

IDEAS ALOFT

Bringing innovation in for a landing

PNVCC

Bringing the Power of good ideas Together.

2018 ANNUAL REPORT

ABOUT PNUCC

PNUCC has played a pivotal role in the region's electric utility industry for over 70 years. As a voluntary, non-profit organization, PNUCC is a forum for bringing the power of good ideas to bear on a range of issues that affect electricity providers and their customers in the Northwest.

OUR MISSION

Bringing the power of good ideas together to assist PNUCC members in fulfilling their company missions in this ever-changing electric industry.

PNUCC's mission is accomplished by providing the:

- Searchlight for changes that will have a significant impact on how our industry does business in the future.
- Catalyst for examining issues that impact a significant portion of our membership.
- Forum for dialogue on policy issues of regional importance.
- Hub to coordinate technical analysis and data on vital Northwest power industry issues.
- Resource for sharing information on issues of regional importance to the power industry.

PNUCC STAFF

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JOINT MESSAGE FROM PNUCC BOARD CHAIR AND EXECUTIVE DIRECTOR

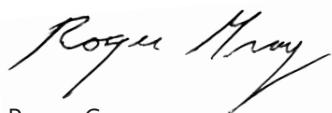
It is fitting that this year's theme for our annual meeting is Ideas Aloft, because it exemplifies what PNUCC is all about. We are a gathering place to let ideas soar and to provide that all-important check-point before they lift off to be shared among our members, policy-makers and others throughout the Pacific Northwest.

Ideas have been the heart and soul of our organization for more than 70 years, and this year is no exception. Throughout 2018, we have come together on a regular basis to talk about what is most important to each utility and the region. It's with this focus that we discuss and learn where the challenges are, how we are dealing with them as the industry transforms, and how we are helping customers in new and innovative ways.

We do more than just listen. We talk, we share, we compare analytic approaches and consider valuable data that can help ensure a reliable, adequate power supply for the region. Through our collective conversations, we gain a deeper understanding of each other's challenges and solutions—not just where we are alike, but where we are different too. It is through our lively and sometimes difficult conversations that we move forward to best serve the power customers of the Northwest.

We couldn't do this without the hard work and support of our Board of Directors and our member utilities—their resource planners, load forecasters and technicians who help to provide solid data—and the PNUCC staff who keep everything moving forward.

Thank you all for your service to the greater good of this exciting industry!



Roger Gray
PNUCC Chair



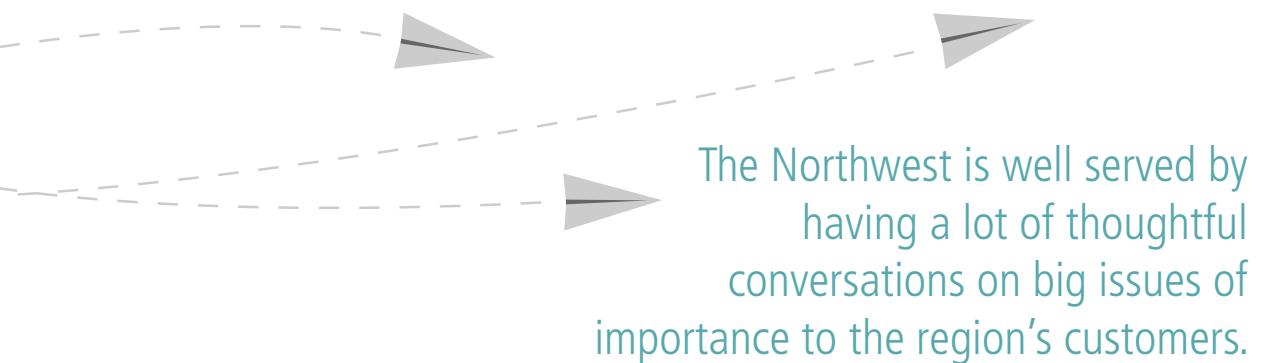
Shauna McReynolds
PNUCC Executive Director



Think back to the last time you boarded a commercial jet for business or pleasure.

