

# **PNCC** REPORT Council



## **Northwest Power and Conservation Council**

**Meeting Notes**  
**June 13-14, 2017**  
**Corvallis, Oregon**

June’s meeting got off to a jovial start with Oregon State alumnus and Council Chair Henry Lorenzen welcoming attendees to “Oregon’s flagship University.” All Council Members were on hand.

Chair Lorenzen introduced Dr. Cynthia Sagers, Oregon State University’s Vice President for Research, who outlined the university’s efforts in wave energy. With one of the largest, near-shore wave energy research facilities in the world, OSU recently was awarded \$30 million on a \$50 million project to build an offshore, grid-connected test site that harnesses wave and tidal energy.

Portland General Electric’s (PGE) President and CEO Jim Piro updated the Council on PGE’s efforts and provided “one of the more comprehensive summaries on the state of the electricity markets,” according to Council Member Tom Karier.

Bonneville Power’s Jeff Cook traced the story behind the cancellation of the agency’s I-5 Corridor Transmission Reinforcement Project, and that decision’s implications for meeting future energy load. A panel shared progress in ocean energy technologies and why the Pacific Northwest is the epicenter of this emerging industry and Council staff described the timeline for identifying customer segments that are hard to reach with existing efficiency programs. In addition, Ian Chane of the U.S. Army Corps of Engineers briefed the Council on passage efforts in the Willamette River Basin and the plans for Willamette BiOp implementation.

The next Council meeting will be held July 11 and 12 in Vancouver, Washington.

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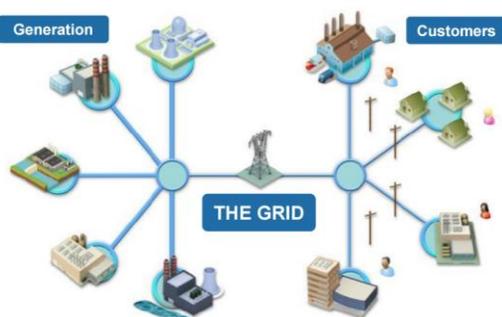
## The Agenda

### **PGE's Piro shares rapid changes in industry and challenges along the way**

After 100 years of a simple, straight forward industry with a one-way grid, the creation of a very diverse, two-way grid has changed the way utilities serve customers, proclaimed Jim Piro, Portland General Electric President and CEO. And it is up to the utilities to bring it all together to ensure safe, reliable power for all of its customers, he said.

Once customers were happy their homes were electrified, over the past few years as new technology emerges customers' expectations are changing, he said. The energy landscape has changed and energy providers are evolving to maintain relevance with consumers, Piro added.

#### **Our industry is rapidly changing from this ...**

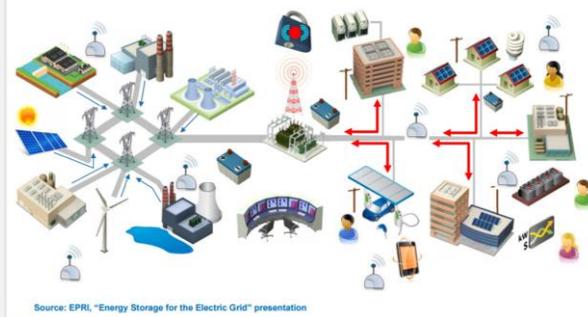


According to Piro, three major forces have challenged the traditional utility model: customer expectations, global warming concerns and technological advances. To meet them, PGE offers a number of programs for customers to choose from and while they can't be cutting edge due to regulatory requirements, they can be fast followers, Piro continued.

#### **Renewables and customer expectations**

"Our customers like energy efficiency and renewables," Piro said, and often the result is a decline in usage. On the other hand, PGE is seeing an increase in the electric vehicles, heat pumps, and water heaters as consumers try to reduce their carbon footprint, he added.

#### **... to a highly integrated grid**



Reacting to their customers, PGE has been active in pursuing renewable portfolio standard (RPS) legislation that will take Oregon to 50% renewables by 2040 and eliminate coal as a resource. And Piro sees more cities becoming actively involved in pursuing goals that remove fossil fuel as a resource similar to Portland and Multnomah County – where they recently passed a resolution calling for 100-percent renewable electricity by 2035 and 100 percent fossil fuel free electricity by 2050.

