Large Light & Power Customer Stakeholder Meeting

November 11, 2020



WebEx Tips

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- Please mute if you are not speaking.
- Use the chat box or raise hand function during our presentation for asking questions or clarifications.
- Participant list and chat function is located in the lower right corner of your WebEx screen.
- We encourage discussions with you during the whiteboard exercises.



Large Light & Power Customer Stakeholder Meeting November 11, 2020

Minnesota Power Cross-functional Team: Alison Paulseth-Bautch – Strategic Account Manager Eric Clement – Manager, Distribution Engineering & Asset Management Kristin Piontek - Customer Business Analyst Leah Peterson – Supervisor Customer Analytics Marcia Podratz – Regulatory Compliance Principal Michelle Robbins – Distribution Operations Advisor



AGENDA

Overview of Minnesota Power

> Overview of Current & Potential Programs

- Renewable Energy
- Demand Response
- Time-of-use
- Other Programs
- > Questions/Discussions



MP – Current Customer mix

- Headquartered in Duluth, MN for more than a century
- Serve 145,000 customers & 16 municipalities across 26,000 square mile service territory
- Northeastern Minnesota is a natural-resource based economy
 - Our Industrial customers account for over 70% of MP's retail sales
 - Commercial & Residential customer classes much smaller than typical utility





Purpose & Objective of Today's Meeting

"Work with its Large Light & Power customers on rate design alternatives and file a report on those discussions within six months."

- Inform customers of current MP programs
- Listen to feedback from customers to inform MP's future rate alternatives for Large Light & Power customers
- Feedback will be used in Large Light & Power rate options compliance filing to the MPUC by year end



Renewable Energy



In The Last Decade, MP Has Decreased:



Minnesota Power's current Renewable Program options

	EnergyForward MP STANDARD ENERGY MIX	Renewable Source	Community Solar Garden	SolarSense
Energy source	30% renewable (wind, hydro, solar)	100% wind*	100% solar	100% solar
Additional cost to participate	—	\checkmark	\checkmark	\checkmark
Financial benefit	A mix of the lowest cost renewable energy keeps rates low for all customers	—	\checkmark	 V
On-site installation required				<i></i>
Minimum contract length at signup		_	—	V
Earn renewable energy credits (REC)**		\checkmark	_	

Renewable Program Options

Program Characteristics	Green Pricing	Green Tariff
Cost savings potential	No, products average around 1.5 cents/kWh premium	May be cost-competitive, depending on structure and term
Price stability	No, continue to pay utility rate that is subject to change	Possible under certain program structures
Contract length	Shorter contract terms (typically month-to-month)	Longer agreements possible (10-20 years)
Ease of joining	Typically a simple sign-up process	Often limited availability, longer contract is potential barrier
Choice of renewable resource	Utility determines	Customer may have input

Green Tariff products have a longer contract term and potential utility cost savings, while Green Pricing products involve a premium and shorter contract term.



Which best describes your organization's interest in renewable energy?



If you were to participate in a 100% renewable energy program, please rank the items below in order of importance

Item	Overall Rank
Cost	1
Flexibility to leave the program at any time	2
Knowing you are contributing to expansion of renewable energy	3
Meeting your organization's renewable energy goals	4
Location of the renewable energy	5



Green Tariff Stakeholder Meeting Moderated Exercise

Program Cost

- \$0.01/kWh may be too high of a program cost, depending on participation level
- Allocating part of larger wind to bring costs down is beneficial
- Cost is first priority for participation
- Interest in potential higher cost if local solar is developed

Location

- Regionally located to mitigate adverse forms of energy in the area (carbon intensive)
- Geographic diversity to avoid outages
- Larger and distributed to get lower costs and a mix of resources

Contract Terms

- Scalability is important for government agencies, which could include program size or longer term contracts with lower prices
- Options for contract length/price
- Stability in cost of energy is important



Demand Response Programs

Figure 1: 2018 Enrolled Demand Response Capacity (GW) by Program Type



Source: Smart Electric Power Alliance, 2019. N=190 Utility Survey participants.



LL&P Renewable Energy Whiteboard Activity



Demand Response



Demand Response Overview

emand response is the power grid's way of saying, "Hey, give me that electricity back!" Or—in some cases—the exact opposite: "Here, have some more!"

Excerpts from Customer DR Panel Discussion in November 2018 Question: As Minnesota Power moves forward and thinks about DR for commercial customers, what's the one thing you'd want us to keep in mind?

• Help us identify where we can cut demand. We don't have a lot of information, notice time also helps with figuring out how to cover capital investment needs. – UMD

 CIP has been fantastic, is longstanding and entrenched in the community. Maybe DR could work in a similar way for education, benefits, risks and costs. –St. Louis County



Dual Fuel



MP notifies dual fuel customer when interruptions will occur through text message, e-mail, or company website



Dual Fuel





Interruptible Energy

RIDER FOR GENERAL SERVICE/LARGE LIGHT AND POWER INTERRUPTIBLE SERVICE

APPLICATION

Applicable to any customer taking service under General Service (Schedule 25) or Large Light and Power Service (Schedule 75) and which has at least 200 kW of load (Certified Interruptible Load and/or Non-Certified Interruptible Load) that qualifies for interruptible service. All provisions of the applicable standard Service Schedule shall apply to interruptible service under this Rider except as noted below.



Interruptible Energy

Highlights of Current Rider



How Demand Response Programs work on Minnesota Power's System

- Reduce energy demand during peak periods
- Minimize need to purchase energy during high priced hours
- > Used to maintain reliable energy service to customers
- > Displaces need to invest in new technologies



LL&P Demand Response Whiteboard Activity



Time-of-Use



Time-Of-Use Overview

- > Different energy rates for different time periods.
- > Customer demand during on-peak hours results in higher system costs.
- Minnesota Power can pass cost savings on to customers by charging a discounted rate for off-peak usage.
- > Customers can save money by shifting electricity use to off-peak hours.
- > Becoming more popular across the industry.



What is dynamic pricing?

Dynamic Pricing is any rate design that changes with time and/or operating conditions. The more dynamic the rate, the more uncertainty for customers.

When will prices change? Will the price go up or down?





LL&P Time-of-Use (TOU)

➢ Pilot Rider for LLP TOU

- ✤ Voluntary participation for customers above 10 MW.
- Fixed on/off-peak energy and demand rates.
- On-peak period is defined as 7:00 a.m. to 10:00 p.m., Monday through Friday, excluding holidays.

Recent Compliance Filing

- Challenges
- Opportunities
- >What's next?



LL&P Time-of-Use Whiteboard Activity



Other Rate Considerations



Other Rate Considerations

> Power factor – benefits for customers with power factor above 90%

- Improving power factor can eliminate the power factor penalty charge
- Solution for improving power factor is unique to each customer; consideration being given to cover the one-time installation costs

High load factor – by reducing peak demand, customers can use the same amount of total electric energy but benefit from lower demand charges and thus have a lower overall average rate

Electrification – options with regard to electric vehicle charging, electric heating load, manufacturing and converting other loads to electric.



LL&P Other Rate Options Whiteboard Activity



Conclusions and Closing Comments

- > Next steps and deliverables
 - Incorporate customer input ideas and themes
 - MP to draft language on topics for compliance filing.





Thank You!

