



## Office of Indian Energy Internship program builds technical expertise

Students learn about different types of solar panels and arrays during the July 2016 Ute Mountain Ute Youth Energy Day in Colorado, hosted by the DOE Office of Indian Energy as part of its efforts to promote STEM education in tribal communities. The event is one of many education and training opportunities the Office of Indian Energy offers to tribes. (Photo by DOE Office of Indian Energy)

**A**n educated and technically skilled workforce is paramount to the development of tribal energy resources and the protection of tribal lands. The Department of Energy Office of Indian Energy's college student summer internship program has cultivated that workforce for more than 16 years.

Current full-time undergraduates and graduate students who are familiar with Native American culture and tribal issues apply to support Office of Indian Energy-funded projects in the field and at DOE's Sandia National Laboratories. During the 12-week internship, interns work with cross-disciplinary teams to receive hands-on experience and gain valuable knowledge about numerous energy technologies. This helps to build awareness in the tribal community around important energy issues and research while bringing technically skilled Native Americans into the workforce.

Half of the interns who have completed their degrees work in tribal

positions, including one who is the renewable energy engineer for WAPA customer, the Navajo Tribal Utility Authority. Another 33 percent hold jobs in STEM (science, technology, engineering and mathematics) fields outside their tribes.

### Graduates spread awareness

Recently, Chelsea Chee, a former intern and member of the Navajo Nation, received the National Alliance for Partnerships in Equity Rising Star award for leadership across several major projects in New Mexico. The

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award recognizes individuals at the beginning of their career who have demonstrated exemplary leadership traits promoting access, equity and diversity in education and the workforce.

One of the accomplishments that earned the honor for Chee began with an idea she had as an intern in the class of 2011-2013. She created the Natives In STEM program through her current position as the diversity and inclusion coordinator for New Mexico's Established Program to Stimulate Competitive Research. "It wouldn't have been possible if [my mentors and supervisors] hadn't supported my work and my ideas, some of which were different," Chee said. "But they trusted me and supported me and helped me turn those ideas into fruition."

Chee's initiative brings visibility to Native American STEM professionals, inspiring students of all backgrounds to pursue STEM careers. Now co-led with American Indian Science and Engineering Society, the project has distributed more than 4,500 posters that feature five Native STEM professionals, including to 137 Bureau of Indian Education schools, 14 tribal colleges and universities, and tribal libraries across the country. Chee is also active in the larger equity community at the state and national levels.

### Inclusion matters

The importance of internships and programs like Natives in STEM for increasing diversity in technical fields cannot be understated. According to the National Science Foundation, American Indians or Alaska Natives hold just 0.2 percent of science and engineering occupations, and represent only 0.3 percent of highest degree-holders in S&E fields.

Especially to young people, it can make a world of difference to know that others from their community have followed a path that may seem beyond reach. Chee recalled that one of the reasons she applied to the internship program was Sandra Begay, the internship coordinator and principal member of the Sandia Lab technical staff. Begay was the first Navajo woman Chee met who was connected to STEM and became an instant mentor to the intern.

Since completing her internship five years ago, Chee has become a voice for tribal inclusion in STEM settings and has taken part in equity conversations at state and local levels throughout New Mexico. She pointed out that people from rural areas—tribal and otherwise—often cannot get to Albuquerque to take part in STEM-related conversations. "It is important

to have that input," she said.

Chee continues to make inclusion her mission, adding that the Indian Energy program and internship were instrumental for her. "It was one of the best, if not the best, internship programs I've ever been a part of," she stated.

### Participate in Indian Energy programs

The 2018 internship program placed interns on projects such as on- and off-grid photovoltaic installations and a distributed energy resource system comprising large PV array, micro-turbine, fuel cell and large battery bank. Applicants must be U.S. citizens and have a grade point average of 3.0 for undergraduates and 4.0 for graduate students. Learn more about the application process and past interns on the Office of Indian Energy website.

In addition to the internship program, the Office of Indian Energy provides education and training opportunities, including regional workshops, webinars, Tribal Leader Forums, a comprehensive online training curriculum and an energy resource library. WAPA cosponsors the Tribal Energy Webinar series to help the diverse tribal communities evaluate and prioritize their energy options. ■

## Presidio seeking to purchase renewable energy certificates

**Due July 6, 4:30 p.m. PT**

**O**n behalf of The Presidio Trust, the Berkeley office of the Department of Energy Office of Science and WAPA's own Sierra Nevada Region, WAPA is requesting proposals for the transfer of renewable energy certificates in fiscal year 2018, with an option for purchases in FY 2019 and FY 2020.

WAPA will consider bids that meet Renewable Electric Energy and REC definitions and qualifications. Using the flexibility allowed under WAPA's power marketing authority, the REC contract will be awarded for the best overall value to federal agencies

while meeting the terms of the RFP. WAPA is encouraging small and minority-owned businesses and Native American tribes to apply.

Instructions on how to submit a bid to the solicitation can be found in the Statement of Intent for Federal

Agencies to Purchase Renewable Resources available on the Renewable Resources for Federal Agencies website. Fax the completed form to Public Utilities Specialist Sandee Peebles at 916-985-1931 no later than July 6 at 4:30 p.m. Pacific Time. Emails will not be considered.

All questions regarding this RFP can be emailed to Sandee Peebles. Read the full request for proposals. ■

# Efficient electrification worth talking about

The Electric Power Research Institute recently launched its Efficient Electrification Initiative to analyze the impacts of electrifying the end use of energy, where it makes sense from an efficiency standpoint.

In an article in the EPRI Journal, President and CEO Mike Howard drew a distinction between the original meaning of electrification—extending electrical service to people who lacked it—and EPRI’s demonstration program. Efficient electrification, Howard explained, looks to integrate the energy network to help achieve the most efficient use of energy and the cleanest production, delivery and consumption of that energy.

