stemming from the community's limited bulk fuel storage capacity by facilitating the transfer of 10,000 gallons of diesel fuel that enabled the village to replenish its winter fuel supply
- Helped create a Community Energy Committee for ongoing energy planning and decision making and drafted a strategic community energy plan
- Conducted an energy efficiency workshop and fair in partnership with RurAL CAP
- Presented an energy education class to Teller's high school science students
- Helped the community identify options for a Norton Sound Economic Development Council (NSEDC) Community Energy Fund grant that would improve energy efficiency and reduce diesel fuel consumption
- The community is now positioned to receive NSEDC support for projects to reduce diesel fuel use and implement high impact activities for ongoing efficiency improvements.

NREL's Levi Kilcher advises Skyler Copsey at the Youth Energy Training during the Kake Culture Camp in Kake, Alaska. Photo from Connie Fredenberg, Marsh Creek, NREL 22725

START team member Alex Dane of NREL repairs the tracking motor of the community-owned PV array in Venetie, Alaska, during a START site visit. Photo by Brian Hirsch, NREL 20893

ORGANIZED VILLAGE OF KAKE

Community energy challenge: The Organized Village of Kake is highly dependent on expensive diesel fuel to operate energy-intensive commercial fish processing, which is limiting local economic development. The village also has an outmoded diesel powerhouse in need of extensive upgrading. The village has been exploring renewable energy projects to address these challenges, but has been unable to focus those efforts and make decisions.

Solution: Bring community stakeholders together to prioritize options and integrate solutions such as implementing heat recovery at the power plant to improve efficiency and reduce diesel demand, using solar PV to partially meet summertime fish processing loads, and reducing the need for diesel heating through extensive biomass distribution from logging and construction residues on the island.

Key START accomplishments and project benefits:

- Relocated a wind met-tower closer to the village's transmission lines, potentially providing a lower-cost transmission option for wind energy development
- Helped the Tribe install a 5.8-kW solar PV system
- Identified hydropower generation opportunities with local utility support
- Conducted a strategic energy planning workshop and energy efficiency education activities for the community in conjunction with the T'lingit-Haida Regional Housing Authority
- Helped identify various grant opportunities for the community to pursue
- Prioritized biomass project options for future development
- Assisted in creating a Community Energy Committee that has facilitated decision making and goal setting around energy projects
- The community has now reduced its diesel fuel demand and is well positioned for additional funding and projects that include a diesel power house upgrade, heat recovery, biomass thermal and district heat distribution, solar expansion, and ancillary economic development activities.

VENETIE VILLAGE COUNCIL

Community energy challenge: Venetie is a small remote community with a local, Tribe-owned electric utility that has very limited fuel storage and management capacity, old diesel generators in need of repair, inefficient housing stock, and very high fuel costs and energy demand to heat buildings.

Solution: Build human capacity and management of electric utility, repair diesel generators, advance biomass feasibility potential, and enhance energy education and awareness to achieve increased efficiency and fuel savings.

Key START accomplishments and project benefits:

- Reinstated the PCE program in September 2012, reducing residential electricity bills by 60%
- Provided utility management training and developed a utility rate structure that allows for capturing increased costs via improved billing of commercial customers
- Implemented upgrades to the village's powerhouse and repaired diesel gensets to improve operational efficiency and reduce energy consumption
- Conducted an energy efficiency workshop and fair in partnership with RurAL CAP
- Explored opportunities for biomass project implementation
- As a result of these activities, residents are paying less for electricity and the Tribe-owned electric utility is using less fuel and no longer losing money, which is leading to related economic development benefits.

Project Case Study: Strategic Planning Opens Doors for Isolated Alaskan Village

Located on the northwest coast of Kupreanof Island in southeastern Alaska, Kake is a community of fewer than 600 residents struggling with out-migration, loss of employment, and high energy costs, including residential electricity rates of $0.60 per kWh.

