

Minnesota Power's Time of Day Rate Customer Info Share

Pier B Resort (800 W. Railroad Street, Duluth, MN 55802)

October 30, 2018

6 – 7:30 PM

Agenda

- 6:00 Refreshments
- 6:10 Welcome and Introductions
- 6:15 Presentation from Minnesota Power
- 6:45 Small Group Exercise
- 7:15 Large Group Discussion
- 7:30 End

Minnesota Power's Time of Day Rate Customer Info Share

Cass Gilbert Depot (200 First Street NW, Little Falls, MN 56345)

November 1, 2018

6 – 7:30 PM

Agenda

- 6:00 Refreshments
- 6:10 Welcome and Introductions
- 6:15 Presentation from Minnesota Power
- 6:45 Small Group Exercise
- 7:15 Large Group Discussion
- 7:30 End

Small Group Exercise Responses

What appliances in your home consume the most electricity?

- Refrigerators, old appliances like freezers
- Electric heat
- Hot water heater
- TV, phone charger, radio, etc.
- Dishwasher
- Water pump
- Electric Vehicle
- Clothes dryer
- Air conditioner
- Electric heat

What could you do to shift your household's energy usage from peak periods to off-peak periods?

- Do laundry in the evenings and on the weekends
- Shift baking to off-peak times
- Turn down the heat during peak times or electric heat
- One participant mentioned that it was easier to shift usage to off-peak times prior to retirement but is much more challenging now that she's retired
- Set dishwasher to run overnight
- Set smart washing machine/dryer to run off-peak
- Put irrigation (water pump) on overnight timer
- Shifting some electric appliances to gas saves money
- Installing LEDs help reduce energy load
- Could charge EV at night during off-peak period
- One customer has an electric lawn mower and has shifted to mowing the lawn on weekends

Would you rather have more variation in period pricing (3-4) or less (2)?

- Two periods are easy to remember
- If there are too many periods, people will have a hard time following the period changes
- CPP events have been clearly communicated by Minnesota Power
- As long as you know about the event the day before, it's easy to plan for it and adjust usage accordingly
- A peak period that starts later and ends earlier would be helpful (9 am to 9 pm was suggested)
- It's nice that holidays are considered off-peak

- If there are better prices with deeper discount because of more periods and they are clearly communicated/set ahead of time I'm fine with more
- As long as I know what they are I can adjust my times for different seasons/periods
- Starting the off-peak period sooner would be helpful, 10:00 pm is too late
- It would be helpful to have a super off-peak period for charging EVs

Could you more easily shift your usage during different seasons of the year? (i.e. summer hours vs. winter hours)

- Structuring the rate differently between different seasons would be complicated
- It would be helpful if MP was also able to provide customers with the opportunity to control loads remotely in case they were not aware of an event (examples included a mini split system, thermostat, etc.)
- Some customers would be interested in MP controlling their loads
- I'm retired and have the time available and flexibility for changes in seasons/periods
- One customer who participated in the pilot program commented that he had to go off the program because there were too many CPP events during a cold snap in the winter. It eliminated any chance for cost savings
- Warmer temperatures allow more flexibility
- Seasonal shifting of load didn't seem to be a problem for customers with gas heat

Would you be more likely to participate if you were guaranteed to save money?

- There needs to be an opportunity for cost savings in order for people to want to participate and actually shift energy usage
- The number of CPP event called during the last year on MP's time of day pilot program seemed reasonable to attendees on the rate
- One participants felt that she felt the CPP events were necessary in getting people to shift their loads. If the price isn't high enough, people won't do it
- Customers participating in the pilot program said that they saved a lot of money when the program first started and less since the changes were made
- Overall, they feel like they're still saving money on the rate, even if there are a lot of CPP events
- I would have no interest if I wasn't going to save money – otherwise what is the benefit for me if all customers don't have to change their behavior and I'm still penalized financially
- It would be helpful to know how much money you saved by participating in the rate
- When the pilot program first started, participants saw a lot of costs savings and changed their behaviors accordingly. After the program adjustments, it was hard to notice any savings
- Money savings in the motivation for customers to participate in this program
- A comparison of your usage at that time last year would be helpful for customers to make informed decisions about participation in this type of program

Would you be more likely to participate if you had the option to exit the rate at any time?

