REQUEST FOR WRITTEN COMMENTS:
THE MINNESOTA DEPARTMENT OF COMMERCE
FUEL SWITCHING POLICY
COMMENTS OF OTTER TAIL POWER COMPANY

I. INTRODUCTION

Otter Tail appreciates the opportunity to participate in this stakeholder process and hopes to soon be able to provide many of its small-town customers an equal opportunity to participate in CIP as well as to assist the state of Minnesota to provide customer energy security and to further meet its emission reduction goals.

II. KEY ISSUES

1) **During Meeting #1, several stakeholders discussed the need for a deeper analysis of various use cases and technology solutions that may result in utility fuel switching activity (between natural gas and electric utilities) that is prohibited for CIP incentives. Please describe:**
    a. **Potential energy-saving measures that could result in fuel switching, and that you believe should be made eligible for CIP incentives;**

    Fuel switching opportunities for customers moving from fossil fuels to electricity are abundant based on current technologies. The improved efficiencies of electric heat pumps for space heating and for water heating are primary examples of significant energy saving opportunities. Otter Tail has assembled the following list of technologies, but understands this list is likely not complete as technologies improve and applications of technologies expand.

    1. Heat pumps for space heating[1]
    2. Heat pump water heaters
    3. Electric vehicles
    4. Electric lawn mowers and other power tools
    5. Industrial processing applications
    6. Forklifts, golf carts, Zamboni, etc.

[1] The Center for Energy and the Environment's Minnesota Energy Efficiency Potential Study: 2020 – 2029 illustrates the future potential energy savings for the residential sector gain 35 percent of savings from Space Heating. CEE assumes the improvement in space heating relies on the improvement in heat pump technologies. Allowing fuel switching will increase this potential even greater.

b. Noteworthy benefits, factors, and considerations involving these use cases and technologies; and

Heat pumps, both air-source and geothermal, have the potential to significantly reduce custom costs by harnessing efficiencies that can effectively exceed four hundred percent or more. When installed in a dual fuel scenario they provide greater fuel security for our customers which helps to limit the customer's exposure to market price fluctuations they would otherwise be subjected to if they were to rely on a single heating fuel alone. Electric rates are historically less volatile and more predictable compared to fossil fuels. Customers installing a heat pump in combination with another fuel would also qualify for our dual fuel rates which increases cost savings even further and improve the participant test results.

Electric vehicles (EV) have the potential to provide significant energy savings over a typical internal combustion engine (ICE) powered vehicle. ICE vehicles are typically around 20 percent efficient while EVs are about 60 percent, or about 3 times more efficient. Customers can also realize significant operational cost savings afforded by EV when compared to an ICE vehicle through reduced operational and maintenance costs. Depending on their electrical rates, EV owners can typically refuel at a rate equal to less than a dollar per gallon of gasoline equivalent. EV also provide fuel diversity and offer customers another choice to respond to often fluctuating gasoline prices. There have been significant improvements in ICE technology, however, those gains are largely on national legislation that is not always reliable or predictable. Being able to provide for the replacement of ICE vehicles with EV would allow some additional state control when addressing GHG emissions and net energy savings.

In general, it is also likely more efficient to offset fossil fuels that are consumed at the customer's premise, even if it is simply shifting from the local combustion to combustion at central generating facility owned by an electric utility. Doing so limits the potential for unintended leaks that are more prevalent in distribution piping when compared to a single large user such as a power plant.

It is also beneficial to all ratepayers when existing equipment can be electrified as it puts downward pressure on all rate classes. Any electrification that is capable of being managed through a utility demand response program also provide a valuable resource that allows for the more efficient use of the utility's facilities which inherently does not impact coincident peak demand and puts downward pressure on all rates.

c. Uncertainties and unintended consequences related to these use cases or technologies that should be addressed in the policy process.

No comment on this question.

2) **Not all fuel-switching use cases involve switching between utility energy supplies. For example, implementing some energy-conservation measures can lead to increased utility sales and decreased sales of non-utility delivered propane and fuel oil. Please describe:**

   a. **Use cases and technologies exemplifying potential energy-saving measures that you believe should be addressed in State energy policies (within CIP or otherwise);**

Otter Tail's response to question 1 is also applicable here. The Minnesota Department of Commerce Division of Energy Resources is responsible for conservation and energy security for the entire state of Minnesota. If a technology saves energy over another technology regardless of fuel, the Department should encourage investments in the more efficient technology. Even if an electric utility's sales increase, overall less energy is used in the state. Participant costs and environmental impacts do play a part in this comparison in various benefit cost analysis.

   b. **Noteworthy factors and considerations involving these use cases and technologies; and**

No comment on this question.

   c. **Uncertainties and unintended consequences related to these use cases or technologies that should be addressed in the policy process.**

Otter Tail believes that discussion on the use of source energy versus site energy will likely need a great deal of stakeholder discussion and policy framework. Calculating source energy for electricity is fairly straight forward with heat rates and line losses, but for natural gas it is not well established. Some reports show 15%-20% of natural gas coming out of North Dakota is flared plus significant methane leaks exist throughout the natural gas process. We are unsure of a good way to calculate source energy for natural gas, but we have included some recent data following these comments which provide reference points.

