

## COVID-19 LOAD FORECASTING WORKSHOP – APRIL 8, 2020

PNUCC hosted a workshop on April 8<sup>th</sup> focused on load impacts from the COVID-19 pandemic in the Northwest. Over 40 participants joined via webinar to discuss changes in electric utility loads from COVID-19 preventative measures that were put into place in mid to late March. Forecasters also shared ideas for incorporating COVID-19 impacts into their forecasts going forward. The workshop featured presentations and remarks from John Rudolph (Seattle City Light), Amber Riter (Portland General Electric), Grant Forsyth (Avista), and Blake Scherer (Benton PUD).

### KEY TAKEAWAYS

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- Many utilities have lower loads overall due to the COVID-19 pandemic after taking other factors, like weather, into account.
- COVID-19 load impacts differ by sector. The commercial sector is seeing the largest load drop, the residential sector is experiencing flat to increasing loads, and the industrial sector varies by customer. Some utilities have not seen an overall decline in loads as of early April, likely due to having a relatively high residential and/or industrial customer mix.
- A potential economic downturn would likely dampen future load growth – there are many scenarios regarding the severity and length of a downturn.
- Advanced metering infrastructure (AMI) has been useful for utilities in quickly identifying changes in load and providing sector-specific insights.

### LOAD IMPACTS TO DATE

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The COVID-19 pandemic has altered the fabric of society. Many people are working from home or are laid off as a result of the stay-at-home orders used to contain the spread of the virus. Restaurants and retail shops have switched to pick up or delivery only, entertainment venues have been closed, and residents have been asked to minimize trips outside the home. These social distancing measures have impacted the economy, and impacted electric power system loads. Many utilities reported a decline in loads as social distancing measures went into effect in March. The size of the drop was around 5% for many utilities as of early April, after taking weather into account.

However, load changes are not uniform across sectors. The commercial sector, specifically lodging and restaurants, have seen the largest declines. Office buildings and schools have seen large drops as well. Even healthcare facilities are having lower loads as clinics reduce hours and postpone elective procedures. Conversely, residential sector loads are stable or higher than normal as more customers stay home for the majority of the day.

Social distancing policies have changed the daily profile of loads as well. Weekday residential profiles are now closer to weekend profiles, with the morning demand ramp occurring later than normal, presumably as workers sleep in thanks to a short commute to their home office (or lack of employment).

Industrial sector load impacts vary by industry – some industrial processes have shuttered; others remain online. Food processing plants were called out by many meeting participants as still operational in order to keep grocery stores stocked.

A few utilities have not seen a change in overall loads as of early April. These utilities likely have relatively high percentages of residential customers and/or industrial customers who are still operating. But as social distancing measures continue, loads are expected to further decline as additional businesses close. This was confirmed during the PNUCC System Planning Committee meeting held on April 17 as a few utilities reported that they are starting to see increased load loss.

## LONG-TERM LOAD AND ECONOMIC IMPACTS

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Looking longer term, the lasting economic impacts from the COVID-19 pandemic were top-of-mind. Even with government intervention, most participants were concerned about a 2020 economic downturn. The shape and severity of a potential downturn was discussed. A “U” shaped downturn indicates a slow recovery, similar to the 2008/2009 crash, whereas a “V” shaped downturn has a quick recovery. A few participants noted the potential for a “V” shaped recovery as the economy was structurally sound leading into the pandemic, although many participants were studying the “U” shaped 2008/2009 recession as well. The potential for two economic dips in succession – if COVID-19 fades and then returns later in the year – added a “W” shaped recovery to the mix.

Recession magnitude was also discussed. One participant noted a recent survey predicting annual 2020 US GDP dropping 0.5% to 7% as compared to 2019. There were concerns expressed that many businesses have limited cash on hand, and while they may survive a short closure, the longer they remain closed the greater the risk of bankruptcy. Government intervention was discussed, but there were worries of its timeliness and effectiveness. Meeting participants also hypothesized about permanent structural changes to the economy. For example, will companies reduce their office space to save costs and have more workers telecommute post COVID-19?

All of these economic predictions feed into longer term forecasts. The greater the length/severity of a downturn, the more loads will be pulled down. A few forecasters noted that loads have not bounced back since the 2008/2009 recession in their service areas, and wondered if that would be the case again. Beyond loads, a few meeting participants have been attempting to predict changes in customer payments as the economic impacts of COVID-19 have left many commercial businesses closed and consumers out-of-work and under heightened economic uncertainty.

## THE VALUE OF AMI

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There was clear consensus among participants on the benefits of the up-to-date, sector-specific data that AMI provides. Those utilities with limited access to AMI data were challenged in their ability to capture recent trends. The value of timely sector-specific data was clear, even as forecasters continue to refine how they query AMI datasets to efficiently sort through large amounts of data.

## SHARING DATA WITH OTHERS

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Load forecasters have had an increased volume of data requests due to the pandemic. To help answer questions efficiently, a few forecasters have created interactive dashboards to help others understand the impacts. One forecaster reported building an interactive forecasting tool that allows non-forecasters to see how different social distancing and economic scenarios impact load forecasts.

## WORKSHOP PARTICIPANTS

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Grant Forsyth	Avista	Valarie Koss	PNUCC
James Gall	Avista	Sauna McReynolds	PNUCC
Blake Scherer	Benton PUD	Tomás Morrissey	PNUCC
Glen Booth	Bonneville Power Admin.	Amber Riter	Portland General Electric
Mark Bergan	Bonneville Power Admin.	Seth Wiggins	Portland General Electric
Esther T Neuls	Bonneville Power Admin.	Stefan Brown	Portland General Electric
Justin Rohrbough	Bonneville Power Admin.	Alison Lucas	Portland General Electric
Tom Haymaker	Clark Public Utilities	Allison Jacobs	Puget Sound Energy
Zeecha Van Hoose	Clark Public Utilities	Ashleigh Keene	Puget Sound Energy
Ian Bledsoe	Clatskanie PUD	Lorin Molander	Puget Sound Energy
Paul Dockery	Clatskanie PUD	Michael Noreika	Puget Sound Energy
Kevin Harris	Columbia Grid	Kelly Xu	Puget Sound Energy
Adam Rue	EWEB	Aliza Seelig	Seattle City Light
John Mertlich	Grant PUD	John Rudolph	Seattle City Light
Paul Dietz	Grant PUD	Mike Hamilton	Seattle City Light
Robert Brill	Grant PUD	Villamor Gamponia	Seattle City Light
Shaun Harrington	Grant PUD	Brian Booth	Snohomish PUD
Jordan Prassinis	Idaho Power	Felicienne Ng	Snohomish PUD
Brian Dekiep	NW Power & Cons. Council	Ahlmahz Negash	Tacoma Power
Leann Bleakney	NW Power & Cons. Council	Melissa Buchler	Tacoma Power
Massoud Jourabchi	NW Power & Cons. Council	Bill Saporito	Umatilla Electric Cooperative
Jeff Kugel	PNGC Power	Bryce Wang	