## Energy rich but capacity poor

In addition to technology and renewables, the change toward fossil fuel free generation adds to the changing energy landscape and utilities are going to have to figure out a way to make it work, Piro said. “With more renewables, I see us being energy rich, but capacity poor,” he continued. “We’ll have plenty of energy in the system, but not enough capacity to meet peak loads.”

That’s the challenge going forward, Piro said. PGE’s system will be about 560 MW of capacity short, and they’re moving ahead with an RFP for that capacity – hopefully from a contract for a longer-term resource. In addition, another 200 MW short-term capacity will be purchased from the market and is assumed in PGE’s IRP. “Essentially, we’ll be going to market seeking 750 MW of capacity to meet our peak loads,” Piro said.

Asked by Council Member Jim Yost what resources PGE is considering to make up for its capacity shortage, Piro responded that they were going to conduct an RFP to bid in capacity. PGE plans to Benchmark Carty 2 and let the process play out, following the suggestion of the Commission to go to the short-term market to buy five-year contracts, he said.

He expressed concern that the regions capacity issue will continue to grow as other big units shut down. “That’s the strategy we’re pursuing now. If we buy in the market, it will reduce the amount that’s available in that market,” he continued. “At some point, we’ll have to address the shortage of capacity.”

## Integrated Resource Plan (IRP)

The IRP filed in 2016 has three components:

1. Cost-effective energy efficiency – Something PGE has always done, but this IRP includes 70 MW of demand response. While demand response is a cost-effective mechanism, its adoption, particularly by commercial customers, is challenging – it is key in meeting demand, Piro said.
2. Renewables – Adding 175 aMW to continue on its path to 50 percent renewables by 2050. PGE is taking early action on renewables to stay ahead of the pace and to take advantage of the Production Tax Credit before it goes to zero.
3. Optimizing capacity – Because they are seeing such variability in load, especially around renewables, they’re going to need capacity to meet customer demand.

Piro said PGE has 720 MW of nameplate wind generation on its system. It’s a resource that builds energy but not capacity, and that puts a strain on the system, he said. When we think about designing our system, we need to think about the flexibility required with more renewables added to the grid. You have to build it twice.

“The challenge of wind and solar is reflected in the duck curve coming out of California,” he said. “Renewables don’t fit nicely with our load shape,” he added. “It’s a challenge because that’s the trend of where we’re going. Therefore, the need for flexible capacity is really important.”

## Roadmap forward

Piro shared the utility's roadmap of programs to meet customer needs and address customer choice. Adding, they are listening to their customers and want to be the trusted energy partner that helps customers make the best decisions. He said they are learning from others and always looking at opportunities to partner. PGE will be joining the EIM in the fall and will continue working with the Northern Tier and ColumbiaGrid planning groups to look at transmission challenges.

Grid optimization, communications upgrades and data analytics are underway to better drive efficiencies on the system for a resilient and reliable grid. And with reliability top of mind, PGE continues their advances in technology to mitigate risk. As he concluded, he said PGE spends a lot of time talking about risk and training for it. Every boardroom has a conversation on cybersecurity, Piro said, "it's the biggest risk we have." A great defense and a great response is required "not if but when" it happens.

The Council extended their sincere appreciation for the extensive overview and expressed their thanks to Piro and PGE for taking on the challenges. A robust conversation with the Council ensued.

## **BPA cancellation of I-5 transmission project due to cost and load changes**

Jeff Cook, BPA's Vice President of Transmission Planning and Asset Management, made a timely appearance to explain the thinking behind the agency's decision to suspend its I-5 Corridor Transmission Reinforcement Project — an upgrade that had been in the works since 1970. Originally conceived to help provide stability, serve commercial customers along the corridor, provide service to the Portland area and strengthen the grid; the 80-mile, 500 kV line from Castle Rock to Troutdale would have crossed 1,100 parcels of land at an estimated cost of around \$300 million.

