

# THE WIRE

A Quarterly Publication for CoBank Electric Customers

March 2018 • Volume 2 Issue 1



## Renewables End 2017 on a High Note but May Face Headwinds Going Forward

By  
**BRIAN GOLDSTEIN**

Sector Vice President,  
Project Finance,  
CoBank



*CoBank's Project Finance Division provides financing to non-regulated independent power producers (IPPs) who are active participants in the power generation industry. Our focus is on the larger developers that provide utility scale solutions by building, owning and operating projects which sell their output under long-term (20 to 30 years) power sale contracts to cooperatives and investor owned utilities. Our division's focus on utility scale solutions augments CoBank's lending activity to customer-owner and provides CoBank with insight into the broader electricity market which we can share with our cooperative customers. In fact, according to the U.S. Energy Information Agency (EIA), between 2013 and 2015, 65 percent of all new generation capacity was added by IPPs. This trend is expected to*

*continued on page 6*



## How U.S. Cooperatives are Helping Turn Lights On Around the World

*A leader of NRECA International describes the organization's long involvement in international development efforts and the hands-on work of many co-ops and their members.*

America's electric cooperatives are famous for their transformative success in electrifying rural areas since the Great Depression. What may be less well-known is the role many co-ops have played for more than half a century in bringing power to every corner of the developing world. Since 1962, when it was created through an agreement between the NRECA and the newly established United States Agency for International Development (USAID), NRECA International has worked with local teams in 43 developing countries, providing electricity to some 140 million people. NRECA's first project, a small electric co-op in Santa Cruz, Bolivia, has grown to become the world's largest co-op, with 600,000 members.

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LIGHTS ON, from page 1

In recent years, cooperatives around the country have joined these efforts, with more than 300 co-ops donating time and money and sending hundreds of linemen and other employees to assist on international projects. *THE WIRE* spoke with Dan Waddle, senior vice president of NRECA International, about those efforts.

**THE WIRE: When did NRECA International begin its work of electrifying developing countries?**

**Dan Waddle:** In the early 1960s, the U.S. government asked us to share our experience in rural economic development. That was directly in line with co-op principles – to help other cooperatives establish themselves and grow, and our program has always been aligned with those principles. From the start, we were able to use the knowledge and the resources that we used to assist U.S. rural communities in the 1930s and '40s.

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we've established  
about 300 co-ops  
in the Philippines,  
Bangladesh,  
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many other countries.*

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**THE WIRE: What kinds of services does your organization provide?**

**DW:** We do consulting work, project definition, design, procurement, construction oversight and a lot of training in capacity building. Over the past 55 years, we've established about 300 co-ops

in the Philippines, Bangladesh, Costa Rica, Bolivia and many other countries. Those institutions now provide service to about 126 million people worldwide.

**THE WIRE: What does it mean from a humanitarian perspective to have brought power to so many communities around the world?**

**DW:** I don't really think of our program in humanitarian terms. Humanitarian aid sounds like you're giving something to somebody that they consume immediately, whereas the kind of development aid we provide transfers knowledge to countries that lack our expertise and resources to do things for themselves.

**THE WIRE: What have been some signature successes of your program?**

**DW:** In Bangladesh, we've connected 20 million consumers since 1978. The Philippines program, established in 1968,

now has 119 co-ops that serve more than 11 million consumers. A project in Costa Rica that began in the late 1980s now has about 140 megawatts of installed capacity that combines hydro, wind and solar – a model for our partners in other parts of the world. We've helped establish a combination of programs and projects that have been quite important as demonstrations of what people can do when they work together.

**THE WIRE: What in particular about the Costa Rican project makes it significant?**

**DW:** It's a generation transmission cooperative – the only one outside of the United States. It's also significant because it has been able to attract commercial financing on the strength of its balance sheet that enables it to continue to expand its power supply.

**THE WIRE: How important is the cooperative model in the work you do?**

**DW:** We strongly support the cooperative business model, and in the countries

that have the necessary legal and regulatory framework, that model has been instrumental. But our first charge is to establish sustainable institutions. Cooperatives don't flourish by themselves, and they require access to affordable capital. Rather than advocating a particular model, we emphasize community engagement and participation.