- A whole year is a long time to commit to a program if it doesn't end up working for you
- Leaving the rate at any time would be helpful, especially for those who get laid off seasonally (i.e. construction workers, etc.)
- It would be helpful if MP had some comparison tools that let you see how much you would pay on each rate based on your usage history
- It would also be helpful to know how much your rate would go up if you didn't shift your usage at all. One participant thought this might deter people from participating in the rate
- It would be helpful to see a comparison each month
- It would be better to have an option to leave if after a few bills you decide it's not right for you

How would you prefer to receive notifications about different events (i.e. peak events, season changes, etc.)

- Notifications in the current time of day pilot program are delivered via text, phone and email
- Participants like that there are so many notification options
- Everyone felt that notifications about CPP events need to be the day before at a minimum
- Customers who are current participants in the pilot program said that they are typically able to predict when a CPP event is going to occur based on weather patterns
- Participants said viewing all of their MP information (bills, rates, program options) in a mobile app would be ideal
- Text messaging would be convenient

Overall, would you be interested in this type of a program?

- One participant said he is exploring solar at his home and this program seems to fit nicely with solar generation. He feels that a time of day rate would encourage more solar generation
- One customer was also interested in how this rate could be paired with a Tesla Powerwall and expressed interest in using this type of rate for EV charging in the off-peak hours
- Participants who were already enrolled in the time of day pilot program reported that they like to continue to be on the rate
- Some participants feel that this rate should be mandatory if its beneficial to the system
- Electric Vehicle owners would prefer this option (generally) over the costs of installing a second meter (cost eliminates any savings)
- Flexibility is important
- Simplicity is key in this type of program

Minnesota Power Time-of-Day Info Share

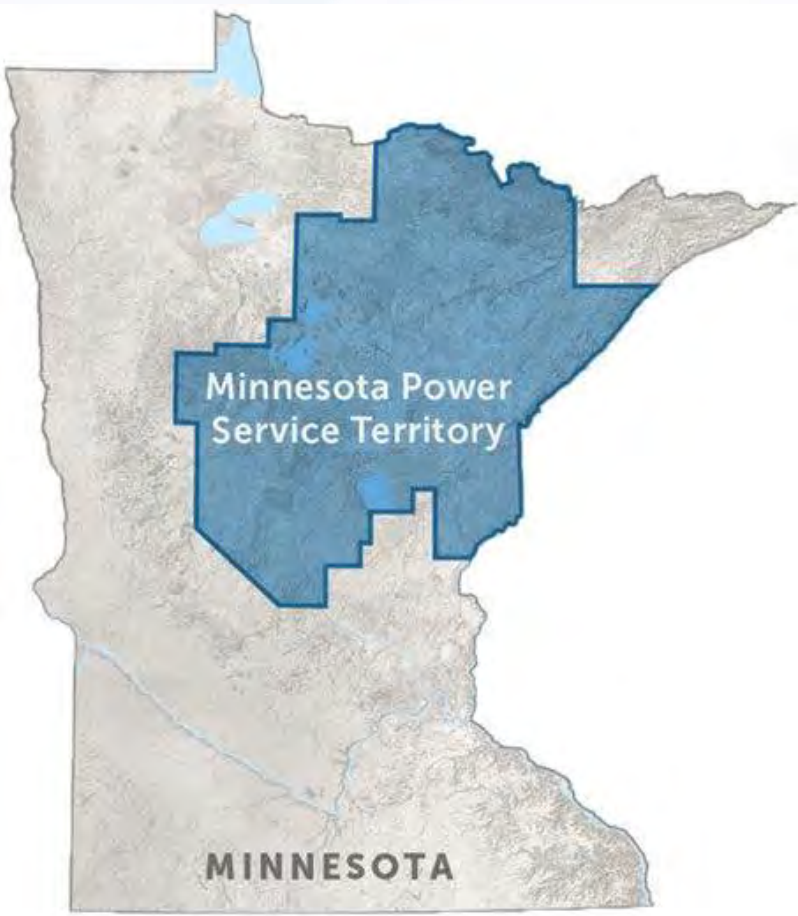
**Pier B Resort
Duluth, MN
October 30, 2018**