Cook said that after an environmental impact statement was completed in January 2016, BPA took a hard look at the project. And after 16-months of engineering studies, BPA concluded it could address reliability issues in other ways and cancelled the project. The decision was based on a variety of factors:

- Load growth projections have changed. Once three to four percent, growth is now one percent in some areas – while flat or negative in others.
- Renewables have increased. California's 10,000 MW of solar capacity, along with continued growth in renewables in BPA's balancing authority, have had an impact on flow patterns and how the grid operates.
- Cost have increased. The most recent estimated project cost was \$850 million in direct costs.
- Significant advances in technology. Flow-control devices that can shift the power around and phase synchronizers are tools that weren't available ten years ago.

Cook added, the independent review panel supported BPA’s findings that while the 500 kV line was an option – there were other options that brought the same benefit in same timeframe, potentially at a much lower cost and less impact to the constituents along the I-5 corridor. There will still be line rebuilds and equipment, he said, including some non-wires products such as batteries and flow-control devices. Cook said BPA is doing more regional planning, working with PacifiCorp, PGE, Seattle City Light and Tacoma to determine solutions.

Council Member Bill Booth remarked that the transmission lines built 50 years ago are still in use, so there must have been excess capacity. He asked about BPA’s planning horizon and if they’ll ever think they’ll need the line in five, 10 or 30 years. Cook replied that they looked out to 2030 and 2035 and deemed it wasn’t necessary. “I can’t say we’ll never build this line,” Cook said. “... our goal is to put our assets in at the right time, at right place and at the right size — instead of building a big highway and then hoping they’ll come,” Cook said.

## Council to identify hard-to-reach markets for energy efficiency

As identified in the *Seventh Plan*, “we think there are segments of the population that participate in programs at lower rates than others,” said Kevin Smit, Council staff’s Senior Energy Efficiency Analyst. And a work group has been formed to use data to identify the gaps, determine what segments are underserved and how to improve participation from underserved segments.

Council Member Jennifer Anders said, “One thing we hear from Montana utilities is that ‘energy efficiency isn’t working for us.’ The opportunities simply aren’t there. But you’re looking at a goal to increase participation. You’re assuming it’s there and we just have to find it.”

Charlie Grist replied that there will be a look at opportunities, but won’t be as direct as Member Anders might be envisioning. “Looking at one measure –are ductless heat pumps getting into my territory as much as others?” he said. That depends on how much electric baseboard-heated dwellings there are.

The effort is by a “coalition of the willing” and it might answer how much opportunity there is, he added. The work group includes BPA, Energy Trust of Oregon, several investor-owned utilities and several, large public utilities. The goal is to report to the Council by the end of 2017.

**What are the HTR Segments?**

- We don't know, yet
- MCS-1 listed several possibilities:
  - Low income
  - Mid-income
  - Customers in rural regions
  - Small business owners, tenants
  - Multifamily tenants
  - Manufactured home dwellers
  - Small and rural utilities
- **But, remember the first step. Use data to determine/show if any of these are underserved**



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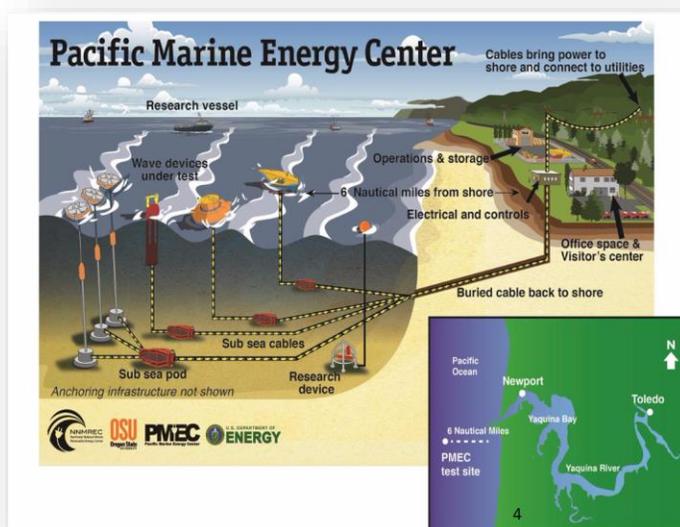
## Ocean energy technologies offer bountiful possibilities

Jason Busch, executive director of Oregon Wave Energy Trust (OWET) and the Pacific Ocean Energy Trust (POET), kicked off the panel by making three key points:

1. The Pacific Northwest is already the epicenter of the ocean energy sector.
2. There has been significant progress toward commercialization of the technology. In about five years, you'll see the first, full-scale devices in the water creating electricity.
3. There's a diversity of technologies. There are different markets and different ocean conditions, so you won't see a single one emerge.