As defined in EPRI’s U.S. National Electrification Assessment, electrification refers to the adoption of electric end-use technologies to displace other commercial energy forms and provide new services. According to the assessment, electrification yields benefits to the economy that include:

- Lower-cost power
- Lower energy use
- Reduced air emissions and water use
- Improved health and safety for workers, potentially leading to gains in productivity and product quality
- Greater grid flexibility and efficiency

## More uses, less consumption

Among the assessment’s key findings is the expectation that electricity’s share of final energy consumption will grow from 21 percent today to 32–47 percent in 2050. Transportation—for personal vehicles and for commercial truck fleets and other heavier-duty

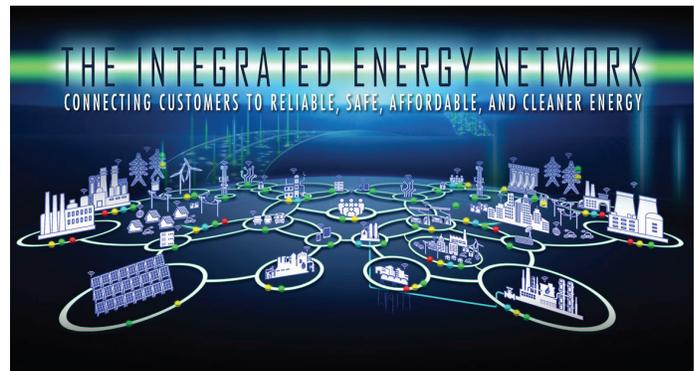
applications—accounts for a large share of this growth. Advanced heat pumps, industrial process equipment and other technologies will also contribute to that increase.

The analysis considers regulatory and economic barriers and points to opportunities for financing, recalling how rural electrification financing enabled technology that dramatically increased farm production. In the 21st century, indoor agriculture through electrified production of crops could sharply reduce water and other resource consumption, Howard asserted.

## Balancing act with benefits

One surprising fact that emerged from EPRI’s analysis is that even as electricity use increases, the overall use of energy decreases, hence the pairing of “efficient” with “electrification.” The entire energy system would become more efficient through efficient electrotechnologies, and become cleaner as it uses less energy to do the same work.

The efficient electrification scenario makes the entire system more dynamic, too. As more applications rely on electricity, grid operators have more resources to manage and draw upon for balancing supply- and demand-side resources.



According to EPRI, the key to efficient electrification is an integrated energy network that gives grid operators more resources to draw upon for balancing supply- and demand-side resources. (Artwork by Electric Power Research Institute)

## Discover possibilities

To move the conversation about electrification forward, EPRI is hosting the inaugural Electrification 2018 International Conference & Exposition Aug. 20-23 in Long Beach, California. Manufacturers, policymakers, academia, researchers, utility professionals and more will come together to explore the potential for electrifying at the point of end use.

This is an excellent opportunity to find out where electrification is today and where it could go tomorrow. Attendees will see the latest technologies in action and learn about the quantifiable benefits of electrification for consumers and the environment. Utilities and vendors will share cutting-edge practices from innovative programs they have implemented.

Now is the time for power providers to be talking about efficient electrification. Utilities that are ready to address the challenges and seize the opportunities can become leaders in efficiency, sustainability, service and customer satisfaction. Learn more about the conference and don’t forget to share your stories with WAPA. ■

# USDA Rural Development loans fund improvements for WAPA customers

**M**ountain View Electric Association and Farmers Electric Power Cooperative are the latest WAPA customers to receive loans from the Rural Development program of the U.S. Department of Agriculture. Assistant to the Secretary for Rural Development Ann Hazlett made the announcement during a visit to the Central Iowa Power Cooperative, the generation and transmission utility for Farmers Electric.



Farmers Electric Cooperative in Greenfield, Iowa, is receiving a \$1.4 million USDA loan to invest in smart grid projects. The co-op plans to install more than 5,800 single-phase meters and additional meter reading equipment in its west-central Iowa service area.

MVEA, headquartered in Limon, Colorado, will use the investment to build 197 miles of line and make improvements to another 197 miles and other parts of the system. The loan amount includes \$2.6 million for smart grid projects. The utility serves nearly 50,000 consumers in a 6,055-square mile territory covering Arapahoe, Crowley, Douglas, Elbert, El Paso, Lincoln and Pueblo counties.

In total, the USDA is investing \$309 million in 16 projects through its Electric Infrastructure Loan and Loan Guarantee program. It helps finance generation, transmission and distribution projects; system improvements; and energy conservation projects in communities with 10,000 or fewer residents.

The current round of loans is funding infrastructure improvements for utilities in Alabama, Arizona, California, Colorado, Iowa, Kansas, Missouri, North Carolina, New Mexico, Ohio, South Dakota and Washington. MVEA and Farmers Electric are only the latest WAPA customers to access funding through the program to build and upgrade their infrastructure.

Most retail or power supply providers serving qualified rural areas may apply for a loan, including:

- State and local governmental entities
- Federally-recognized tribes
- Nonprofits including cooperatives and limited dividend or mutual associations
- For-profit businesses (must be a corporation or limited liability company)

Utilities may use the funds to finance maintenance, upgrades, expansions, facilities replacement, energy efficiency and renewable energy projects. See the Electronic Code of Federal Regulations for additional guidance or contact your general field representative to learn more. ■

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**ENERGY SERVICES Bulletin**  
July 2018



**Energy Services**

The Energy Services Bulletin is published by Western Area Power Administration for its power customers. The mailing address is Western Area Power Administration, P.O.Box 281213, Lakewood, CO 80228-8213; telephone 720-962-7508.

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