Moving forward, heat rates for electricity will be somewhat challenging to calculate with sources becoming greener and greener and the inclusion of market energy purchases. Illinois avoided this challenge of calculating source energy by adopting site or "premise" energy in their statutes. Illinois simply converts site energy to an equivalent Btu. They have already done this with success providing Minnesota with a roadmap. See their language below.

> *For those energy efficiency measures or programs that save both electricity and other fuels but are not jointly offered with a gas utility under plans approved*

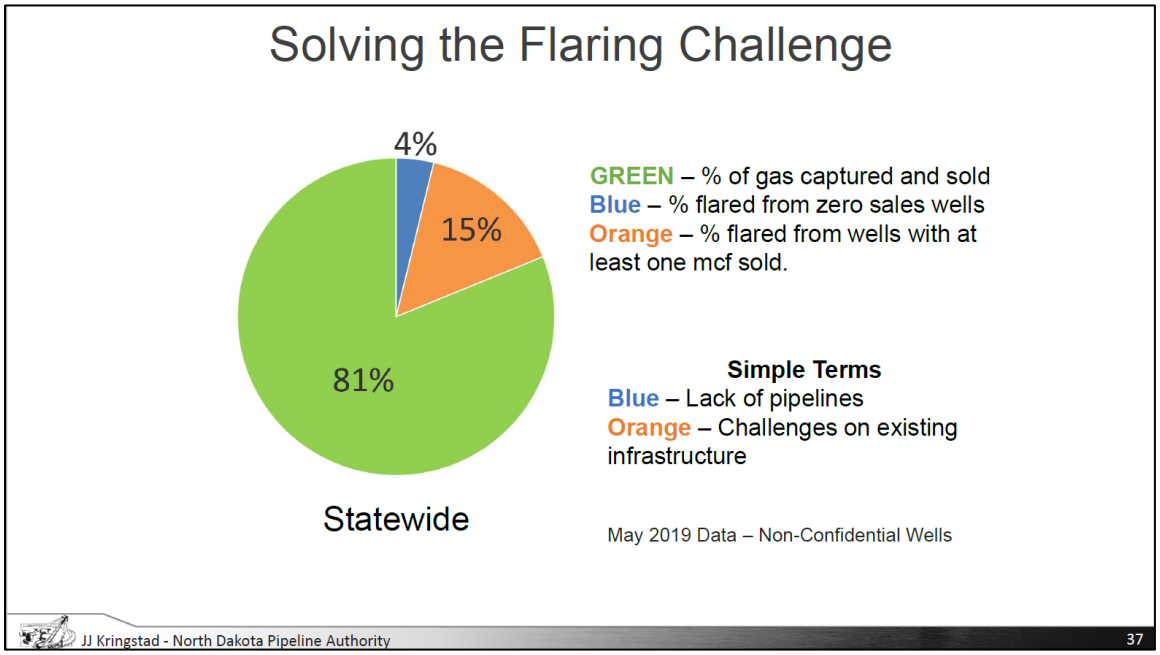
under this Section and Section 8-104 or not offered with an affiliated gas utility under paragraph (6) of subsection (f) of Section 8-104 of this Act, the electric utility may count savings of fuels other than electricity toward the achievement of its annual savings goal, and the energy savings value associated with such other fuels shall be converted to electric energy savings on an equivalent Btu basis at the premises.[2]

Measuring Natural Gas Back to the Source

According to a March 2019 report by the United States Energy Information Administration,

> *"About 40% of the natural gas consumed in North Dakota in 2017 was used in the production and transportation of natural gas"*[3]

The following graphic is from the North Dakota Energy Development and Transmission Interim Committee on August 14, 2019. North Dakota Pipeline Authority, Justin J Kringstad, Geological Engineer and Director.[4]



[2] http://www.ilga.gov/legislation/ilcs/ilcs4.asp?DocName=022000050HArt%2E+VIII&ActID=1277&ChapterID=23&SeqStart=9900000&SeqEnd=14800000

[3] https://www.eia.gov/state/analysis.php?sid=ND

[4] http://www.ilga.gov/legislation/ilcs/ilcs4.asp?DocName=022000050HArt%2E+VIII&ActID=1277&ChapterID=23&SeqStart=9900000&SeqEnd=14800000

3) **Criteria for allowing fuel-switching in CIP may be influenced by requirements and factors affecting specific high-impact use cases. Please comment on which fuel-switching use cases you believe will have the greatest beneficial impact on the State of Minnesota, and therefore should merit the highest priority in policymaking.**

Otter Tail believes electric heat pumps and electric vehicles have the most potential for energy savings and should be a focus for any new policy.

III. CONCLUSION

Otter Tail appreciates being given the opportunity to provide comments regarding the topic of fuel switching, looks forward to further discussion on the topic, and hopes stakeholders can arrive to a consensus to further the energy goals of the state of Minnesota.

Dated: August 22, 2019

Respectfully submitted,

OTTER TAIL POWER COMPANY

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