

### **Goals for Presentation**

- ✓ Give context for Minnesota's conversation on electrification
  - > Highlights from 2018 white paper
- ✓ Introduce next steps for the project
  - > Stakeholder Input
  - > Technical Advisory Committee



# **Project Website**

#### www.michaelsenergy.com/electrification-action-plan



This water to have site activate and agend as for opcoming meetings, and past-meeting documentation for the project sities, "Energy Grid Outlinitation Understanding the benefits and sunders of electrification in Moneyata."

Project Goal:

Examine the possible benefits and concerns of using electrification as a tool for an iconstruction in Migneriat, informed by in-depth research, statisholder exaggment, and the development of an action plan.



## Acknowledgements



The information in this white paper was gathered with support by a grant from the Minnesota Department of Commerce, Division of Energy Resources through a Applied Research and Development (CARD) program, which is funded by Minnesota Ratepayers.

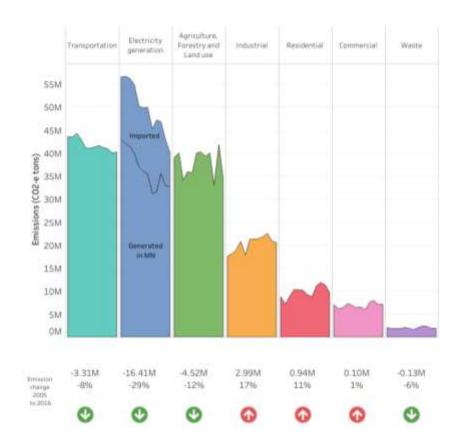
## **Overview of White Paper**

- ✓ Provide Minnesota-centric analysis
- ✓ Be a primer to inform CIP stakeholders
- ✓ Frame-up key questions

- ✓ MN Policy Context
- ✓ Literature Review
- ✓ Technology Review
- √ Policy Review
- ✓ Stakeholder Interviews

Minnesota is behind on reaching its

## State GHG Reduction Goal



# **MN Policy Context**

2005 FuelSwitchingProhibition

2012 Low Income Exception 2017 Otter TailPower ProgramModification

#### Core premise

### **Electrification is Beneficial When...**



Saves consumers money over the long run



Reduces environmental impacts



Enables better grid management

\*Must achieve at least one of the three, without negatively impacting the other two.

Source: Regulatory Assistance Project

#### A new era of electrification has benefited from

## **Three Enabling Trends**



Efficient Technology



Renewable Energy



Advanced Control

#### Components included in the

## **Technology Review**

### **Technologies:**

- ✓ Heat Pumps
- ✓ Electric Vehicles
- ✓ Lift Trucks
- ✓ Refrigerated Truck Units
- ✓ Industrial Heating

### **Analysis includes:**

- ✓ Site efficiency
- ✓ Source energy consumption
- ✓ Annual emissions
- ✓ First cost and operating cost
- ✓ Impact on coincident peak

#### How other states are addressing

# **Fuel Switching Policy**

#### ✓ Illinois

- > Definition in state statute
- > TRM measures for Heat Pumps, CHP

#### ✓ Maine

- > High fuel oil use
- > RGGI funds support carbon reductions

#### ✓ California

- > Allowed under three-prong test
- > Test criticized as too onerous

#### How other states are addressing

## **Electrification Policy**

- ✓ Vermont
  - > Energy Transformation included in RES
- ✓ Massachusetts
  - > 2018 legislation added "load management programs"
- ✓ New York
  - > REV emphasis on renewable heat
- ✓ British Columbia
  - > Allow state-owned utility to pursue electrification







## **Participant Organizations**

**ACEEE** 

Center for Energy and Environment

CenterPoint Energy

Connexus Energy

EPRI (Electric Power Research Institute)

Fresh Energy

**Fuels Institute** 

Geothermal Exchange

**Great Plains Institute** 

**Great River Energy** 

GTI (Gas Technology Institute)