"Kake has been proactive in addressing these challenges by exploring use of local, renewable resources, including biomass and wind projects, potential hydropower production, and installing a solar PV system to offset tribal government electric use," said Dr. Brian Hirsch, senior project leader for NREL's Alaska initiative.

Because of its commitment to energy development, Kake was among five Native Alaska communities selected to receive technical assistance through the START Program.

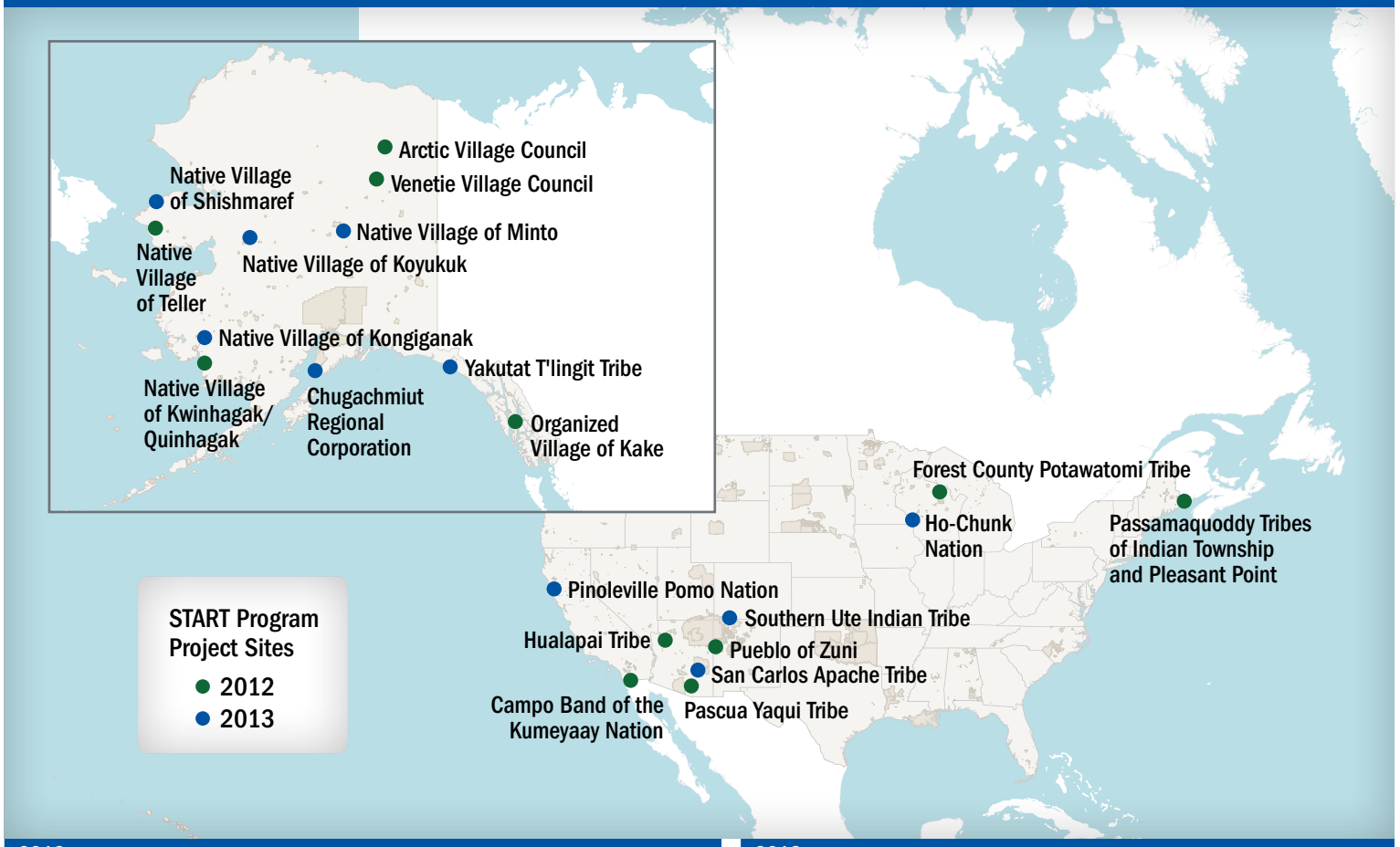
In Kake, START activities kicked off with a strategic energy planning workshop held in late 2012. Facilitated by NREL, Lesley Kabotie (Crow Montana), and other energy planning experts, the workshop strengthened the community's commitment to realizing its energy vision and helped set priorities. In addition to Kake's tribal government, other stakeholders, including the regional housing authority, electric utility co-op, the school district, and various local and regional NATIVE corporations and businesses, participated.

