

U.S. Department of Energy Office of Indian Energy Policy and Programs

# Strengthening Tribal Communities, Sustaining Future Generations



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Indian Energy



## Our Mission

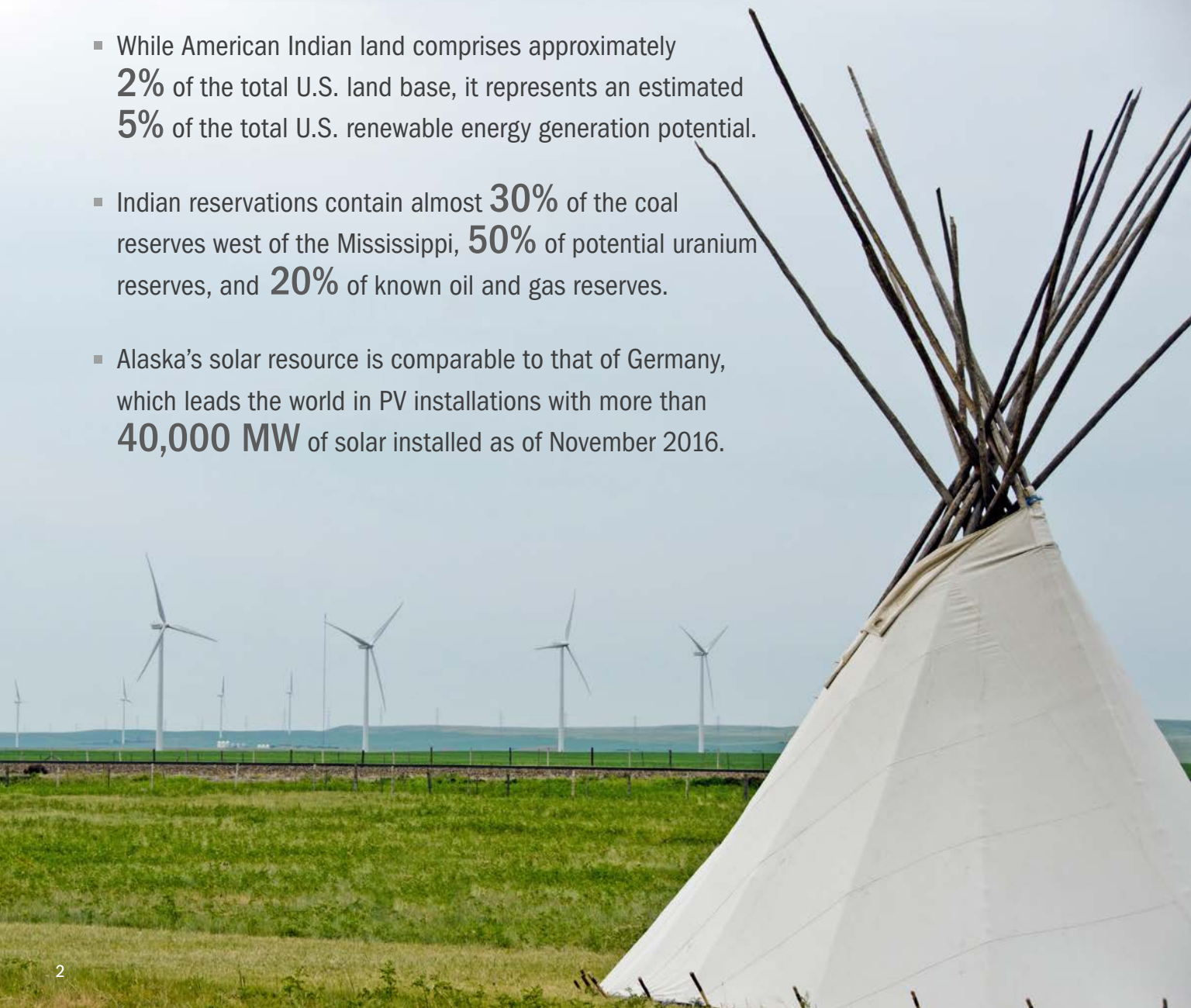
To maximize the development and deployment of energy solutions for the benefit of American Indians and Alaska Natives.

