



CRACKING THE CASE
OF DATA
INTELLIGENCE

PNUCC 2016 ANNUAL REPORT

Executive Director's Message

As much as things change, certain things remain the same. For 70 years, PNUCC has fixed its attention on the data behind loads and resources. We continue to scrutinize new data to help our members successfully plan for a clean, affordable and reliable energy future. Our efforts go deeper than crunching numbers; we explore the context and implications of changing policies, resource options and customer needs.

Our PNUCC staff is a small but mighty team. I am proud of our ability to reach out to members who have specific technical expertise and engage them in issues important to the region's vitality. Whether we dig into the changing demand for electricity or explore how to quantify hydropower's value in the region, we accomplish our goals by accessing the strength of our members.

PNUCC's influence goes far beyond Board or committee gatherings. Members are drawn into the organization through conversations with others who share an interest in a thriving Northwest electric power industry. We learn about the most pressing issues from our organization's wide range of industry experts. We generate significant opportunities and relationships through in-depth dialogue with emerging industry leaders.

This coming year we will be devoting more effort to outreach. By building on our existing connections and extending our reach to a wider network of industry partners, we hope to add their voices to our ongoing discussions. In fact, it's our goal to expand our range and understanding of topics as we listen to these new perspectives. I believe more voices lead to richer experiences and deeper value.

I am grateful for the significant contributions of time, talent and interest from all our members. As a team, we continue bringing the power of good ideas together.



Shauna McReynolds
PNUCC Executive Director

Chair's Message

As a forum where complex and divisive issues are brought to the table and discussed, PNUCC facilitates a unique and important function in the Northwest. Our organization creates an environment where members put aside competitive differences to chart a mutually beneficial course forward. When we peel away the politics and talk about what we've learned, we find that investor-owned and publicly-owned utilities are more alike than different. We, as an industry, share the same pressures to remain reliable, competitive and efficient in powering the Northwest.

Over the last year, PNUCC has continued our tradition of addressing the difficult issues head on. We've heard new ideas from experts on the front lines about regulatory, operational and financial concerns. We have built relationships and developed solutions with one another that we believe will bear fruit down the road.

As key industry issues have evolved over the year, we have reported and commented on their significance to our members: the energy imbalance market in California; the story behind recently announced coal plant closures; and utility strategies for dealing with changes in load, energy efficiency and fuel mix. PNUCC has also invited natural gas and electric utilities to sit down together and discuss the convergence of their industries. Moving forward, we are actively reaching out to the region's larger customers to incorporate their perspectives into our deliberations.

Thank you for your part in our past, present and future. PNUCC depends on its members to make connections, share ideas and find collaborative solutions that are out of reach for individual organizations.



Lisa Grow, Idaho Power
Chairman

Intelligence Powers Informed Decisions

Data, in the form of numbers, only gains meaning when we know its value. Calculating and defining that value is the work of experts and technology. Weighing and applying the results for the benefit of utilities and their customers in the Northwest is an evolving opportunity for PNUCC members. By accessing and interpreting an abundance of information, we can decipher the best options for pricing, policy, load forecasting, modeling and more. As we have for 70 years, PNUCC will continue to engage our members and industry by cracking the code for informed decision making on complex regional energy issues.

Opening the Investigation: Looking at Loads and Resources

PNUCC was founded in 1946 as a voluntary, informal organization of public and private utilities to assess regional power supply and support federal appropriations for power projects in the region. Early on, PNUCC left its footprint on resource planning efforts, particularly in the technical analysis of loads and resources. Currently that expert analysis is the foundation of PNUCC's annual *Northwest Regional Forecast of Power Loads and Resources*.

The *Forecast* is a 10-year snapshot of actions taken by utilities to ensure an adequate, reliable power supply. It is a dependable resource for utility planners, regulators and policy makers. This year's *Forecast* revealed the unique and varied degrees of projected growth among utilities based on their individual load forecasts. A wider view exposed what most utilities already know: an increase in customers no longer equates to energy load growth. The data tells us that load patterns have changed and low load growth trends continue.

PNUCC hosted the second annual Load Forecasting Workshop so planners could further investigate forecasting models, data and trends. Consensus was that summer peak loads are growing faster than winter peaks; overall load growth remains low; electricity use per customer is falling; and codes and standards have significantly affected growth.

Members will continue to have more opportunities to brainstorm new and innovative ideas for looking at load forecasting in the future. Focusing on the changing business environment from another angle, PNUCC has continued to keep tabs on how utility rate models are adapting.

“Being here, I am reminded of the value that comes from being in the same room with other PNUCC members to talk about current issues.”

John Bushnell,
Northwestern
Energy

The Evidence Points to Energy Efficiency

Utility-funded program savings continue to surpass regional goals. A closer look suggests the latest tally of cumulative savings through five years stack up to more than 1,400 aMW for the region and utilities are forecasting another 1,100 aMW through their programs alone by 2021. PNUCC members celebrated this evidence and the region's success in acquiring energy efficiency.