McKnight Foundation

Minnesota Chamber of Commerce

Minnesota Citizen's Utility Board

Minnesota Environmental Quality Board

Minnesota Municipal Utilities Association

Minnesota Public Utilities Commission

Missouri River Energy Services

National Rural Electric Cooperative Association

Otter Tail Power Company

Regulatory Assistance Project

**Rochester Public Utilities** 

Southern Minnesota Municipal Power Agency

Xcel Energy

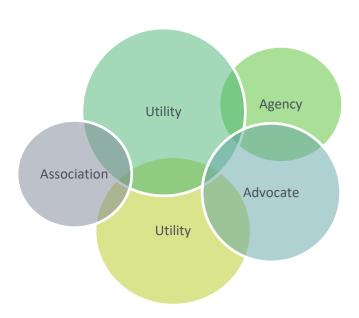
## **Interview Goals:**

1 Information Gathering

Input on Process and Policy

#### Stakeholder groups demonstrated

# **Cross-Cutting Cleavages**





### **Benefits: Carbon Reduction**

- ✓ Broad agreement: Electrification could reduce carbon emissions
  - > Especially for transportation
  - > But not in all cases, at least not at this point in time



## Stakeholder quote:

One of my big worries through a lot of this process is that people are taking a paint roller to what really needs to be a pretty fine brushed sort of picture."

# **An Important Topic**

24 out of 28 respondents

## A Route to an Equitable Process

- ✓ Transparency
- ✓ Clearly defined goals
- Understand costs and who pays
- ✓ Determine metrics



## **Status Quo Needs to Change**

19 out of 28 respondents

## **Stakeholder Quote:**

"The reason those [fuel switching] provisions were put in place still exists. Electrification can certainly be done for the benefit of the utility only, increasing sales."

### Treat All Fuels in a Unified Manner

 ✓ Existing policy only applied to propane, fuel oil, and CIP-exempt natural gas

- ✓ Consensus recommended no technical distinction
- ✓ Some pragmatic considerations

## **Stakeholder Quote:**

"I think that we should be evaluating fuel switching on a list of criteria, not simply by fuel."

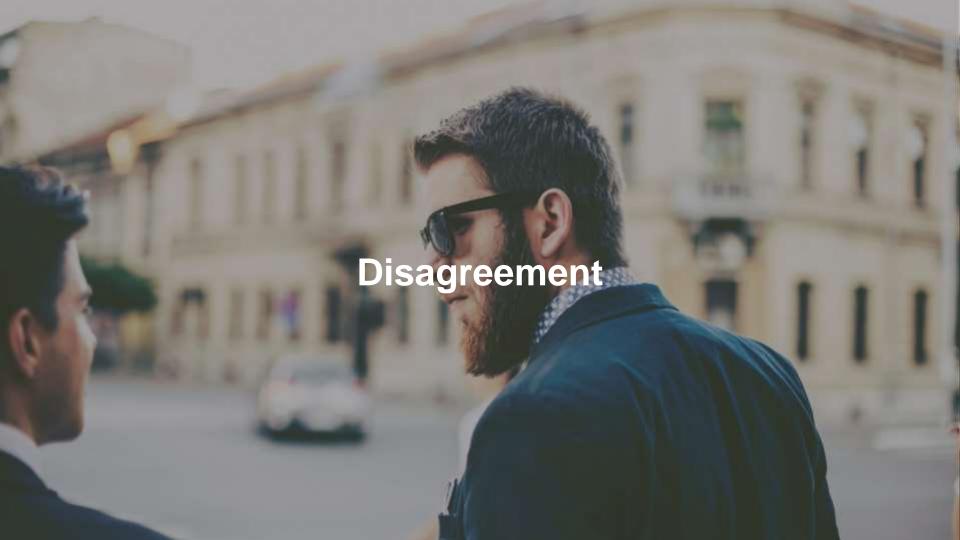
### **Electric Vehicle Enthusiasm**

### **Advantages:**

- ✓ Clear market demand
- ✓ Every stakeholder was tracking EV opportunities
- ✓ Plenty of room for utilitycustomer engagement

### **Opportunities:**

- ✓ Not a clear fit within CIP
- ✓ Need for regulatory guidance



#### Challenges for Electrification

	Status quo inertia	3
	Other	5
	Somebody's livelihood/ business at risk	6
	Politics	6
	Infrastructure	8
	Upfront customer cost	10
lenges	Consumer information/ adoption barriers	11
icinges	Existing policy/regulation	12

Diversity of

Chal

## **Desired Outcomes for Regulation**

- ✓ Policy Outcomes
  - > Modest adjustments
  - > Drastic changes
  - > Maintain commitment to efficiency
- ✓ Consumer and Market Outcomes
  - > Protect consumers
  - > Be cost-effective
  - > Enable market expansion

## **Stakeholder Quote:**

"I hope we get to, not to a point where [electrification] is required, but allowed."