## Our Vision

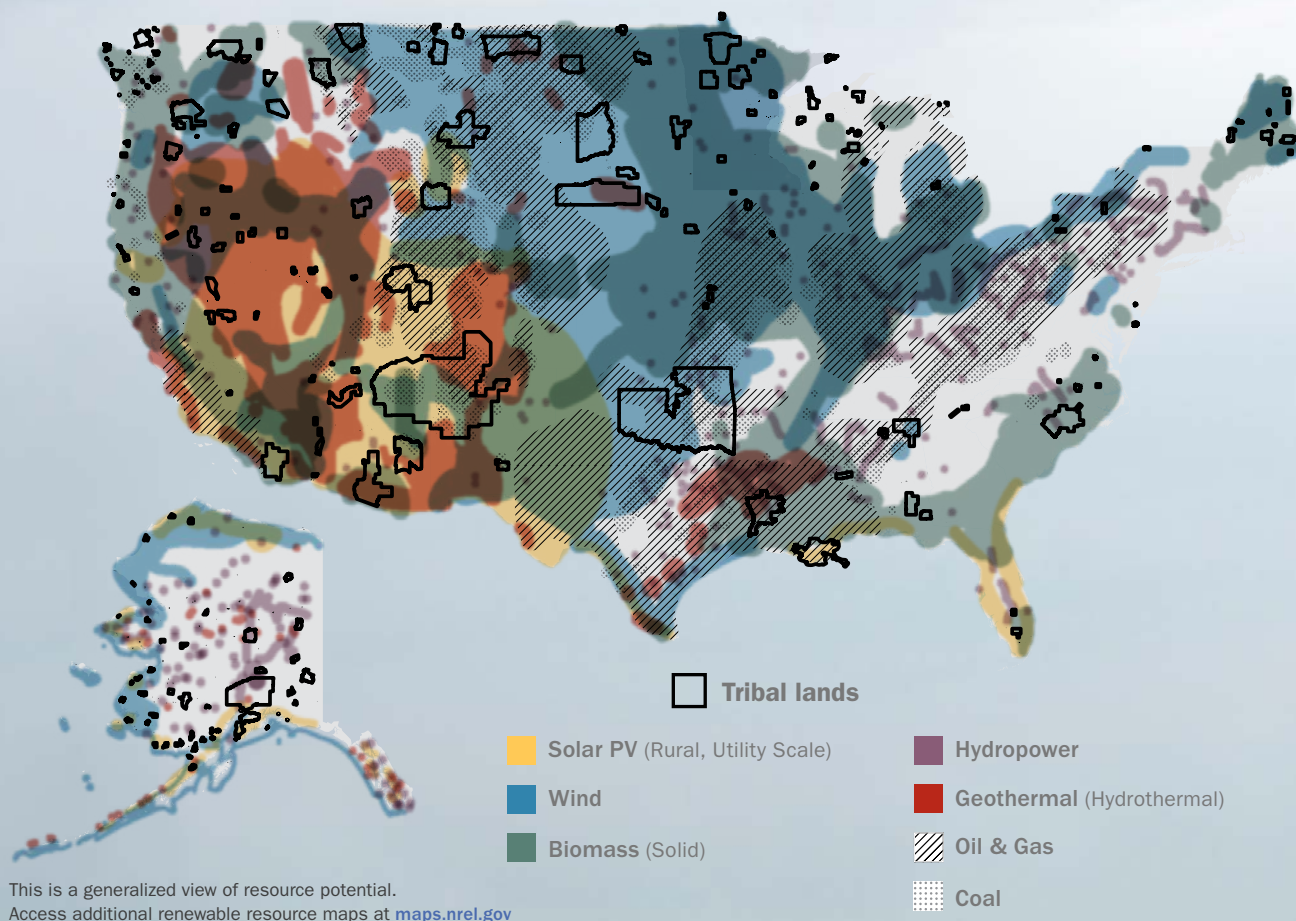
To be the premier federal office for providing tribal communities and Alaska Native villages with the knowledge, skills, and resources needed to implement successful strategic energy solutions.

# Resource Potential on Tribal Lands

- While American Indian land comprises approximately **2%** of the total U.S. land base, it represents an estimated **5%** of the total U.S. renewable energy generation potential.
- Indian reservations contain almost **30%** of the coal reserves west of the Mississippi, **50%** of potential uranium reserves, and **20%** of known oil and gas reserves.
- Alaska's solar resource is comparable to that of Germany, which leads the world in PV installations with more than **40,000 MW** of solar installed as of November 2016.