Today's utilities are facing another major transformation driven by advances in technology, changing load profiles and notable changes to public policy.

With state energy codes and federal standards being updated at an unprecedented pace, evidence shows there is no slowing down as future savings are estimated to double once market transformation and codes and standards are added in.

Closing the Case on Coal

The upcoming retirement of regional coal units meant this year utilities magnified their examination of resource needs after 2020. Several shared their integrated resource plans with PNUCC. This body of evidence revealed that the best strategy to maintain adequacy while balancing cost and risk likely depends on the utility's resource mix, ever mindful of the public and regulatory lens.

Agent Assignments: Policy Change

The business of energy is constantly on the move. Recent public policy changes are setting the pace for shaping the power supply of the future. Because new federal and state regulations are often unclear and sometimes incompatible, they create challenges in an interconnected region. The aggressive approach to carbon reduction and renewable energy championed by Governors in the West continues to reverberate throughout the region. PNUCC helps provide current, critical context for questions on new or revised policies.

Carbon continues to rule climate discussions and key policy changes, and PNUCC is a proven strategic partner. Through the System Planning Committee, members analyzed proposed rules and legislation, the final version of the federal *Clean Power Plan* and resulting system operation challenges. When the state of Washington rolled out its controversial “Clean Air Rule” on its already established carbon goals, PNUCC stepped in with data-driven facts. PNUCC members continue to communicate, build consensus and look for opportunities to shape legislation to mitigate carbon policy impact on system operations.

The rise of renewables has been driven more by policy than by need. As more renewables are integrated into the system, balancing authorities are exploring alternatives to the current market.

Defining the Mission: A Regional Focus

Wrapping Up the *Seventh Power Plan*

PNUCC is a unified voice for the utility industry in conversation with the Northwest Power and Conservation Council. While finalizing the *Seventh Power Plan* earlier this year, many of PNUCC’s concerns and technical questions were considered. Our members’ input aligned with the Plan’s conclusions that hydro is the region’s most valuable, clean renewable resource; that utilities have captured significant energy efficiency; and that the power system needs resources that can meet peak demand.

PNUCC will stay on the Council’s trail as the region implements the Seventh Plan, helping to shape discussions by participating in advisory groups, including Resource Adequacy, Demand Response and Resource Strategy. We will keep producing monthly accounts of the Council meetings to keep members informed as they tackle their own mission.

Continuing the California Stakeout

For decades, seasonal diversity has been an advantage for utilities on both ends of the Northwest and California intertie. Aggressive renewable development and policy changes have challenged this traditional

relationship. PNUCC forums focused member attention on activity in California that could impact Northwest power system operations.

Balancing the imbalance: Experts reframed the conversation with our members about proposed changes to regional policy, unfolding the idea of a Western Energy Imbalance Market. Adapting to the influx of renewables and investigating what investments in technology are necessary to join the growing Energy Imbalance Market (EIM), has members exploring what will be required. John Prescott, Western EIM board member, underscored that the California Independent System Operator (ISO) is committed to an EIM for the long run. He encouraged PNUCC members to actively engage in developing the governance structure and framework to capture the benefits of geographically diverse loads and resources.

A bigger footprint: Also emerging is the concept of a West-wide system operator that would build on and broaden the current California ISO. A deeply engaged team, including stakeholders from public utility commissions, Governor's offices and utility leaders met to begin exploring what it will take to expand interconnectivity and accomplish this massive undertaking. Much more investigation will be needed to crack this case.

Natural gas leak compromises the mission: Regular briefings kept members up to speed on the prolonged leak and temporary shutdown of the second largest gas storage unit in North America, Aliso Canyon in Southern California. Actions and contingency plans were of great interest to the Northwest since the region has relied on California imports to meet winter peaks for years. This situation demonstrated, once again, how essential natural gas is for electric generation and system adequacy in the Northwest.

Informant's Report: Hydro has High Value

Plentiful renewables, inexpensive natural gas and relatively flat load growth heightened interest in valuing the Northwest's abundant hydropower resources. PNUCC got to work evaluating its power components. The result, *The Value of Hydropower to the Northwest Grid*, published in October, concluded that capacity and flexibility are the region's big challenges. Even though the Northwest has shifted from deficit to surplus on an annual energy basis, market factors make it difficult to value resources like hydro without formal capacity and flexibility markets to maximize the value.

“The 20th century model was about a shared system that created huge public benefit... the 21st century's challenge is to keep the best—shared and public benefit—and make it clean and more resilient.”

Roger Gray, CEO,
Northwest Requirements Utilities

In an era where peaking capability is top of mind, the hydro system provides more peak capacity than all other resources combined and remains the backbone of the Northwest power system. Efforts like the Columbia River Treaty Power Group continue to ensure the value of the system is preserved.