"The planning process pulled information directly from our community members as well as our partners and gave them ownership of the end product," said Gary Williams, executive director of Kake.

Hirsch agreed. "We were able to get the right players around the room and incorporate their concerns," he said. "By coordinating multiple stakeholders and securing their buy-in, Kake is in a stronger position to capture grant opportunities available at the state and federal level."

> "The [START] planning process pulled information directly from our community members as well as our partners and gave them ownership of the end product. It has really helped focus our energy initiative to a fine tip. It has been phenomenal for our community.
>
> —Gary Williams, Executive Director, Organized Village of Kake

START Projects



2012

Tribe	Location	Project
Arctic Village Council	Alaska	Community Energy Planning and Clean Energy Projects
Campo Band of the Kumeyaay Nation	California	Commercial-Scale Wind Farm
Forest County Potawatomi Community	Wisconsin	Community-Scale Biomass
Hualapai Tribe	Arizona	Solar PV Micro-Grid System
Native Village of Kwinhagak	Alaska	Community Energy Planning and Clean Energy Projects
Native Village of Teller	Alaska	Community Energy Planning and Clean Energy Projects
Organized Village of Kake	Alaska	Community Energy Planning and Clean Energy Projects
Pascua Yaqui Tribe	Arizona	Facility-Scale Solar PV System
Passamaquoddy Tribes of Indian Township and Pleasant Point	Maine	Commercial-Scale Wind Farm
Pueblo of Zuni	New Mexico	Community-Scale Solar PV System
Venetie Village Council	Alaska	Community Energy Planning and Clean Energy Projects

2013

Tribe	Location	Project
Chugachmiut Regional Corporation	Alaska	Community-Scale Biomass
Ho-Chunk Nation	Wisconsin	Community-Scale Biomass
Native Village of Kongiganak	Alaska	Community Energy Planning and Clean Energy Projects
Native Village of Koyukuk	Alaska	Community Energy Planning and Clean Energy Projects
Native Village of Minto	Alaska	Community Energy Planning and Clean Energy Projects
Native Village of Shishmaref	Alaska	Community Energy Planning and Clean Energy Projects
Pinoleville Pomo Nation	California	Community-Scale Solar
San Carlos Apache Tribe	Arizona	Facility-Scale Solar PV System
Southern Ute Indian Tribe	Colorado	Community-Scale Solar PV System
Yakutat T'lingit Tribe	Alaska	Community Energy Planning and Clean Energy Projects

2013 START Program: Round 2

Committed to building upon these initial successes, the DOE Office of Indian Energy announced its expansion of the START Program in January 2013. This second round of technical assistance awards will serve to further advance Native American and Alaska Native communities' efforts to increase local generation capacity, enhance energy efficiency measures, and create local entrepreneurial and job opportunities.

In the contiguous United States, START teams will continue to provide technical assistance to further community-scale renewable energy projects across the country. In Alaska, START teams will help additional rural Alaska Native communities conduct energy awareness and training programs and pursue new renewable energy and energy efficiency opportunities. Their work in Alaska will be bolstered by the Office of Indian Energy's partnership with the Denali Commission, which will provide additional assistance and expertise, as well as funding to fuel the Alaska START initiative. In addition, selected Alaska Native villages may also be eligible for grant funding that supports renewable energy or energy efficiency projects.