You likely didn't know anyone else on the aircraft—or perhaps you only knew a few. But no one was really traveling alone, right? All of you were on the same journey. And all of you had the same goal: *Arrive safely at your destination.*

The Pacific Northwest Utilities Conference Committee—PNUCC—is a lot like that, only more. We are a diverse membership of public and investor-owned utility leaders, resource planners and other experts in the energy field on the same flight. But this flight is one of ideas. Since its founding in 1946, PNUCC has served as a place where members can come together to identify common interests, share perspectives, learn from each other, and have frank, valuable discussions to understand where interests overlap and why they diverge when they do.



The Northwest is well served by having a lot of thoughtful conversations on big issues of importance to the region's customers.

We are not an advocacy group, but an information and idea-sharing forum where we *Bring the Power of Good Ideas Together*. The true value of PNUCC to the Northwest is made very apparent during times of change—such as now—when headwinds are buffeting the industry on its continual journey, not just economically, but politically, structurally and socially.

Through this collaborative sharing, ideas take flight and become sound, practical solutions. We explore new business models, respond to changing customer preferences, keep a close watch on the region's power supplies, and work to understand and create common ground on important energy issues.

PNUCC is an important resource where members, policy-makers, journalists and others can get accurate information about the state of the region's current energy supply—and the forecast for future needs as the Northwest's demand for electricity grows. In fact, this remains one of our prime objectives—and we do it well.

In this annual report, we look at what is taking flight and by using the same criteria year after year, we provide a measure of how needs are changing over time.

EXPLORING THE MARKET ROUTE

Perhaps no emerging issue consumed as much time and energy in 2018 as exploring the idea of a common, centralized place for buying and selling of power on the wholesale market. With about two-thirds of the nation having some sort of organized wholesale energy and transmission market, we provided members with the knowledge they need to compare and contrast the services and differences between existing markets to shape ideas for the future of the Northwest.

Ideas take flight at PNUCC meetings.

The Northwest doesn't have this kind of structure; instead it operates primarily as a bilateral market. Most utilities purchase power directly from the federal Bonneville Power Administration, generate their own electricity, and/or purchase power from utilities that have excess electricity to sell. The rapid expansion of renewable power in the Northwest, the development of state policies to reduce carbon, and the implementation of the Energy Imbalance Market are fueling PNUCC members' interest in understanding markets and in having a voice at the table when it comes to the Northwest.

In early 2018, PNUCC’s market structure discussions took flight; by mid-year we had agreement on a set of Market Structure Principles to guide future exploration of a Northwest market. These principles recognize six benefits of a well-functioning organized market. They are founded on achieving a fair and transparent system, which is critical as the region continues to explore the benefits and challenges of an organized market and the continued expansion of the Energy Imbalance Market operated by the California ISO.

TUNING UP TRANSMISSION

Similarly, a collaborative effort to establish a Regional Planning Organization to address Northwest high-voltage transmission needs moved from a conceptual idea to reality, and PNUCC members discussed the value and benefit to the Northwest of working together with a single planning organization.

With participating utilities reaching consensus on the principle objectives, it looks as though this will become a reality in 2019. We will continue our discussion in PNUCC forums as we travel along these new paths.

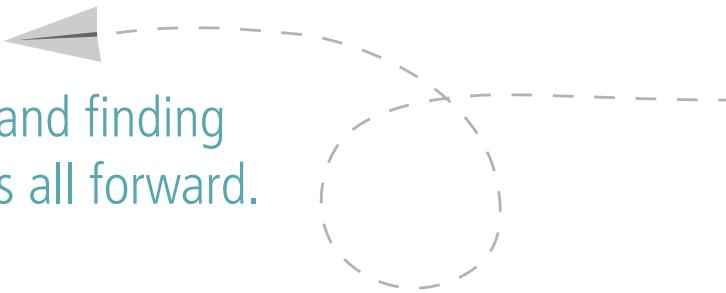
**PNUCC provides opportunities
to learn at every meeting.**

STUDYING ALTERNATIVES

What if most of us in the region owned an electric car? That—as well as other emerging trends—spurred spirited dialogue about electrification in the Northwest among PNUCC members in 2018.