**THE WIRE: What parts of the world today are most in need of the services you provide?**

**DW:** In Sub-Saharan Africa, 700 million people don't have access to electricity. That has been our principal focus for the past 10 years. We're now developing national electrification expansion plans in Ethiopia and Uganda, we just completed an expansion program in Kenya, and we started the national electrification strategy effort in Malawi. We've been working in Liberia for the past four years, and have worked in Ghana, Nigeria, Sierra Leone and the Republic of the Congo. The projects vary but most have to do with preparing the ground for the rapid expansion of electrification service.

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**THE WIRE: How do NRECA member cooperatives contribute to the international program?**

**DW:** That dimension of our program has become very important in the past several years. In 2012, Indiana Electric Cooperatives wanted to engage in a project that it would finance. The association would raise the funds and send crews of linemen to build the project. We selected

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## What is NRECA International and why is it important to CoBank?



**BILL LADUCA**

**Sector Vice President,  
Electric Distribution,  
CoBank**

NRECA International has developed and implemented electrification programs across the world for more than 50 years. In that time, the program has provided electricity to more than 126 million people in 43 developing countries.

As a mission-based lender, CoBank is committed to serving as a good corporate citizen. The bank is an active supporter of charitable causes primarily in the United States, and particularly in communities where its associates, directors and customers live and work. In the case of NRECA International, we strongly support our partner's charitable work that promotes the cooperative principles across borders and delivers electricity to rural areas in developing countries all around the world.



NRECA INTERNATIONAL

*“My trip to Guatemala was very emotional and it was life changing. It will affect my career and my life forever.”*

– JEREMY SHAFFER,  
KIAMICHI ELECTRIC

## CASE STUDY:

# Oklahoma’s Electric Cooperatives Electrify Remote Guatemalan Village

NRECA International provides reliable and affordable electricity to develop economic growth, improved healthcare and better education for rural populations around the world. At the state level, cooperatives like the Oklahoma Association of Electric Cooperatives are leading similar efforts to electrify countries in need.

But what do statewide cooperative associations and their members gain from committing time and resources to these volunteer projects? For insights, we turned to Chris Meyers, general manager and CEO of the OAEC, and Anna Politano, editor of *Oklahoma Living* magazine.

### **THE WIRE:** How and when did the OAEC get involved in the international electrification program?

**Chris Meyers:** In 2014, one of our board members, Jimmy Taylor, visited Guatemala and saw firsthand how these projects can improve the quality of life in a village. His enthusiasm was contagious. In 2016, we partnered with Missouri’s electrical cooperatives to electrify two villages in Bolivia. That enabled us to stick our toe in the water rather than dive in all by ourselves.

**Anna Politano:** The positive experience in Bolivia led the OAEC to start our own Oklahoma Energy Trails Foundation as

a 501(c)(3) organization. In October 2017 we sent a team of volunteers to electrify a village in Guatemala – our first stand-alone project.

### **THE WIRE:** What does it mean to these villages when the lights go on for the first time?

**AP:** You see a sparkle in people’s eyes. It’s a promise of a better life. In Bolivia and Guatemala we saw children who couldn’t do homework after 6 p.m. because everything was dark. For them, electricity means education. It means security for people who’ve never felt safe leaving their homes at night. It means economic opportunity, being able to operate equipment that fosters economic growth.

### **THE WIRE:** What are the advantages for OAEC and your member cooperatives?

**CM:** Energy Trails builds unity because all of our cooperatives can send volunteers. There’s nothing to dislike about this. You’re helping people. Giving the gift of light takes us back to our roots, since our initial purpose nearly 80 years ago was to bring electricity to rural communities here in Oklahoma.

**AP:** One of the greatest benefits is the impact on our linemen volunteers who

*“An amazing, unforgettable experience. I enjoyed every minute of it.”*

– DANIEL FRANCO,  
CANADIAN VALLEY ELECTRIC

*“The work was unlike anything I have ever seen. I met the team the night before and the dynamic of working together with strangers was unique. I feel like we built a very strong bond.”*

– MATT MONTGOMERY,  
NORTHEAST OKLAHOMA ELECTRIC

work on the projects. They form close bonds with the people they're helping and return with new enthusiasm for their careers and a new perspective on life. They become better linemen, more engaged with their communities. The response from our co-op members has been overwhelmingly positive.

### **THE WIRE: How do you finance Oklahoma Energy Trails?**

**AP:** When you consider the costs of equipment ranging from posts and

transformers to the internal wiring in each home, plus transportation, lodging and meals for volunteers, it adds up. The OAEC covers part of these costs from our own funds, but we also hold community fundraising events.

### **THE WIRE: What advice would you give other statewide organizations thinking of getting involved?**

**AP:** It's vital to work closely with cooperatives throughout your state and get the message out through

publications, videos and other communications – not just with the co-op leadership, but also with line workers, so they can get on board.

**CM:** You don't have to reinvent the wheel. NRECA International is really helpful and will tell you what you need to do. Start by partnering with a state that's done it before. There are plenty of good, successful models if you look around and ask a few questions. Talk to us. We love to share. ■



**CHRIS MEYERS** is general manager and CEO of the Oklahoma Association of Electric Cooperatives. An electrical engineer by training, Meyers holds a bachelor's degree from Kansas State University and an MBA from the University of Oklahoma.



**ANNA POLITANO** is the editor of the OAEC's *Oklahoma Living* magazine. A native of Brazil, Politano studied journalism at Cameron University in Lawton, Oklahoma, and is pursuing a master's degree at the University of Missouri School of Journalism.

a program in Guatemala, and over six weeks, Indiana sent two crews to work on it. It wasn't a big project – maybe 10 to 15 kilometers of line that connected about 200 people in a mountainous community. But it was a project that the Indiana co-ops greatly enjoyed and appreciated. Our role was to identify the project and facilitate the logistics. But the co-op members themselves were responsible for the actual construction.

Since then we've had four or five member-sponsored projects every year in which cooperatives, statewide associations or groups of individual co-ops have sponsored

small projects that take three to four weeks for construction. At the end of the project, there's usually a celebration, so the cooperative members are embedded with the community and there's a lot of cultural exchange in that process – a lot of learning and sharing. For the co-ops and their members, there's a feeling that this takes them back to their roots in providing electricity in this country.

**THE WIRE: How do co-ops raise funds for these projects?**

**DW:** In addition to CoBank and other primary sponsors of the program, the co-ops

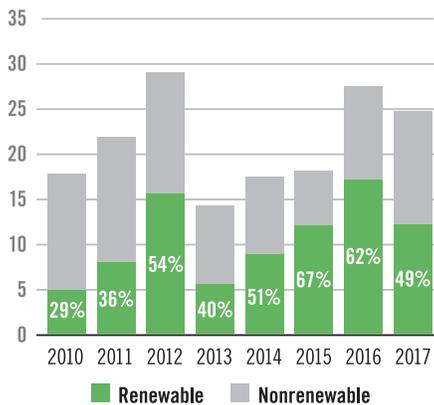
also engage directly in fundraisers. They don't just send volunteers; they're involved in every aspect of planning and execution. They support the projects through their intelligence and their hearts and minds.

**THE WIRE: What would you say to an electric cooperative that is thinking about starting its own program?**

**DW:** The first step is to have a discussion within the co-op to ensure that there's a real groundswell of commitment. Then engage our team as soon as possible. Ingrid Hunsicker is our team leader for the volunteer program and she's responsible

grow since more than 70 percent of new planned power generation between 2017 and 2027 is currently proposed by IPP's.

**Utility-Scale Capacity Additions, 2010-2017 (GW)**



According to the latest U.S. EIA data (1/10/2018), nearly half of utility-scale capacity installed during 2017 came from renewables. With approximately 25 GW of new generating capacity added in 2017, a strong fourth quarter for renewable projects brought this share to 49 percent of the total. In addition, another 3.5 GW of small-scale solar was estimated to have come online during the year.

