Great River Energy

David Ranallo

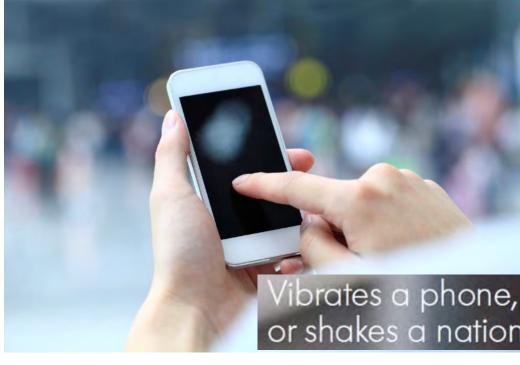




Electricity















Electricity is a smart choice.



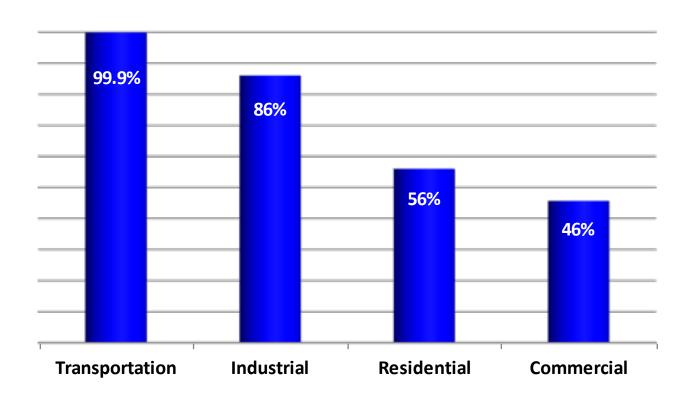


Meet Frank & Zhoey



- New variables to consider
- Decision factors are evolving
- More players
- Utility is one of them

Largest opportunity is transportation



DOE Energy Outlook

Electric vehicles

Our Members

Our Business
The Environment Economy

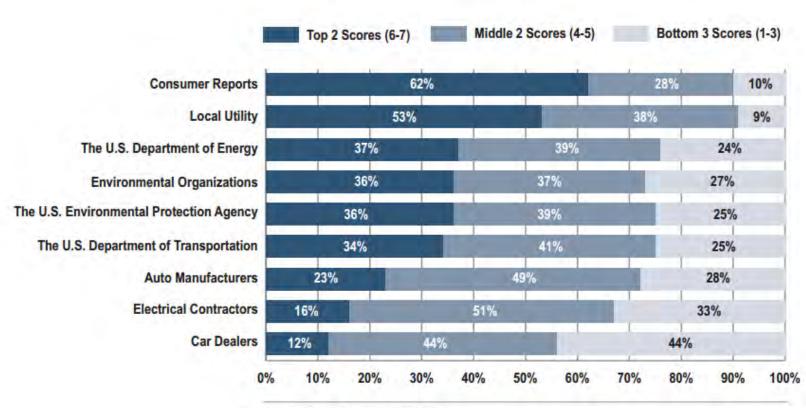




-EPRI, 2015

Trusted energy expert

Figure 14: Trust in EV Information Sources



Source: Provided by a Member Utility

Three pillars of activity to EV growth

EV electric sales growth

Charging infrastructure

Market stimulation

Member retail initiatives

Revolt





Goal

- Market stimulation: Raise awareness about plugin electric vehicles. Particularly with opinion leaders, environmental stakeholders and early adopters
- Result
 - Success
 - Awareness

By the numbers

19

~

Co-op EV related events

▶ 9M+

Media impressions (Revolt, etc.)

5431



EVs in MN - 2017

900



EVs in GRE territory – 2017

31



EVs in GRE territory - 2014



Twin Cities Auto Show



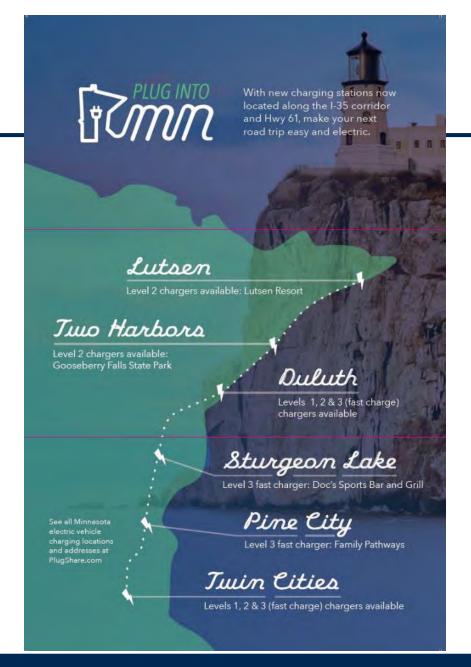
Sponsored first ever "Electric Room" at the Twin Cities Auto Show garnering record attendance and media





'Great MN Electric Road Trip'





Battery electric school bus pilot



BESB pilot objectives

- Showcase new energy efficient technologies
- Demonstrate EV school bus performance
 - Cold weather climate (supplemental heating)
 - Longer suburban and rural routes reflecting our member-owner service territories
- Document the regional economics
 - O&M (energy + maintenance costs) savings
- Calculate the emission reductions from routes and on premise idling

Co-ops = Energy experts

- Ride and drives
- Community educational events
- MNCharging.org
 - Dealership trainings
- Time of use & off-peak retail rates

Building confidence in fleets



What will **my** electricity costs be?

What will be **my** fuel economy?

What is **my** operating cost per mile?

What's **my** payback using **my** criteria?

How long will **my** EV fleet need to charge for?

What about **my** maintenance costs?

Will **we** need BEVs or PHEVs?

What charging infrastructure will we need?

... by taking a data-driven and customized approach















Three-step process EV adoption plan

How are conventional vehicles currently being used?

Step #1

Data log existing vehicles





Will EVs be range/charge capable? Will they reduce total costs?

Step #2

Simulate duty cycle data in EV modelling and simulation software







How do I begin incorporating EVs into my fleet?

Step #3

Build multi-year EV adoption plan