Fueling this course are efforts to reduce the region's use of carbon-generating power resources. And since electrification may impact the Northwest's electric power grid—the need for additional operating resources and the adequacy of existing electric transmission lines—PNUCC members asked: What if there was lots of electrification? Would it strain the existing system?

Not averse to emerging or potentially touchy issues, PNUCC members gained a better understanding of the impacts of larger-scale electrification. This work was limited to advancing technologies that allow us to own and operate carbon-free vehicles, and comparison of options for heating homes and offices. What if we all owned electric cars? How would that impact local utilities' systems? How would switching from gas to electricity affect the demand for power across the region?



The Northwest is unique, and finding common ground moves us all forward.

PNUCC and its member utilities spent considerable time in 2018 developing the kind of data that we are known for—unbiased, accurate, and to the point. The data shaped the conclusions reached in the *Implications of Electrifying the Pacific Northwest* that electrification of light duty vehicles and home heating, if vast enough, will also require new demand-side programs, power supply and infrastructure improvements.

POWERING UP... OR NOT?

The Pacific Northwest was built on low-cost, abundant hydroelectricity. But as the region kept growing, we needed more sources of energy, from natural-gas fired power plants to natural gas to heat homes and offices, to wind and solar energy to reduce our collective carbon footprint.

Recently, however, the development of new electricity resources has almost come to a complete stop. In part because of the success of utility energy efficiency programs and local building codes and federal standards. Yet the region keeps growing.

Adding to the question is the impact of the upcoming closure of major coal-fired power plants to meet carbon-reduction goals. For now, we have enough electricity to meet demand most of the year. But what happens in the peak periods of demand—during an extreme cold snap in the winter or a high-heat period in the summer?

This is where PNUCC's *Northwest Regional Forecast* can provide navigation for the future. Our annual *Forecast* brings together the best minds and data in the area of forecasting to provide a dependable and unbiased view of what we have and what we'll need in the future. The *Forecast* provides the only utility perspective on the future supply and demand for power in the Northwest. It is crucial for comparison with other work in ensuring the region has reliable, ample and affordable electricity.



Relationships matter and the value of having a conversation with public and private utilities in the same room cannot be overstated.

The 2018 *Northwest Regional Forecast* looks at supply and demand over the next 10 years through the lens of an industry undergoing a transformation. While energy forecasting is partially an art, PNUCC and its member utilities have refined their modeling data through the years to account for changing customer preferences, fluctuating state and federal energy policies, and other factors unique to individual utilities, to capture ever-changing elements that influence load.

The bottom line remains: While the Northwest has ample supplies of electricity now, demand for power could outstrip supplies during peak winter months as early as 2021. The push for more renewable generation, electrification, and changes to policy directives may exacerbate or speed this up. This raises questions about whether we need more generating facilities—or whether we can mitigate through increased emphasis on conservation and energy efficiency measures and new solutions for resources like storage.

WHO'S TRAVELING WITH YOU

PNUCC is all about sharing ideas, and we spend a good deal of time at our frequent gatherings getting to know each other. This collaborative, safe environment brings members together on the journey—where all thoughts are valued. Who's sitting in that seat next to you, and what are their ideas for our industry? For most PNUCC utility leaders, the sharing of insight and knowledge provides high value.

We all benefit from hearing what neighboring utilities are doing. In 2018, we learned about one utility that collaborates with wineries to provide electric vehicle charging stations to stimulate economic development. We're learning from another utility's experience with smart grid technology, and from yet another utility that has embarked on a major effort to change the relationship with their customers. Puget Sound Energy and Snohomish PUD partnered to share their learnings from programs that incorporate national companies' renewable corporate strategies into their business models to develop green portfolio programs.