Exploring New Scenarios: The DNA of Technology

Around the Northwest, utilities are researching and investing in the latest technology to improve operations, maximize energy efficiency investments, increase customer contact and introduce new opportunities for the future. Some of their discoveries kindled lively discussion throughout the year.

When it Rains, it Stores

We learned Idaho Power has an innovative, environmentally friendly cloud seeding program that leverages weather systems to resupply watersheds. Continued collaboration and strategic investments in new technology have extended this program and its benefits to other regional partners.

Emerging EV Technology Drives Discussions

Interest in electric vehicles (EV) and transportation electrification sparked lively conversations among PNUCC members. As emerging technology begins to remove market barriers, utilities are charging ahead toward solutions that will integrate EV with the infrastructure to fuel them. Members compared notes on how states and utilities are encouraging EV infrastructure development and incentive programs. Our conversations revealed great ideas about how each utility is meeting their goals and customer needs.

The Data Detail

With technology integrated into every aspect of daily operations, utilities must protect their assets and information. The download fed our curiosity on creating a collaborative cybersecurity culture where engaging staff, executives, policy makers and other utilities ensures the entire industry is stronger and better prepared. While major investments in technology are required to improve operational efficiency, increase performance, adapt to market changes and capture large volumes of data, they can also leave business assets vulnerable. Always looking to mitigate risk, members are sharing ideas on ways to protect valuable assets and prioritize investments to manage risk and protect against major loss.

Debriefing: A Future Built on Intelligent Thinking

PNUCC has played a pivotal role in the region's electric utility industry for 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 large industrial users in the Northwest. Through PNUCC, members have the opportunity to listen and learn from each other and help shape evolving regional policies.

PNUCC members engage with the wider utility intelligence community to identify useful evidence and provide opportunities for meaningful dialogue. We dig deep for the best data, and rely on utility leaders' expertise and opinions to inform our forward momentum as the region plans its future.

2016-17 Board of Directors

Lisa Grow	Idaho Power	Chair
Roger Gray	Northwest Requirements Utilities	1st Vice-Chair
Jason Thackston	Avista	Treasurer
Shauna McReynolds	PNUCC	Secretary

Franco Albi	Portland General Electric
Chad Bartram	Benton PUD
Scott Bolton	Pacific Power
Kelcey Brown	PacifiCorp
John Bushnell	NorthWestern Energy
Craig Collar	Snohomish County PUD
John Hines	NorthWestern Energy
Mark Johnson	Flathead Electric Cooperative
Michael Jones	Seattle City Light
Mariah Kennedy	Puget Sound Energy
Beth Looney	PNGC Power
Tim Nies	Franklin PUD
Tess Park	Idaho Power
Maria Pope	Portland General Electric
Chris Robinson	Tacoma Power
Dave Ward	Grays Harbor PUD
Paul Wetherbee	Puget Sound Energy

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:

- a searchlight for changes that will have a significant impact on how our industry does business in the future
- a catalyst for examining issues that impact a significant portion of its membership
- a forum for dialogue on policy issues of regional importance
- a hub to coordinate technical analysis and data on Northwest power industry issues
- a resource for sharing information on issues of regional importance

PNUCC Staff

Shauna McReynolds

Shauna@pnucc.org

Executive Director

503.294.1264

Valarie Koss

Valarie@pnucc.org

Deputy Director

503.294.1268

Tomás Morrissey

Tomas@pnucc.org

Senior Policy Analyst

503.294.1259

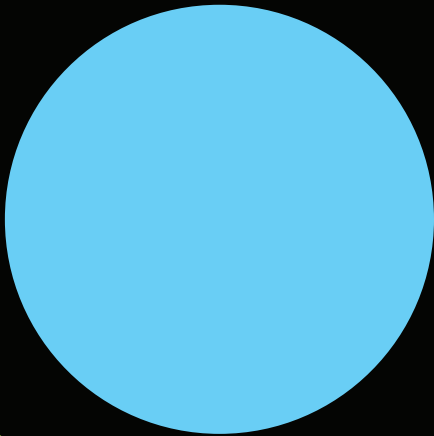


2016 Budget

Staff Expenses	\$475,500
Overhead Expenses	177,500
Outside Services	
General Consultant	5,000
System Planning	15,000
Communications Initiative	10,000
BPA-Customer Collaborative	5,000
Council Meeting Report	27,000
<hr/> TOTAL BUDGET	\$715,000

PNUCC 2016 Members

Ashland Municipal Electric Utility
Avista
Benton PUD
Benton Rural Electric Association
Blachly-Lane Electric Cooperative
Chelan County PUD
Central Electric Cooperative
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.
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 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



PNUCC

101 S.W. Main, Suite 1605
Portland, Oregon 97204-3224
www.pnucc.org