## Potential for Renewable Generation on Tribal Lands

Total technical potential that exists on tribal lands for electricity generation from:

- Utility-scale rural **solar** PV resources is about 14 billion megawatt-hours (MWh), or **5.1%** of the total U.S. technical 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.

# Reality for 567 Federally Recognized Tribes

Despite the ample resource potential that exists on Indian lands, **energy security is a major concern** in many Native American communities.

Rural reservation environments have made affordable access to energy difficult, resulting in **disproportionately high electricity rates**.

And **aged and constrained transmission** is often an issue, even where energy prices are competitive.



## Staggering Gaps Between Tribal Communities and the Rest of the Nation



American Indian and Alaska Native households in large tribal areas are more than **3 times as likely to live in overcrowded housing** and more than **11 times as likely to live in housing without adequate plumbing**.



**Poverty and unemployment rates** among American Indians and Alaska Natives living in tribal areas in 2006–2010 were at least **twice as high** as those among non-Indians nationally.



Ready access to electricity is still considered a luxury in many tribal communities; as many as **15,000 Navajo homes—about 30%—still lack electricity**.



More than **175 remote Alaska Native villages** rely almost exclusively on diesel fuel for electricity generation and heating oil for heat. In some rural Alaska communities, electricity costs exceed **\$1.00/kilowatt-hour (kWh)—more than 8 times the national average of \$0.12/kWh**.



# The DOE Office of Indian Energy:

## A Path to Prosperity for Tribal Communities

Under the Energy Policy Act of 2005, the Office of Indian Energy is authorized to fund and implement a variety of programmatic activities that assist American Indian Tribes and Alaska Native villages with energy development, capacity building, energy cost reduction, and electrification of Indian lands and homes. To advance these goals, we employ a three-pronged approach designed to empower tribes to maximize the value of their energy resources.



### Education and Capacity Building

Through regional workshops, webinars, and college student internships, we support tribal efforts to build internal capacity to develop energy projects and navigate energy markets.



### Technical Assistance

We provide federally recognized Indian Tribes, including Alaska Native villages, tribal energy resource development organizations, and other organized tribal groups and communities, with technical assistance to advance tribal energy and infrastructure projects. Technical experts from DOE and its national laboratories, along with other partnering organizations, provide in-depth support to assist tribes and Alaska Native villages with strategic energy planning and project development.



### Access to Capital

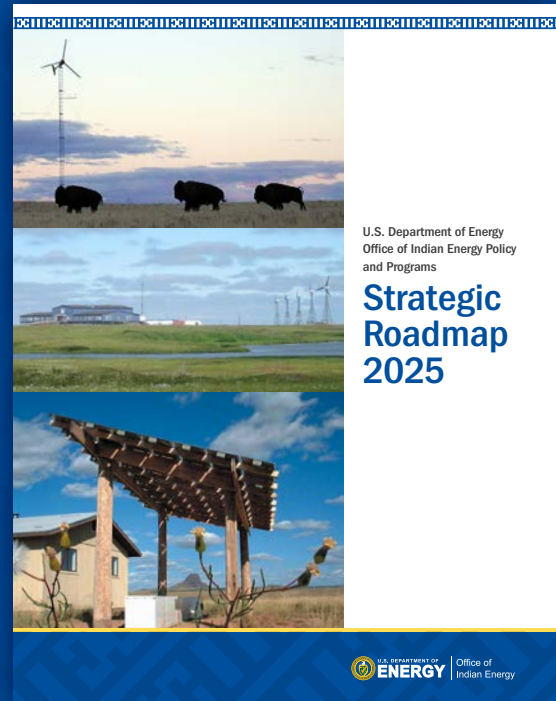
We facilitate tribal access to capital for energy project development through financial assistance, including competitively awarded grants and innovative financing strategies.

# Strategic Roadmap 2025

The Office of Indian Energy's Strategic Roadmap 2025 outlines a tactical action plan for maximizing the development and deployment of beneficial energy solutions for American Indians and Alaska Natives.