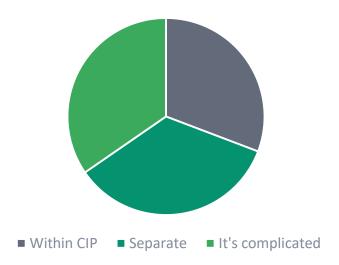
### **Cost-Effectiveness**



- Address cost-benefit testing methodology
- ✓ Program and project level
- ✓ Cost effectiveness matters to stakeholders
  - > Businesses
  - > Consumers

## Within CIP or Outside of CIP

Does electrification belong in CIP?



### **Stakeholder Quote:**

"If electrification is simply lumped into CIP, I think there's a real risk of a zero-sum game adversely affecting energy efficiency."



# Stakeholder Engagement Needed

Relationship with CIP

Goal of CIP

Costs and Benefits

Equitability

Policy direction

Effect on goals

Utility compensation

EE as a resource, time and place specific value

Methodology

Carbon emissions, marginal emissions

Value to nonparticipants, regulators responsibility to customers Accessibility, price concerns for business and consumers



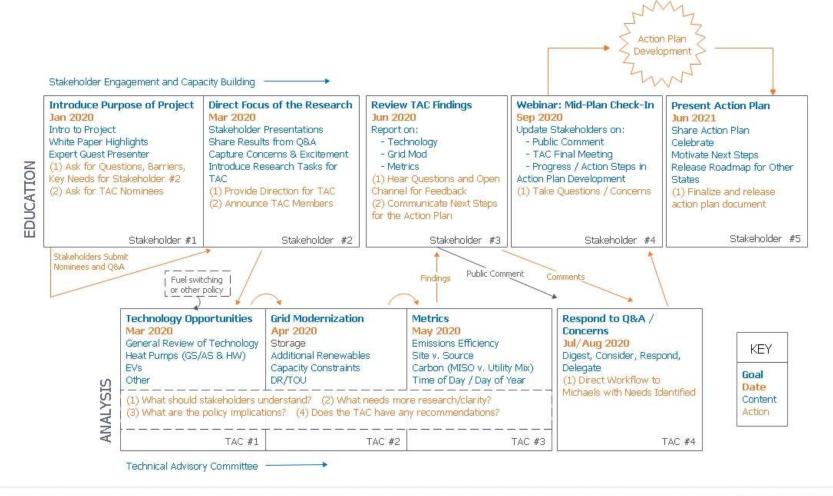
### **Stakeholder Process Outcomes**

Valuable insight, education, community building, and issue identification achieved during the stakeholder process

- Stakeholder Meetings January – September 2020

Action Plan summarizing stakeholder process results and providing an action plan to better capture electrification opportunities.

- Action Plan released Spring/Summer 2021



#### Stakeholder Meeting #2

## Save the Date

Date: Thursday March 5<sup>th</sup>, 2020 8:30-11:30 am

Location: Tentatively Hamline University

#### Meeting Agenda:

- 1) Panel of Minnesota Stakeholders
- Working session to collect/share: questions, barriers, opportunities, and key concerns for Technical Advisory Committee.



# Purpose

The Technical Advisory Committee will:

Develop a deep understanding of the issues and help inform stakeholders by illuminating the decision points and clarifying the impacts of those choices.

## **Outcomes**

For each topic (Technologies, Grid Impacts, and Metrics), the TAC will answer these four questions:

- 1) What should stakeholders understand?
- 2) What needs more research and/or clarity?
- 3) What are the policy implications?
- 4) Does the TAC have any recommendations?

## Membership

- ✓ Attend all four daylong TAC meetings (ideally in person) between March – Aug 2020
- ✓ Bring organizational and personal expertise to the group to improve the group's work.
- ✓ Help present findings to broader stakeholder group and/or develop TAC deliverables
- ✓ Tentative first meeting the week of March 23<sup>rd</sup>

### **Committee Member Selection**

- ✓ Capped at 20 members
- ✓ Any interested participates are welcome please contact Carl to express interest.
- ✓ If there are too many volunteers, we'll select members of the group based on developing a group with broad experience and representation.

### **Website and Contact Information**

www.michaelsenergy.com/electrification-action-plan

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