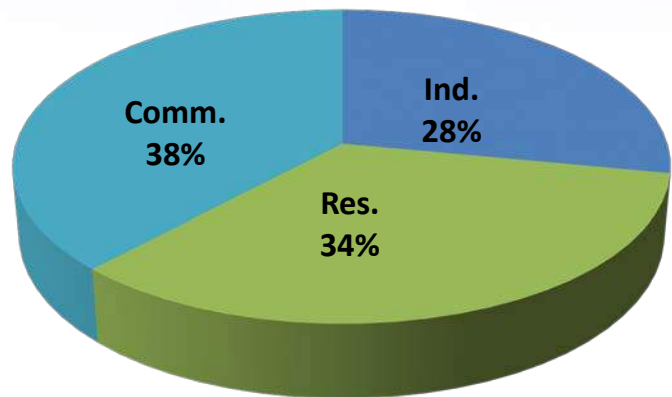
Agenda

- Overview of Minnesota Power and the Electric System
- What are Time-of-Day Programs?
- Minnesota Power's Time-of-Day Pilot Program
- Discussion and Next Steps

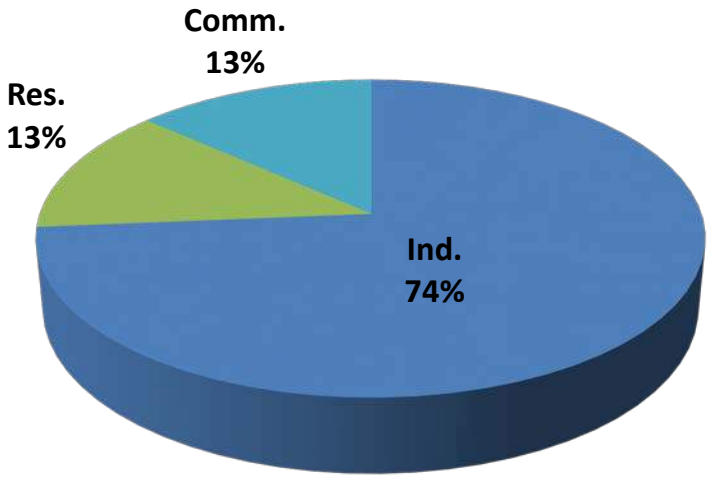
Minnesota Power's System



US Average



Minnesota Power



- 26,000 sq. mi. service territory
- 145,000 customers



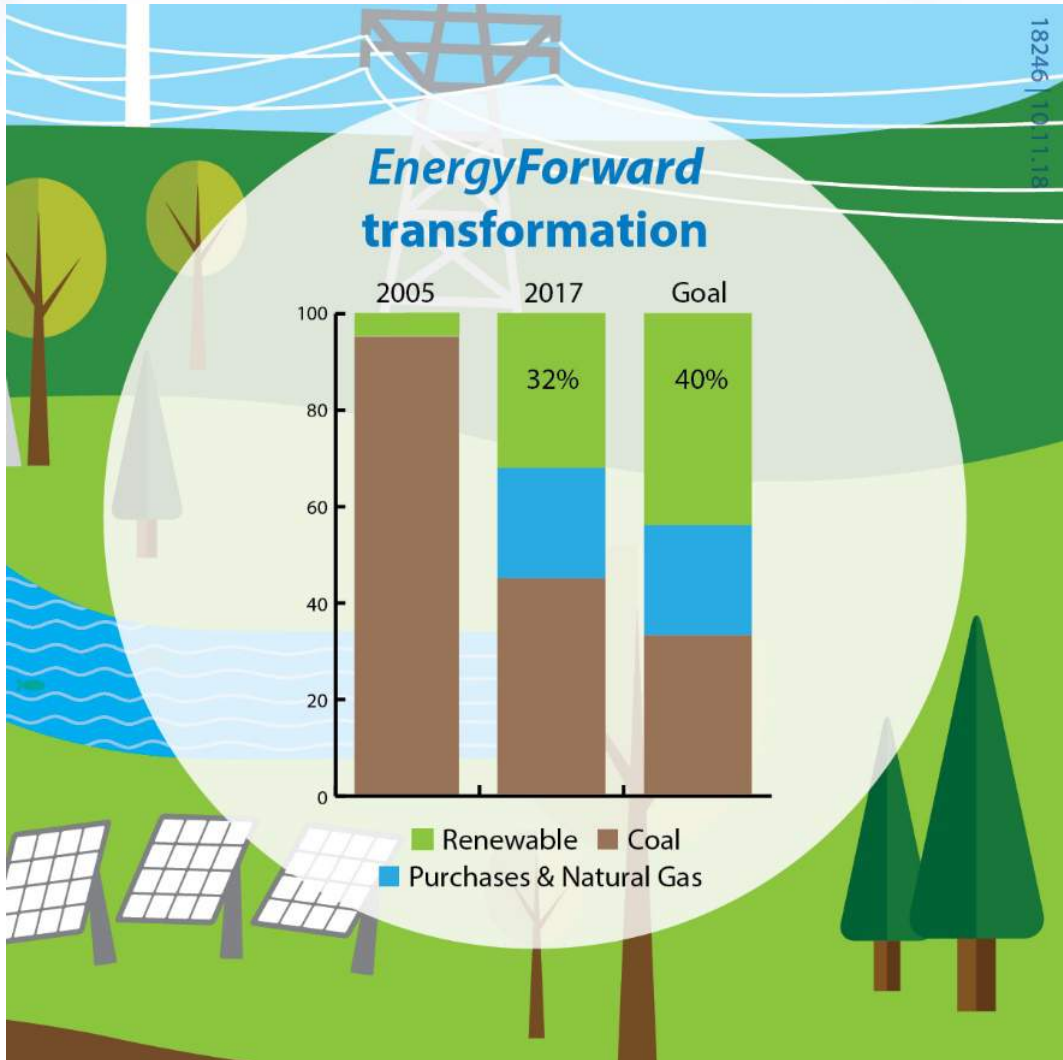
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Current Minnesota Power Programs