## Goals

- 1 Promote energy development, efficiency, and use
- 2 Reduce or stabilize energy costs
- 3 Enhance energy and economic infrastructure
- 4 Foster electrification
- 5 Support cross-cutting national and global energy initiatives



Download the roadmap at  
[energy.gov/indianenergy/downloads/  
doe-office-indian-energy-strategic-roadmap-2025](https://energy.gov/indianenergy/downloads/doe-office-indian-energy-strategic-roadmap-2025)



# Providing Education and Building Capacity

## Action

**Workshops and Training.** In-person and online learning opportunities to enhance tribal staff understanding of the process for developing energy projects on tribal lands.

**Webinars.** A series of free monthly webinars designed to assist tribes and Alaska Native villages interested in deploying energy projects to increase energy self-sufficiency, reduce energy costs, and strengthen tribal energy infrastructure.

**Internships.** An opportunity for Native college students to be immersed in energy project planning and development activities and to work with technical experts in the field and at DOE's Sandia National Laboratories for six weeks each summer.

**Energy Resource Library.** An online repository where tribes can access more than 150 publications, websites, and other helpful resources on tribal energy project development and financing.

**Annual Program Review.** An open meeting where Indian tribes from across the country report on how they are using Office of Indian Energy grant funding to advance their energy projects and pursue their energy visions.

---

### Student Internship Program at a Glance (2002–2016)

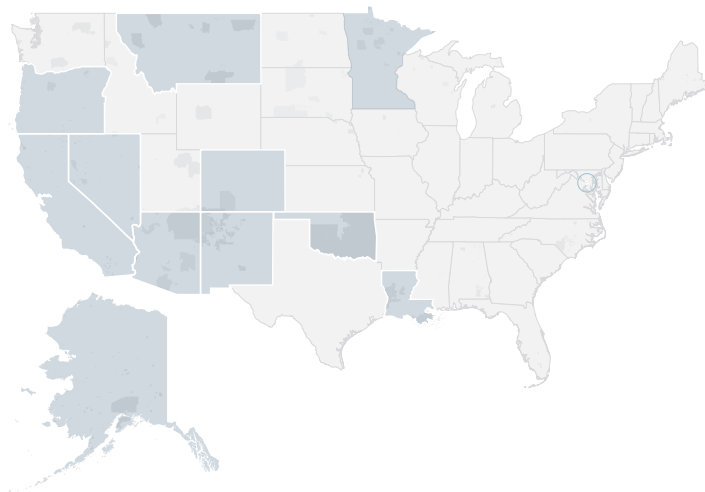
- 36 undergraduate and graduate interns
  - 20 different tribal affiliations
  - 18 different student majors
  - 25% of interns were converted to year-round status
  - 11% of interns were hired as full-time employees or Sandia contractors
  - 61% of interns were female students hired based on merit and competitive selection process
- 



In October 2016, the Office of Indian Energy provided hands-on solar operations and maintenance training to members of five tribes from around the country, all of which have recently installed or will soon install solar PV systems in their communities. *Photo by Devonie McCamey, NREL*

# Impacts

TRIBAL ENERGY DEVELOPMENT WORKSHOPS  
AND FORUMS HELD IN **12** STATES (2011–2016)



**14** TRIBAL ENERGY PROGRAM REVIEW  
MEETINGS (2002–2016)

**2,127** ATTENDEES AND **572** PROJECT  
PRESENTATIONS



**50** TRIBAL ENERGY WEBINARS (2011–2016)

REACHING **1,158** ATTENDEES IN 2016



**16,401** VISITORS TO THE ENERGY  
RESOURCE LIBRARY SINCE 2012



“This Program Review provides excellent networking opportunities for everyone. We made some great connections.”

“This was my first time attending, and I found it very informative and worth my time attending. I can’t wait to come next year and learn about all the tribal projects.”

“Overall, a great conference for someone (like me) new to the renewable energy scene.”

— FEEDBACK FROM 2016 TRIBAL ENERGY  
PROGRAM REVIEW PARTICIPANTS

# Delivering Technical Assistance

## Action

**Project Development Support.** Unbiased technical expertise to help address specific tribal barriers to developing clean energy projects, including reviews of studies and system designs, technology assessments, and financial modeling and analysis.