He discussed work to establish the nation's first grid-connected, deep water test site — the Pacific Marine Energy Test Center off the coast of Newport, Oregon. In December 2016, the DOE awarded \$40 million to build the site and Congress has already appropriated \$30 million of it.

Busch said there are numerous benefits to wave energy. It's a tremendous local resource, inexhaustible (otherwise we have bigger issues), highly predictable, and close to populations. He continued it helps balance the grid by providing west side generation, there are lower integration costs relative to wind and solar and it's a winter-peaking resource.



OSU Professor Ted Brekken said that Oregon State is the global leader in marine research, including ocean wave energy work. He discussed activity at the Pacific Marine Energy Center and test sites in Oregon, Washington and Alaska. Their research focus has advanced to the point where they are shifting from device design to collaboration (research and development) and regional engagement. Brekken said they are looking forward to supporting full-scale, open-ocean testing in the mid-2020s.

Kevin Bannister, Director of Business and Government Affairs for Principle Power, discussed his company's work on floating, offshore wind turbines. His company's WindFloat technology is deployed in waters 40 meters and deeper. Offshore wind already is a mature industry in Europe and China. Adding, offshore wind can play a key role in the energy mix on the West Coast, with a steady resource close to load centers that complements solar and avoids transmission costs from out-of-state wind.

## Corps shares wins in implementing Willamette River Basin BiOp

Ian Chane, U.S. Army Corps of Engineers Columbia River Fish Mitigation program manager, provided a high-level view of the efforts to provide fish passage over high-head dams in the Willamette River Basin as prioritized through the Willamette River Basin Biological Opinion.

Chane listed the sub-basins that provide rearing habitat for fish: North Santiam (Detroit and Big Cliff dams), South Santiam (Green Peter and Foster dams), South Fork McKenzie (Cougar dam) and the Middle Fork Willamette (Hills Creek, Dexter and Lookout Point dams).

Chane emphasized the authorized purposes of dams: flood damage reduction, hydropower, navigation, irrigation, fish and wildlife, recreation, water quality, and municipal and industrial water supply (which is a growing need in the region). The Willamette is much different than the Columbia; with all life stages occurring below these projects, Chane said. “We have to be careful in how we operate these facilities and how the rate of water delivery is provided. You can strand these fish and dewater redds.”

When the BiOp was issued in 2008, the estimate was \$300 million to implement all actions, Chane said. The budget was revised in 2015 to a total project cost of \$757 million. This is part of a larger process with the FCRPS and the Fish Accords on the Columbia, he said. The increase put the Columbia River Fish Mitigation total project cost up to \$2.8 billion, with a \$449 million increase for the Willamette River.

## Council Shorts

### 2022 Adequacy Assessment

The 2022 Adequacy Assessment is drafted and will be voted on at the July Council meeting. The region slipped a little past the adequacy standard that the Council has set. It’s now at 7 percent loss of load probability (LOLP), instead of 5 percent, which is the Council’s target. Every year, the situation is a little different. Some years ago, the LOLP was higher. Energy efficiency has helped to bring down those probabilities, despite the upcoming closure of coal plants, Member Karier reported.

### Regional Technical Forum guidance on fuel switching

The Regional Technical Forum (RTF) is seeking Council guidance on calculating the baseline comparing existing electrical appliances, and whether it should include fuel switching. According to Member Karier, fuel switching has major policy implications for planning. The RTF is helping BPA and NEEA with major research projects and evaluations across the Northwest and providing independent expertise on market share for CFLs and LEDs.