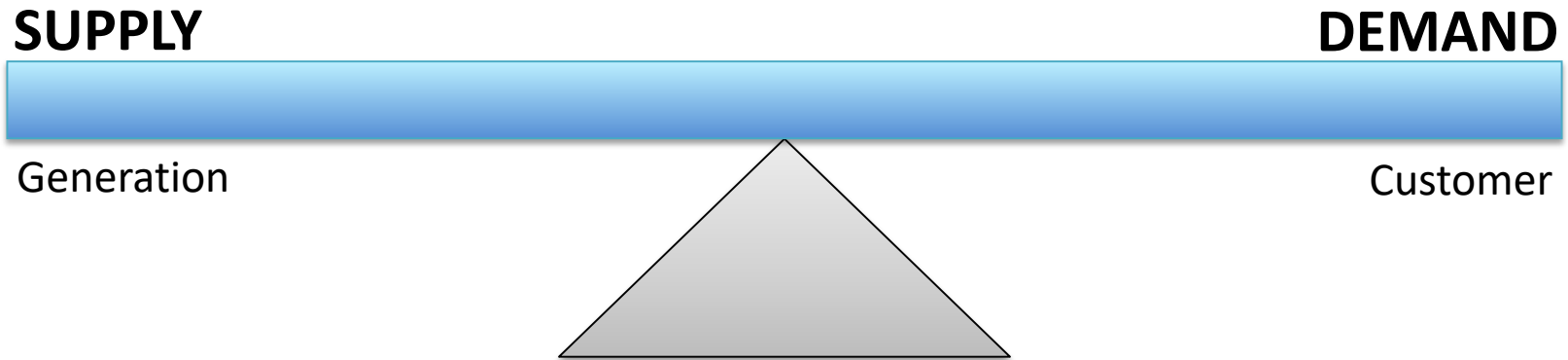


Energy Resource Mix



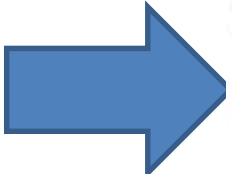
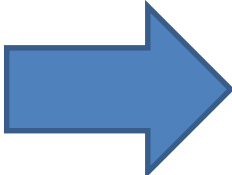
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Electricity on the Grid