**Strategic Technical Assistance Response Team (START) Program.** Expert technical assistance and support with community-driven tribal energy efficiency and renewable energy projects in Alaska and the 48 contiguous states.

**Strategic Energy Planning.** On-site workshops led by tribal energy experts and focused on assisting tribes and Alaska Native villages with developing an energy vision and a viable roadmap to achieve that vision.

**Inter-tribal Technical Assistance Providers Network.** A pilot program funding eight tribal organizations to develop regional energy experts to provide technical energy assistance and informational resources to their member tribes, including Alaska Native villages.



Expert technical assistance provided by the Office of Indian Energy helped the Fond du Lac Band of Lake Superior Chippewa Indians develop a groundbreaking interconnection agreement for this 1-MW solar array.  
*Photo from Fond du Lac Band of Lake Superior Chippewa Indians*

## STRATEGIC ENERGY PLANNING



25

PLANS CREATED IN  
FISCAL YEAR 2016

## Types of On-Request Technical Assistance

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

# Impacts

## 183 TECHNICAL ASSISTANCE REQUESTS COMPLETED (2013–2016)

### Requests by Type

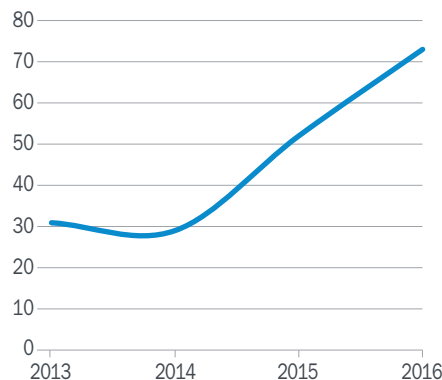
 **76** POLICY AND PROGRAMS\*

 **85** TECHNOLOGY AND RESOURCES

 **22** FINANCE

\*Includes strategic energy planning workshops.

Accepted Requests by Year



## 30 START PROJECTS SINCE 2012

 **16** IN ALASKA

 **14** IN THE CONTIGUOUS U.S.

POWER COST  
EQUALIZATION  
ASSISTANCE TO



**35** VILLAGES  
IN ALASKA

= MORE THAN  
IN COST SAVINGS

**\$600K**



“The greatest challenge of the Akiak Power Utilities and the City of Akiak staff persons was to correctly complete reporting requirements to the Regulatory Commission of Alaska and the Alaska Energy Authority, which authorize and provide much-needed Power Cost Equalization (PCE) funds to our customers and electricity users here at Akiak. [DOE technical assistance] is the most cost-effective technical assistance provided to us and improved our efforts to provide electricity services to our customers and ... be in compliance in receiving PCE funding to help our customers here in our community.”

—DEBRA JACKSON, MAYOR, CITY OF AKIAK

# Facilitating Access to Capital

## Action

**Grants.** Funding for Indian tribes, Alaska Native regional and village corporations, tribal energy resource development organizations, and tribal consortia to implement projects that promote tribal energy sufficiency and spur increased deployment of energy projects on Indian lands.

**DOE Tribal Loan Guarantee Program.** Authorizes DOE to provide loan guarantees to Indian tribes to accelerate energy development pursuant to Title XVII of the Energy Policy Act of 2005.

**Federal Energy Development Assistance Tool.** Provides information about federal grant, loan, and technical assistance programs available from more than 10 federal agencies to support energy development and deployment in Indian Country and Alaska Native villages.

---

### Tribal Energy Grants at a Glance (2002–2016)

DOE has invested \$66.5 million in 217 tribal clean energy projects valued at more than \$126 million. DOE's investments were leveraged by \$59.7 million in tribal cost-share. Tangible results of these investments include:

- Retrofitting 70 tribal buildings (representing more than 1.8 million square feet), saving tribes more than 10 million kWh of energy and \$2.5 million per year
  - Completing energy audits on more than 250 tribal buildings
  - Helping move more than 580 MW of potential new renewable energy generation into development
  - Supporting tribes and Alaska Native villages in assessing the potential for more than 4 gigawatts of new renewable energy generation
  - Training more than 170 tribal members as part of these tribal energy projects.
- 





# Impacts



## Project Outcomes

Approximately **18.5 MW** of new tribal renewable energy generation capacity:

Solar photovoltaics: **10.1 MW**

Wind: **3.2 MW**

Hydropower: **5 MW**

Biomass: **0.2 MW**

Annual electricity savings of **51 million kWh**—enough to power **4,700** U.S. homes for one year<sup>1</sup>

## \$ Cost Savings

Total cost savings of **\$9 million–\$11 million** annually and more than **\$0.5 billion** over the life of the projects

Every **\$1** of DOE funding results in **\$7.22** savings for tribes<sup>2</sup>



## Jobs Created

Combined total investment of **\$70 million** is the equivalent of nearly **2,000** jobs created<sup>3</sup>



## Economic Impacts

Lower electricity bills for more than **2,500** tribal buildings<sup>4</sup> and more than **29,000** tribal members<sup>5</sup>

Reduced the average price of electricity for those tribes by **58%**

Reduced the average price of electricity for tribes in the 48 contiguous states from **\$0.13/kWh** to **\$0.07/kWh—\$0.05** lower than the current U.S. average electricity price<sup>6</sup>

Reduced the average price of electricity for Alaska Native communities from **\$0.55/kWh** to **\$0.13/kWh**—roughly equivalent to the current U.S. average<sup>7</sup>

### Footnotes

1. Assuming one average U.S. home consumes 10,932 kWh per year.
2.  $[(\text{DOE cost share} / \text{total project cost}) * (\text{total savings from all projects})] / \text{DOE cost share}$ :  $[(\$24,924,255 / \$70,135,364) * (\$507,000,000)] / \$24,924,255$ .
3. Total cost savings divided by \$37,000; see footnote 7 below.
4. Tribes' self-reported data from grants.
5. Tribes' self-reported data from grants and 600–700 people assumed from residence occupancy rate of 3.7 people per home (2010 U.S. Census).
6. U.S. Energy Information Administration. "Average Price of Electricity to Ultimate Customers by End-Use Sector, by State, June 2016 and 2015." [https://www.eia.gov/electricity/monthly/epm\\_table\\_grapher.cfm?t=epmt\\_5\\_6\\_a](https://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_5_6_a).
7. \$70M divided by \$37,000, the average household income for American Indian and Alaskan Native homes (2010 U.S. Census).

*Figures are approximate and rounded for simplicity.*



## TRIBAL ENERGY GRANT SUCCESS STORY: Soboba Band of Luiseño Indians

In 2016, the Soboba Band of Luiseño Indians (California) celebrated the installation of a 1-MW solar PV system on its Reservation. The Tribe invested more than \$1 million in the \$2.1 million project, which was co-funded by a \$1 million DOE grant competitively awarded to the Tribe in 2015. As the first step in the Tribe's multi-step process to achieve its energy vision, the solar PV system will help power the tribal administrative building, preschool, Tribal Hall, and other key community facilities, meeting 80% of those buildings' yearly energy needs and saving the Tribe an estimated \$6.4 million in electricity costs over the next 20 years.

# Fostering Partnerships

## Action

**Indian Country Energy and Infrastructure Working Group (ICEIWG).** Regularly convenes representatives from tribes in the 48 contiguous states and Alaska Native villages that have experience and expertise in energy development and infrastructure. Provides advice and recommendations to inform the strategic planning and implementation of the Office of Indian Energy's resources, business, and energy infrastructure development policies and programs.

**White House Council on Native American Affairs.** Comprises representatives from more than 30 federal departments and agencies working collaboratively to promote the development of prosperous and resilient tribal communities.

**National Strategy for the Arctic Region.** Prioritizes the Office of Indian Energy's development of a 10-year renewable energy strategy through consultation and coordination with Alaska Native communities as part of the National Strategy for the Arctic Region (NSAR). The NSAR outlines strategic priorities intended to position the United States to respond effectively to the region's emerging opportunities while pursuing efforts to protect its unique environment.

**Tribal Energy Business Roundtables.** Create opportunities, in collaboration with ICEIWG, to foster and build partnerships between tribes and industry aimed at developing energy solutions that maximize economic development on tribal lands.

**National Tribal Energy Summit.** Brings together tribal leaders, representatives from federal agencies, state governments, private industry, utilities, and academia biannually to exchange ideas and explore solutions to energy challenges.