> We are working side-by-side with tribal energy leaders across the country to ensure that Native American and Alaska Native Tribes have the tools and resources they need to foster economic competitiveness and promote tribal self-sufficiency.
>
> —DOE Office of Indian Energy Director Tracey A. LeBeau

Alaska Community Energy Planning

In partnership with the Denali Commission, DOE will assist with community-based strategic energy planning in support of the following projects in Alaska:

- **Native Village of Kongiganak** — improvements to existing wind energy infrastructure, efficiency measures, and smart grid technology development
- **Native Village of Koyukuk**—energy infrastructure upgrades and identification of energy efficiency and biomass opportunities
- **Native Village of Minto**—identification of energy efficiency, biomass, and solar energy opportunities
- **Native Village of Shishmaref**—local capacity building aimed at mitigating current energy and community relocation challenges and increasing sustainability
- **Yakutat T'lingit Tribe**—prioritization of renewable energy projects, evaluation of feasibility studies, community outreach, and identification of steps to move projects forward, including biomass, ocean energy, and efficiency measures.

Community-Scale Renewable Energy Project Development Technical Assistance

DOE will also assist with project development efforts aimed at advancing the following tribal renewable energy projects:

- **Chugachmiut Regional Corporation in Port Graham, Alaska**—an energy-efficient biomass plant that will use local wood to generate power for community buildings in the Native Village of Port Graham
- **Ho-Chunk Nation in Black River Falls, Wisconsin**—a 1- to 2-MW biomass waste-to-energy plant that could potentially use municipal solid waste, agriculture waste, or other biomass resources to offset tribal facility energy costs
- **Pinoleville Pomo Nation in Ukiah, California**—a 3-MW solar utility project that will generate an estimated 5,000 MWh of electricity to power the Tribe's administration buildings and a 24-acre tribal subdivision
- **San Carlos Apache Tribe in San Carlos, Arizona**—a 1-MW solar photovoltaic (PV) array to be installed on tribal land leased to the tribal casino
- **Southern Ute Indian Tribe in Ignacio, Colorado**—a solar PV project that will power tribal facilities and residences.

"The Energy Department's START Program helps Native American and Alaska Native communities enhance their energy security and create job opportunities in the clean energy economy," said Tracey A. LeBeau, director of the Office of Indian Energy. "Building upon the achievements and lessons learned from the program's first round, our new technical assistance awards for clean energy projects will help more tribal communities across the country deploy sustainable energy resources and increase local generation capacity."

Learn more about the selected START projects at *energy.gov/indianenergy/resources/start-program*.

Capacity Building and Technical Assistance for Tribes

The DOE Office of Indian Energy's commitment to advancing the next generation of tribal energy development goes beyond the technical assistance provided through START. The following resources and opportunities are integral to its efforts to build a strong foundation for renewable energy and energy efficiency technology deployment in Indian Country through tribal energy education and capacity building.

Renewable Energy Curriculum

The DOE Office of Indian Energy has developed a "first of its kind" renewable energy development education and training curriculum specifically for tribal leaders and professionals. There are nine foundational courses that cover the fundamentals of tribal renewable energy development, including renewable energy basics, strategic energy planning, and the electricity grid. In addition, seven advanced courses examine the intricacies of tribal renewable energy project financing processes and structures and walk tribal leaders and energy champions through the steps involved in developing facility-, community-, and commercial-scale projects. These free, on-demand webinars are available at *www.nterlearning.org* (search for "Indian Energy").

Energy Resource Library

Tribes can access links to more than 100 publications, websites, and other helpful resources on tribal energy project development and financing in the DOE Office of Indian Energy's Resource Library at *energy.gov/indianenergy/resources/energy-resource-library*.

Tribal Leader Energy Forums

In an effort to share and promote best practices around energy development, as well as foster networking and collaboration among tribal leaders and potential energy development partners, the DOE Office of Indian Energy invites tribal leaders and others to attend forums focused on strategic energy development.