Members value being in the room and at the table to participate in the regional discussions.

We're continually finding ways to support sharing and learning. The *Third PNUCC Load Forecasting Workshop* provided opportunities for members' newest load forecasting crews to have high level "what if" conversations with seasoned veterans. This led to the collaborative exploration of alternative routes to discovering new territory. Again, it speaks to the value of being in the room, communicating and valuing all ideas.

Many of these discussions took place in an environment of change among PNUCC's participating members themselves. Retirements of long-serving executives over the past few years, coupled with the emergence of up and coming utility leaders, has made getting-to-know-you efforts even more important for the Northwest's energy industry. And PNUCC will be there for its members—staying on top of emerging issues, continuing the conversation, and advancing ideas aloft.

2018 MEMBERS

Ashland Municipal Electric Utility
Avista
Benton PUD
Benton Rural Electric Association
Blachly-Lane Electric Cooperative
Central Electric Cooperative
Central Lincoln PUD
Chelan County PUD
City of Cheney Light Department
Clark Public Utilities
Clatskanie PUD
Clearwater Power Co.
Consumers Power Inc.
Coos-Curry Electric Cooperative
Cowlitz County PUD
Douglas Electric Cooperative
Emerald People's Utility District
Eugene Water & Electric Board
Fall River Rural Electric Cooperative
Flathead Electric Cooperative
Forest Grove Light & Power
Franklin PUD
Grant County PUD
Grays Harbor PUD
Idaho Falls Power
Idaho Power
Lane Electric Cooperative
Lewis County PUD
Lincoln Electric Cooperative
Northern Lights Inc.
Northern Wasco PUD
NorthWestern Energy
Okanogan Co. Electric Cooperative
Orcas Power & Light
Pacific Power
Pend Oreille County PUD
PNGC Power
Portland General Electric
Puget Sound Energy
Raft River Rural Electric Cooperative
Seattle City Light
Snohomish County PUD
City of Sumas
Tacoma Power
Tillamook PUD
Umatilla Electric Cooperative
Vera Water & Power
Wells Rural Electric Company
West Oregon Electric Cooperative
Whatcom County PUD

MEMBERSHIP

PNUCC members are consumer-owned and investor-owned utilities in Washington, Oregon, Idaho and Montana—west of the Continental Divide—and other power industry partners with a shared interest in PNUCC's purpose. Through PNUCC, members have the opportunity to listen and learn from each other and help shape evolving regional policies.

2018 BUDGET

Staff Expenses	\$ 498,000
Overhead Expenses	175,000
Outside Services	42,000
General Consultants	
Collaborative	
Council Meeting Report	

Total Budget	\$ 715,000

2018 BOARD OF DIRECTORS

Roger Gray , <i>Chair</i>	Northwest Requirements Utilities
Scott Bolton , <i>First Vice-Chair</i>	PacifiCorp
Jason Thackston , <i>Treasurer</i>	Avista
Shauna McReynolds , <i>Secretary</i>	PNUCC

Franco Albi	Portland General Electric
Chad Bartram	Benton PUD
Kelcey Brown	PacifiCorp
John Bushnell	NorthWestern Energy
Scott Coe	Emerald PUD
Robert Cromwell	Seattle City Light
Tom DeBoer	Snohomish County PUD
Sarah Edmonds	Portland General Electric
John Hines	NorthWestern Energy
Mariah Kennedy/Shauana Tran	Puget Sound Energy
Scott Kinney	Avista
Frank Lawson	Eugene Water & Electric Board
Beth Looney	PNGC Power
Kevin Nordt	Grant PUD
Tess Park	Idaho Power
Bear Prairie	Idaho Falls Power
Chris Robinson	Tacoma Power
Adam Richins	Idaho Power
Debra Smith	Central Lincoln PUD
Dave Ward	Grays Harbor PUD
Paul Wetherbee	Puget Sound Energy



Bringing the *Power* of good ideas *Together*.

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