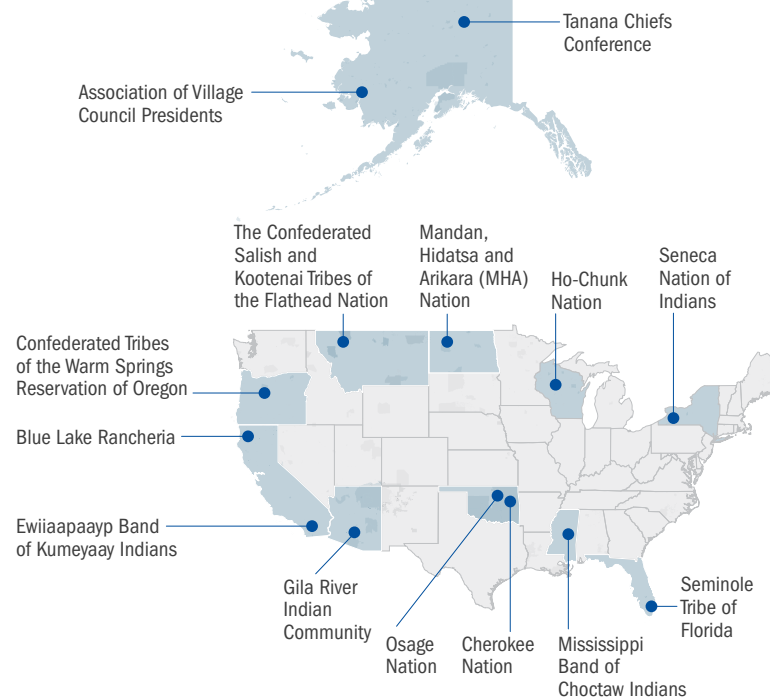
Members of ICEIWG and the Mandan, Hidatsa, and Arikara Nation at the October 2016 Working Group meeting in New Town, North Dakota. Photo from DOE.

# About ICEIWG

Established in May 2011, this informal working group brings federal government and tribal leaders together to collaborate and gain insight into real-time tribal experiences representing obstacles and opportunities in energy and related infrastructure development and capacity building in Indian Country.

## ICEIWG

### Member Tribes (14)



“Building strong government and industry partnerships at the local, regional, and national level has been key to our steady progress toward our renewable energy and carbon reduction goals.”

—JANA GANION, ENERGY DIRECTOR,  
BLUE LAKE RANCHERIA,  
ICEIWG PARTICIPANT

## ICEIWG Priorities

- 1 Increase access to capital
- 2 Secure energy costs and reliability
- 3 Improve and modernize regulatory system and agency nexus
- 4 Develop tribal energy capacity

# Investing in the Future of Native Communities

The Office of Indian Energy is investing in the future of Native American communities by providing accurate information, quality training, expert technical assistance, and project financial assistance. The support and resources we offer empower American Indian and Alaska Native communities to implement strategic, long-term solutions to their energy challenges—solutions with the potential to reduce energy costs, enhance energy security, increase resiliency, promote tribal sovereignty, and create a sustainable energy future.

## Contact Us

Access more information and resources online at [www.energy.gov/indianenergy](http://www.energy.gov/indianenergy) or email us at [indianenergy@hq.doe.gov](mailto:indianenergy@hq.doe.gov).

---

Cover photo from the Soboba Band of Luiseño Indians; page 1 from Givay Kochanowski, DOE; page 2 from iStock 9854399; page 4 top from Alexander Dane, NREL, bottom from iStock 539020204; page 5 left from the International Indian Treaty Council, right from Lawrence Hislop; page 9 from Dennis Schroeder, NREL; page 11 from Connie Fredenberg, March Creek; page 12 from Intelligent Energy Systems; page 13 from the Soboba Band of Luiseño Indians; page 15 from Siemens; inside back cover photo from Josh Bauer, NREL; back cover photo from Sherry Stout, NREL.







For more information on the DOE Office of Indian Energy's investments in the future of tribal communities and to access resources, visit [www.energy.gov/indianenergy](http://www.energy.gov/indianenergy).



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Indian Energy

[energy.gov/indianenergy](http://energy.gov/indianenergy) | [indianenergy@hq.doe.gov](mailto:indianenergy@hq.doe.gov)

August 2017 | DOE/IE-0038 | Printed on paper that contains recycled content.