2019 Best Practices Conference

Electrification of the Transportation System

Is your community on board?
Madison Gas and Electric

- MGE provides electricity to 153,000 customers in the southern Wisconsin
- MGE provides natural gas service to 161,000 customers in central and southern Wisconsin
Electric Vehicle Benefits

- Lower fuel costs
  - Average price to fuel an EV is about $1.20 per gallon (EEI)
- Lower maintenance costs – fewer moving parts, no oil changes
- Convenient – charge at home, no more trips to the gas station
- Cleaner to drive
  - On average, EVs cut emissions by almost 50% (EEI)
- Fun to drive – instant torque
Electric Vehicle Barriers

• Driving Range
  • Driver concerns about how far they travel on single charge

• Costs
  • Higher upfront costs

• Vehicles
  • Limited models available
  • Dealership inventory in Midwest

• Charging
  • Home charging options for renters, condo owners
  • Limited DC fast charging network in Wisconsin and other parts of U.S.
Electric Vehicle (EV) Sales

- National
  - More than 1.2 million EVs on U.S. roads (April 2019)
  - EV sales up 81% from 2017 to 2018
  - About 2% of new car sales

Source: InsideEVs.com and HybridCars.com
Electric Vehicle Sales

- 1,728 registered EVs in Dane County
- Approximately 1,200 in Milwaukee County
- About 8,800 in Wisconsin, 67% increase 2018 to 2019
Projections

• By 2030, EV sales will reach more than 20% of annual vehicle sales
• 57% of new car sales will be electric by 2040 (Bloomberg)
• EVs will reach price parity by about 2025 – 2030 (EEI)
• One in 5 Americans likely to buy an electric car (AAA)
Cheaper to buy...soon

- Lower battery costs are leading to lower vehicle costs
  - Prices have fallen roughly 85% from 2010
  - Today, battery makes up 33% of vehicle cost
  - By 2025, battery will be only 20% of vehicle cost
Drive farther

• Driving range increasing
  • Chevy Bolt
    • 238 miles
  • Tesla Model 3
    • 310 miles
  • Hyundai Kona
    • 258 miles
More Makes & Models

• About 48 models will be available in 2019
  • More than 138 models by 2023 (EPRI)
• More vehicle options for families, travel
  • SUVs, crossovers, minivans
  • Outlander, Kona, Escape
• Electric motorcycles – Harley Davidson’s LiveWire all-electric bike available in 2020
• Pickups
  • Ford, Tesla
  • Amazon and Ford have invested in Rivian – 2020 release
• Four OEMs announced electric semi-truck programs
  • Cummins, Daimler, Navistar and Tesla
  • 12 companies have pre-ordered Tesla semis – Anheuser-Busch, DHL, PepsiCo, Wal-Mart
Charging Strategy

• 80% of charging happens at home
  • Programs/services for renters and homeowners

• Public charging stations
  • Level 2 important early on
    • Comfort level knowing stations around town
    • Smaller batteries early on
  • Public Level 2 will become less important in future
    • Bigger batteries
    • Drivers charge at home and at work

• DC fast charging important
  • Long distance travel
  • Near multifamily properties and/or homes without garages
MGE’s Public Stations

• Installed stations in 2009 to encourage EV adoption and to understand the need for public charging
• Now 34 ChargePoint stations installed (2 ports)
  • Four DC fast chargers
    • Home Depot, Kelley’s Market, MGE headquarters
  • 30 Level 2 stations
    • City ramps, grocery stores, health clubs
• 100% powered by wind energy
• Almost 60 charging stations in Dane County
• Wisconsin – 214 stations
• About 1,200 drivers use the stations
Charge@Home Pilot

- About 80% of charging occurs at home
- Turnkey program to encourage Level 2 charging
- No upfront cost
- $20/month for 5 years plus the cost of the electricity
- Pilot allows MGE to evaluate:
  - Vehicle charging patterns and energy use
  - Reactions to utility managing their station
Charge@Home Pilot

- Average bill increase – 30%
- Average installation costs about $1,000
- Demographics – married, male, higher income, higher education level and over 35
MGE’s Multifamily Charging

- Approximately 53% of Madison residents are renters
- MGE partners with developers/property managers to install charging stations
  - Perform site assessment, bill impact
  - MGE owns and maintains Level 2 charging station
    - Site host pays for infrastructure to power the station and electricity costs
    - Allows MGE to gather resident feedback via surveys
MGE’s Multifamily Charging

- Developers use it to recruit and retain residents
- After stations are installed, more residents buy EVs
- Installed about 50 charging outlets across 20 locations
Workplace Charging

• Why workplace charging?
  • Important to accelerate EV market
  • Enables employees with longer commutes to own an EV

• Benefits to employers
  • Recruit and retain employees
  • Support sustainability initiatives
Workplace Charging

• MGE partners with business customers to install stations
  • Assist with survey, site assessment, bill impacts
  • Discuss costs, how to introduce workplace program
  • MGE owns and maintains Level 2 charging station
    • Site host pays for infrastructure to power the station
    • Survey employees twice during program
• About 32 charging outlets at 13 businesses
  • Small, medium and large businesses are interested
  • Install stations, more employees buy EVs
Other EV Opportunities

• Shared Mobility – ride hailing and car sharing
  • Low-income neighborhoods where vehicle ownership is low
  • First and last mile transportation option
  • Rider education
  • Reduces vehicle miles traveled

• Charging hubs
  • Vacant land with charging options for various transportation modes – cars, bikes and scooters
Lyft EV Driver Bonus

• Partnering with Lyft to incent EV owners to drive with Lyft
• Goal is to increase public awareness and get more butts in the seats of EVs
  • Rider education piece
• EV drivers who sign up receive a $500 bonus
Electric Buses

• Partnership with City of Madison - Metro Transit on electric bus adoption
  • City’s goal is to transition to electric buses
  • 3 Proterra buses in 2020
  • Considering first set of 15 buses in 2023
• Awarded FTA low- or no-emission funding opportunity
  • $1,278,950 for three Proterra buses, three charging stations
  • MGE contributed the required local match for charging infrastructure and is providing technical assistance
  • Buses will charge overnight at depot
Autonomous Shuttle

• Autonomous shuttle demo
  • