

# Investing in a connected future

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**Western Area  
Power Administration**

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In the past couple of years, I have been frequently struck by how seemingly unrelated national events can affect our professional and personal lives.

We often respond to events that, on the surface, do not seem to affect WAPA: crises like storms across the country and in U.S. territories such as Puerto Rico, the U.S. Virgin Islands, Guam and the Northern Marianas Islands; or natural disasters such as the Carr Fire in northern California; or the drama that we are witnessing with the Keystone Pipeline.

We are regularly affected by change and events in the industry that have little direct connection to keeping the lights on. I believe this will become truer in our industry as we see advances in technology, particularly in artificial intelligence, blockchain, energy storage, consumer control and the “Electrification of Everything.”

For the past 41 years, we have remained committed to ensuring the value of WAPA for our customers and the nation. At the same time, we are looking toward the future – a connected future – and ensuring we are investing appropriately to preserve and strengthen that value to customers, our neighbors and the nation.

We are investing in the connected energy future by being agile, integrated, responsive, engaged and resilient. And we are making those investments while staying true to our core values and mission to keep rates as low as possible consistent with sound business principles.

Our hydropower continues to be among the most affordable generation sources in the nation, supporting low electric rates across our service territory. Nearly 80 percent of our customers experienced stable or decreased rates this year.

Hydropower from Hoover Dam reached 58 new allottees this year, 23 of which are Native American tribes. This nine-year remarketing effort, achieved thanks to the diligent efforts of several employees in Desert Southwest and across WAPA, will extend the benefits of affordable federal power to more people, improving their lives and supporting their economies.

Containing and reducing rates while at the same time accommodating a rapidly changing industry is nothing short of extraordinary. Whether we are

- preparing for markets in the West with the Mountain West Transmission Group and Organizational Approach to Markets effort,
- accommodating new reliability coordinators,
- protecting the grid from more than 20,000 identified cyber threats or
- collecting and analyzing asset management data that will inform the grid investments we will need to make now and in the future,

WAPA employees have consistently gone above and beyond to “Serve like your lights depend on it.”



We recently published our fiscal year 2018 annual report titled “Value of WAPA.” Our annual report summarizes our accomplishments over the past year, which include successes as the ones I just mentioned as well as our advances in

- physical security and collaborating on security information and mitigation efforts,
- responding to natural disasters,
- supporting the downlisting and delisting of endangered species
- partnering with customers to build new critical energy infrastructure
- and complying with regulatory drivers, such as establishing new real-time engineers in our 24-hour operations centers.

### **SPP participation and markets in the West**

I know there are questions about our participation in Southwest Power Pool. In 2015, the Integrated System, which included Upper Great Plains, joined the regional transmission organization. Before joining, we performed several analyses; we hired third-party consultants to analyze expected outcomes; we worked with our customers and other members of SPP to predict what the future would look like. Based on conservative assumptions, we believed that joining SPP would provide transmission and market benefits to WAPA and ultimately to our customers.

After three years, we learned those studies were very conservative, and the benefits of membership have been much greater than studied.

WAPA hydropower is not chasing the wind anymore, like it did when we operated our UGP East balancing authority. Instead, because the hydropower is most valued in the SPP energy market, it is not used in the SPP ancillary services market. Natural gas chases the wind in SPP. The Army Corps of Engineers is especially grateful for this stabilization as it reduces wear-and-tear on the units, and by extension, decreases lifecycle maintenance costs borne by UGP customers.

Also, with ready access to the SPP market and thanks to above average water conditions in the region, which I am well aware is not the same situation here, we were able to sell surplus generation into SPP last year. We avoided purchase power expenditures and gained an additional net market revenue of more than \$48 million dollars. These surplus sales help put downward pressure on firm power rates.

In terms of our future work with SPP, you have likely already heard of the indefinite postponement of the Mountain West Transmission Group effort to join SPP. When two of the Mountain West members decided to withdraw from the group earlier this year, it changed the economic and fundamental dynamics of the initiative. The prudent decision for WAPA and our customers, as well as the remaining members, was to put the effort on hold.

We still believe markets are coming to the West. When I was asked at our annual customer meeting last month what I thought our number one challenge was, the answer was markets in the west. We do not know what the future power supply will look like. We continue to see



traditional baseload plants close at an increasing pace. Our trading partners will likely dwindle as markets and market-like entities grow around us, like what we experienced in UGP. I believe the connected energy future will also compel utilities to join markets or something like them to handle the increasing complexity of our business.

We will continue to invest in our relationships with our customers and neighbors to realize balancing authority and transmission efficiencies, reduce cost shifts within WAPA to join a market and seize any and all opportunities to reduce or eliminate barriers for the next time we attempt membership.

This year, we will focus on preparing for new reliability coordinators. The West's current RC provider, Peak Reliability, will cease operations by the end of 2019. The North American Electric Reliability Corporation requires all balancing authorities and transmission operators to have a RC, meaning we need to secure new RC arrangements for each of our operating areas.

Western Area Upper Great Plains – West, the Western Area Colorado Missouri and the Western Area Lower Colorado balancing authorities, which also include our transmission operators, will transition to Southwest Power Pool RC in late 2019.

#### *Organizational Approach to Markets*

Internally, we are taking an Organizational Approach to Markets to respond to industry change and continue meeting customers' needs with the efficient, responsive and at-cost services we have in the past. A stronger WAPA is a stronger business partner to build our desired energy future. This initiative will realign our resources, clarify our processes, streamline our systems and implement modern technologies.

#### *Transmission Infrastructure Program*

I also want to give an update on WAPA's borrowing authority, which is managed by our Transmission Infrastructure Program. WAPA's borrowing authority is a permanent authority under law. Until that authority is rescinded, WAPA will carry out its statutory roles and responsibilities to:

- support the development of eligible transmission and related facilities,
- protect the customers from any liabilities,
- maintain WAPA's now decade-old administrative and financial separation between the borrowing authority and customer funding and accounts, and
- execute innovative industry partnerships as we have done with our customers and for sound projects like ED5-Palo Verde Hub and others.

#### *Transparency*

Finally, we continue to work with you on our transparency efforts. This year, we posted 10 years' worth of financial and operational information to The Source.



We chose to provide this information based on multiple conversations with our customers and other stakeholders. The site and our additional transparency efforts were recently awarded a Corporate Social Responsibility Award by a prominent international public relations organization.

We will continue to honor our spirit of transparency, to do what is right and what is safe to quote one of our core values.

### **The energy future**

Last year, I published an article in *Public Utilities Fortnightly* on the future of the energy industry titled “The kilowatt-hour is dead; don’t send flowers.”

In the article, I suggest that the traditional issues we concern ourselves with now, such as new forms of generation and regulations, are not the true disruptive forces that will upend our industry. In contrast, I believe the societal revolutions I mentioned before, advances in artificial intelligence, blockchain, consumer control, battery storage and the “Electrification of Everything,” will create a grid that is smarter, more connected and more integrated than ever before.

The reason we should care about these changes—why YOU should care about these changes—is because they will both directly and indirectly affect grid operations, other utilities and relationships with consumers.

If we fail to recognize how the energy landscape will change and do not invest wisely in a new energy future, it puts our joint business model at risk.

We are well connected to our customers and the national grid right now. The question is how do we all deal with a connected future where transmission will only be needed a small percentage of the time. And powerplants that we run constantly, that are designed to run constantly, will only be needed 15 to 20 percent of the time. How do we remain responsive to your needs in this future?

As we move to decarbonize our nation, load profiles will shift dramatically, and this shift may happen deeper, quicker, sooner and have more impact that people anticipate.

We are, with your support, positioning WAPA in a way that will optimize your ability to respond to and accommodate the continuously evolving future.

### **2019 Congressional Session**

We begin this year with a new Congress that includes several new faces. As always, we will invest in our relationships on the Hill and embark on an education process with the new members so they understand who we are, our role in the Department of Energy and how we operate in



partnership with our customers to market and deliver federal hydropower. There are also a wide range of issues we are watching that could impact WAPA and all of us directly and indirectly.

First and foremost are continuing questions concerning cyber and physical security. The Senate passed a bill last session to establish a pilot program to move the grid back to analog controls; the House's version remains stuck in committee. It is likely we will see some type of legislation returning this session.

We are also aware of Congressional interest to remove the language from the Energy Policy Act of 2005 that requires WAPA to track customers' integrated resource plans. Given that most states manage IRPs on their own and that markets have, in many respects, moved beyond the need for IRPs, this would remove a paperwork burden on customers and WAPA.

The increased interest in rural broadband and the potential for using "dark fiber" may also show up in various forms.

WAPA has about 5,200 miles of fiber optic lines to communicate remotely with substations, and the fiber is not being used to its maximum potential currently.

We need to close certain gaps in our fiber network and increase communication capacity to support data collection and future technologies for security and other advanced control systems.

At the same time, we are working with customers and DOE to evaluate where there are partnership opportunities to improve our fiber network, broaden access to customers and potentially expand networking and data-access capabilities for DOE to monitor critical energy infrastructure information.

Finally, there is the ongoing discussion of the CRSP payment for environmental programs. In 2018, WAPA was instructed to send \$23 million that had previously been used by the Bureau of Reclamation for environmental programs to Treasury, credited to us as a "constructive return" out of the Basin Fund. The Senate made up the difference, but this may be a challenge going forward.

### **2019 Tactical Action Plan**

Other ways we will invest in our connected future are embedded in the 2019 Tactical Action Plan, which shares our activities and priorities for the next two to three years under Strategic Roadmap 2024.

If the Roadmap is our goals and objectives at the 20,000 foot level, the TAP is that list of activities at the work level that will put us on the path to success.



My direction to employees in the fiscal year 2021 budget guidance was to remain budget and staff neutral as we continue to mature our programs, prepare for the future and improve our performance.

We expect to release the TAP later this year. It will look different than the last two iterations, but the priorities will be familiar.

The 2019 TAP is organized into four strategic target areas:

- Mission-Critical Customer Services in an Evolving Industry
- Asset Management 2.0
- Grid Resilience
- People and Organization

As we adapt to the energy frontier, we will also continue to seek efficiencies, streamline processes and implement innovations that improve the way we do business for less cost than we do now.

Our Continuous Process Improvement program has achieved more than \$72 million in mostly avoided costs since its inception. Projects this year focused on implementing time-saving technologies, such as using misting devices to repel birds from roosting in expensive substation equipment. We used to wash substation equipment by hand every year once the birds had moved on. Now, we prevent them from damaging equipment in the first place, by using, of all things, a mist derived from grape juice. These types of innovations will help us find better ways to complete our mission.

We also decided to eliminate the Equipment Loan Program. Popular in the early 1990s, the Equipment Loan Program served customers well in the emerging energy efficiency movement, but now there are organizations that can provide better services than we could ever accomplish. So, after several years, we have retired the program, saving about \$177,000 annually.

Another opportunity to invest in our connected future involves our long-term financial sustainability. I think we can all see we will not be receiving a windfall of appropriations in the foreseeable future. Many of the predictions we made about declining appropriations are coming true and faster than we expected. We are equally sure the pressure on purchase power and wheeling funding will not abate. I look forward to working with you to manage these issues.

This question of funding will require a long-term solution. We can adjust to one year of appropriations shortfall, perhaps even a few years. But this is not a sustainable future for our partnership or the grid, and short-term fixes will not solve our long-term issue. I believe this funding question will be one of the larger opportunities in the coming years.



When we talk about investing in a connected future, we are not only speaking from an economic standpoint—our assets and financial stability. Investments happen in several ways: in relationships, in training, in people and in being innovative and inclusive.

#### *NERC Compliance Program*

This includes looking at our compliance program and NERC registrations. We are actively engaged in activities that will improve the efficiency and effectiveness of our NERC Compliance Program, including reducing the number of auditable entities. These changes will free up resources to address other emerging issues.

#### *Battery storage*

Another opportunity regards storage. I have tasked my regional managers to become better acquainted with options for storage. We hear from customers that this is the biggest technology disrupter they face right now. We want to work with our customers to identify opportunities to interconnect transmission-scale battery storage to WAPA's system.

We have zero interest in owning this storage asset, just like we have zero interest in owning a wind or solar farm. We would like to partner with you on connecting these assets to the WAPA system to take advantage of the benefits it would offer, including balancing load, increasing resource diversity and managing the variability of water. We are ready and waiting to have these discussions with you.

#### **Conclusion**

As we head into an energy frontier, we envision a future more connected than ever before. And an industry that is also flatter and has more demands placed on it than we have seen previously.

What is happening to the grid now is not related to the physics we have known for more than 100 years. It is related to information technology, financial change and new ways consumers think about energy and their power over their choices. We must become technologically adept to adapt and thrive in this new electronic world.

Let me be clear that we are not looking to be on the leading edge of this future or to lead this future. But we must invest in this future to remain relevant. It is only by remaining relevant that we will preserve and strengthen the value of our hydropower and transmission services for our customers.

We will invest in the connected future by being:

- **Agile**—responding to changes in the industry, including from regulatory bodies; evolving our Open Access Transmission Tariff to be more in line with the pro-forma OATT; and preparing for markets and market-like entities in the West.
- By being **Integrated**—accommodating battery storage and new technologies; partnering on fiber and other similar opportunities; and developing a workforce of the future.



- By being **Responsive**—acting on customer requests for transparency and needs in the future; and seeking occasions to partner on common issues facing us.
- By being **Engaged**—listening to our customers to determine how we can support you now and in the future; connecting you with subject matter experts on today’s big topics in open and safe discussions on the realities for the grid; and by participating in the big conversations.
- By being **Resilient**—defending and combating against physical and cyber threats; adapting to potential new long-term water conditions; and advancing financial security that looks different than today for appropriations and purchase power and wheeling.

And, above all, we invest in a connected future by serving like our lights depend on it. This is an exciting time to be part of the energy industry. We look forward to continuing our partnership with you – our customers – for the next 40 years and beyond.

Thank you.