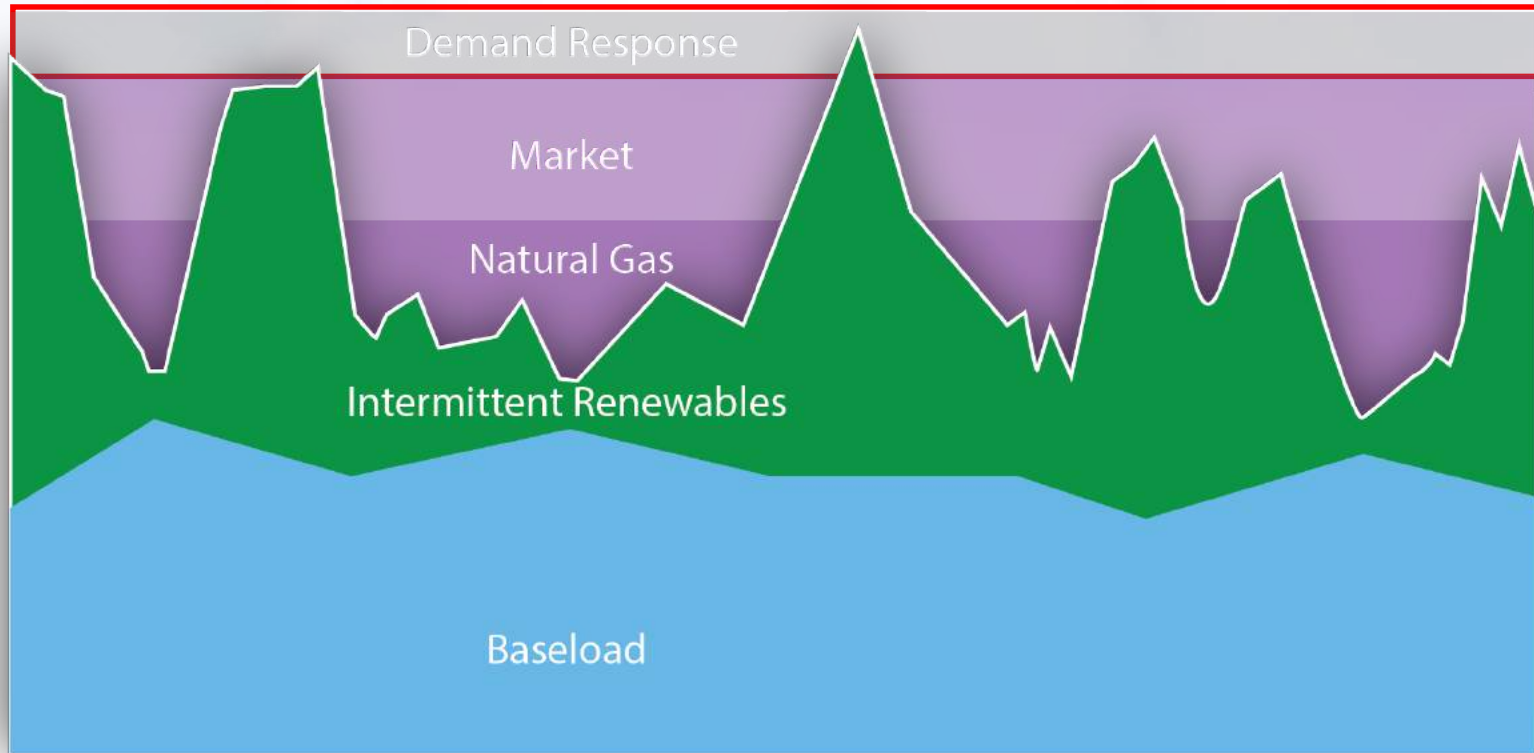


Electricity must be generated exactly when needed to meet customer demand and always be balanced.

When Supply ≠ Demand



Demand Response: All about Peaks



Residential Demand Response Programs:

- Residential Dual Fuel
- Residential Controlled Access
- Conservation Programs

- Time-of-Day Rate (Pilot)
- Off-Peak EV Charging

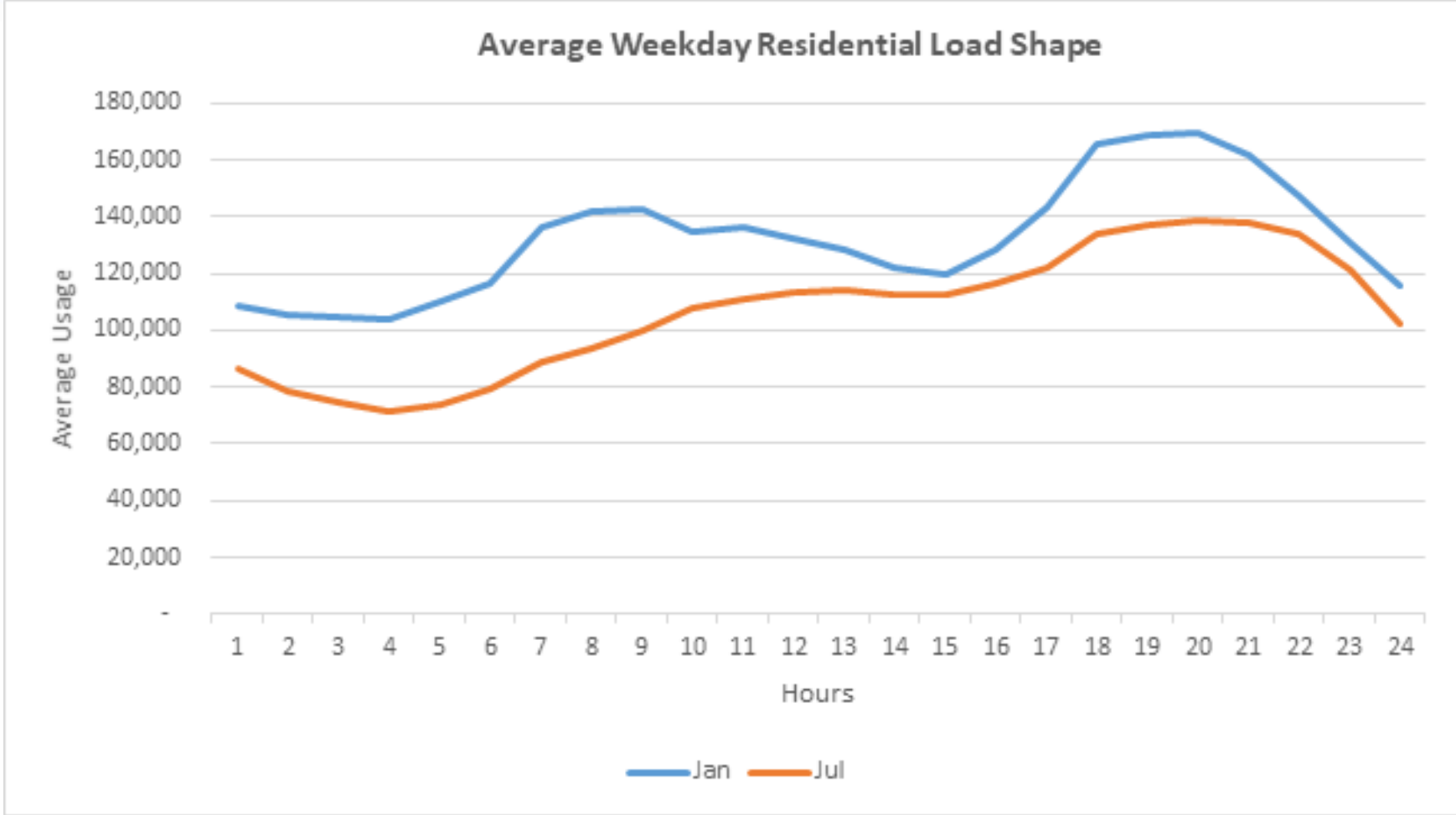
Minnesota Power's Current Time-of-Day Pilot

- Requirement for grant awarded to Minnesota Power from Department of Energy
 - Dual Fuel – Load Control Upgrade
 - Outage Management System and Distribution Automation (OMS & DA) Smart Feeders Project
 - Meter Data Warehouse
 - Consumer Behavior Study & Critical Peak Pricing Project (TOD)
- On- & Off-Peak Pricing



- Critical Peak Pricing
- Emergency Event Pricing

Electricity Use Throughout the Day



Time-of-Use Rates

- Send price signals to customers to
 - Provide an opportunity to save money
 - Reduce energy demand during peak periods
 - Minimize need to purchase energy during high priced hours
 - Maintain reliable energy service to customers
- Typical Program Components

Pricing Periods: High Peak, Peak, Off-Peak, Super Off-Peak

Peak Events: Critical Peak Pricing, Smart Thermostat, Peak-Pricing Rebate

Seasonal Periods: Winter, Summer, Spring and Fall

Time-of-Day Stakeholder Engagement

- Stakeholder Engagement Meetings
 - Objectives
 - Design principles
 - Goals
 - 4 planned meetings
- Online customer survey
- Customer info-shares
 - Duluth, MN
 - Little Falls, MN
- Potential for new rate proposal and phased approach to Minnesota Public Utilities Commission

Next Steps

- Interested in hearing more? Sign up for updates by going to www.MNPower.com/TOD

STATE OF MINNESOTA)
) ss
COUNTY OF ST. LOUIS)

AFFIDAVIT OF SERVICE VIA
ELECTRONIC FILING AND U.S. MAIL

Susan Romans of the City of Duluth, County of St. Louis, State of Minnesota, says that on the **20th** day of **February, 2019**, she served Minnesota Power's Report in **Docket No. E015/M-12-233** to the Minnesota Public Utilities Commission and the Energy Resources Division of the Minnesota Department of Commerce via electronic filing. The persons on E-Docket's Official Service List for this Docket were served as requested.



Susan Romans

Questions?