- Solar Energy Development in the Southwest, December 19–20, 2011 (Palm Springs, California)
- Exploring the Business Link Opportunity: Transmission and Clean Energy Development in the West, February 7–8, 2012 (Denver, Colorado)
- Conventional Energy and Associated Vertical Business Development: Best Practices in Indian Country, March 1, 2012 (Las Vegas, Nevada)
- Energy Tax Policies and Inter-Jurisdictional Challenges, March 22, 2012, (New Orleans, Louisiana)
- Key Renewable Energy Opportunities for Oklahoma Tribes, August 13, 2012, (Oklahoma City, Oklahoma)
- Leveraging Tribal Renewable Resources to Support Military Energy Goals, May 30–31, 2013 (Phoenix, Arizona)

> Excellent introduction to basics of solar technology and resources for implementation. Concise, thorough, and well-paced.
>
> —J. Trgovcich,
> Comment from the National Training & Education Resource website

On-Demand Technical Assistance

The DOE Office of Indian Energy provides federally recognized Indian Tribes, bands, nations, tribal energy resource development organizations, and other organized groups and communities—including Alaska Native villages or regional and village corporations—with technical assistance designed to advance renewable energy and energy efficiency projects. Tribes can apply online to receive free technical assistance that includes up to 40 hours of in-depth strategic energy planning and project development support at *energy.gov/indianenergy/technical-assistance*.

assistance received

25 Tribes

October 2012–May 2013

Tribal Renewable Energy Webinar Series

The DOE Office of Indian Energy and Tribal Energy Program, in partnership with the Western Area Power Administration, sponsor a series of free webinars for leaders and staff interested in developing commercial-scale projects and learning more about the competitive power market. The webinars are designed to help Tribes find ways to promote tribal energy sufficiency and foster economic development and employment on tribal lands using renewable energy and energy efficiency technologies.

webinars attended

1,100 people

January–May 2013

Strategic Energy Planning Helps Tribes Chart a Path to Clean Energy Success

The DOE Office of Indian Energy works with select Tribes to implement a nine-step strategic energy planning process designed to serve as a road map to success. Collectively, these steps provide a foundation for maximum results as Tribes work to turn their vision into action. The process can be modified to meet each community's needs. It lays the groundwork for Tribes to:

- Improve local influence over energy facility siting
- Foster regional tribal coordination and collaboration
- Reduce community energy consumption and costs
- Increase tribal revenue from energy generation
- Create jobs and build a stronger economy
- Foster energy independence and security
- Enhance community efficiency and sustainability
- Promote healthier communities and a cleaner environment
- Demonstrate leadership on the energy front.

"I was really impressed with the whole [strategic energy planning] process. It made attendees feel very empowered—like we could really do something."

—Maria Arvayo, Development Services Director, Pascua Yaqui Tribe

A schematic of the nine-step process START teams use to facilitate strategic energy planning in tribal communities

Strengthening Tribal Communities, Sustaining Future Generations

By providing Tribes with expert technical assistance, accurate information, and quality training, the DOE Office of Indian Energy is investing in the future of Indian Country. The support offered through START and other education and training resources empowers tribal leaders and their staffs with the knowledge and skills they need to address their communities' energy challenges by implementing strategic, long-term solutions—solutions with the potential to reduce energy costs, enhance energy security, promote tribal sovereignty, and guide Native communities toward a sustainable energy future.

U.S. DEPARTMENT OF ENERGY

Office of Indian Energy

Through the Energy Policy Act of 2005, the Department of Energy, through the Office of Indian Energy, is authorized to fund and implement a variety of programmatic activities that assist Tribes and Alaska Native villages and corporations with energy development, capacity building, energy infrastructure, reduction of energy costs, and electrification of Indian lands and homes. The Office also oversees tribal grants to support the evaluation, development, and deployment of energy efficiency and renewable energy projects on tribal lands that help save energy, expand the use of clean energy resources, and promote tribal economic development.

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