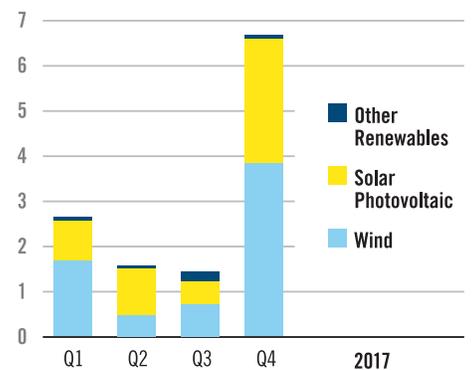
The strong fourth quarter reflects the effort by many developers to bring their projects to market to take advantage of the existing tax incentives in advance of the anticipated changes in tax law and other uncertainties on the horizon.

With the approach of 2018, there were three challenging issues on the horizon for renewable project developers. The first was the pending tax reform, which was signed into law on December 22, 2017. The final bill and its impact on renewable energy projects were unclear until the conference committee version was finalized just before it was forwarded to President Trump for his signature. The final bill retains the existing tax credit levels and planned phase-out of them (capped at five years for wind production tax credits). The final Base Erosion and Abuse Tax (BEAT) provision allows the use of tax credits to offset up to 80 percent of any BEAT liability and the tax rate is now finalized at 21 percent. In a typical solar project, financing the tax equity would provide roughly 50 percent of the capital costs for the project with the balance provided by senior debt (40 percent) and sponsor equity (10 percent). With the reduction in the tax rate, the size of the tax equity contribution will reduce by a third, requiring the sponsors to put

in more equity. It is reasonable to assume that this will put some upward pressure on power purchase prices to compensate for the more expensive capital needed to fund a project's cost.

The second issue impacting the prospects for 2018 was the pending Section 201 Case; Section 201 of the 1974 Trade Act is the United States' "global safeguard" law. On September 22nd, by a 4-0 vote, the U.S. International Trade Commission (ITC) found in favor of Suniva and SolarWorld that U.S. solar panel manufacturers had been injured by increasing solar panel imports by Chinese-made solar manufacturers. The uncertainty

**Utility-Scale Renewable Capacity Additions (GW)**



for organizing and managing member-sponsored projects. Ingrid has been doing this for more than a dozen years, and she's extremely dedicated and talented; she has personally organized every single member-sponsored project. Our plate is full for 2018, and we already have several projects scheduled for 2019. So if you are thinking about starting a program, email Ingrid at [ingrid.hunsicker@nreca.coop](mailto:ingrid.hunsicker@nreca.coop) as soon as possible. ■

## This Issue's Expert



**DAN WADDLE** is senior vice president of NRECA International, directing rural electrification and utility efficiency program activities in Latin America, Africa, and Central and South Asia. He has worked on rural energy and rural electrification issues for more than 35 years. His technical expertise includes specialization in geospatial platform development for rural electrification planning, biomass power conversion, small hydroelectric system design and analysis, solar photovoltaic system and program design, and electric power system design and analysis. Waddle earned his undergraduate and masters degrees in agricultural engineering from Virginia Tech and holds a doctorate in mechanical and agricultural engineering from Texas A&M.

*created by the tariff proceeding has left U.S. solar developers questioning at what price they can offer to supply electricity from new projects. Solar panel prices have increased roughly 40 percent since Suniva asked for tariffs last April. Panels are now selling for prices in the low- to mid-40 cent-a-watt range, and panel supplies for 2017 and 2018 projects have largely sold out. The Commission provided President Trump with several recommendations on November 14 and the president had until January 26 to take action on the U.S. ITC finding; the president was not bound by the recommendations of the U.S. ITC. On January 22nd, President Trump approved duties of 30 percent on solar panels in the first year, declining by 5 percent each year until reaching 15 percent in year 4. This will likely result in some increase in the cost of solar power modules, even as the cost of technology continues to decline, likely leading to modest increases in solar power purchase power agreement (PPA) prices over the next year to 18 months.*

*The third issue affecting the prospects for 2018 was caused by the Department of Energy's (DOE) request that the Federal Energy Regulatory Commission (FERC) consider a new market rule to provide coal and nuclear power plants with*

*compensation to support grid reliability. On January 8, FERC rejected the DOE proposal to subsidize coal and nuclear plants, instead turning to regional grid operators to assess how best to enhance the resilience of the power system. This rule would have likely delayed the retirement of some aging, inefficient coal plants slowing down the rapid build-out of renewables that has been experienced over the last several years.*

*These three issues contribute to some significant headwinds for the renewable sector as we head into 2018. While the DOE request has been dismissed, the need for IPPs to reconfigure their project costs and capital structures in light of the tax law change and pending tariffs is expected to lead to a slowdown in development activity over the first half of 2018. While this may cause 2018 to be a slower one than 2016 and 2017, the long-term prospects for the renewable sector remain very strong over the medium and long-term. It can be expected that manufacturers will step up their efforts to further reduce equipment costs and product efficiency, which have already fallen 67 percent and 86 percent for wind and solar, respectively, since 2009 through 2017\*. The EIA expects the*

*share of U.S. total utility-scale electricity generation from natural gas to rise from 32 percent in 2017 to 33 percent in 2018 and to 34 percent in 2019, as a result of low natural gas prices. Coal's forecast generation share is projected to fall from 30 percent in 2017 to slightly lower than 30 percent in 2018 and 28 percent in 2019. The nuclear share of generation was 20 percent in 2017 and is forecast to average 20 percent in 2018 and 19 percent in 2019. And non-hydropower renewables provided almost 10 percent of electricity generation in 2017 and its 2018 share is expected be similar before increasing to almost 11 percent in 2019.*

*So while 2018 is a year of significant uncertainty for the renewable energy sector, we expect it to continue growing and will increasingly become a larger part of the power generation mix. ■*

\*Lazard Levelized Cost of Energy Analysis – Version 11.0

# CoBank 2018 Webinar Series

SAVE THE DATE

Beyond dependable credit and financial services, CoBank seeks to help our customer-owners by providing thought leadership, high-quality information and timely insights on a number of energy-related topics that may impact you and your organization. Our slate of webinars for 2018 includes:

Tuesday, March 13 ..... **Broadband Case Studies**

- Jason Bronec, CEO, Delta-Montrose Electric Association
- Hamid Vahdatipour, CEO, Lake Region Electric Cooperative
- Kathryn McKenna, COO, Valley Communications Association

Tuesday, May 15..... **Cooperative Legal Update: Broadband, ROW, Capital Credits**

- Ty Thompson, Deputy General Counsel, NRECA

Tuesday, July 17..... **Evaluating Debt Structures**

- Bill Conway, Managing Director, CC Capital Advisors

Friday, September 28 ..... **Interest Rate Update**

- Robert Eisenbeis, Chief Monetary Economist, Cumberland Advisors

Tuesday, November 13..... **Battery Storage**

- Taylor Gunn, CoBank Lead Energy Analyst

All webinars will be held at 11:00 AM Eastern time. **For more information or to register, please contact your CoBank Relationship Manager.**

## CoBank's 2018 Industry Conferences

SAVE THE DATE

Packed with insightful speakers and compelling content, CoBank's industry meetings are designed to give America's rural energy cooperatives the insight and knowledge they need to meet today's challenges.

**Mark your calendars now!** The following 2018 conferences will all be held at the **Broadmoor Resort in Colorado Springs** – one of the nation's most historic destination resorts in a stunning Colorado mountain setting.

### ■ New Director Orientation

JULY 10, 2018

### ■ Energy Directors Conference

JULY 10-12, 2018

### ■ Energy and Water Executive Forum

AUGUST 8-10, 2018

For more information, visit [www.cobank.com/meetings](http://www.cobank.com/meetings).



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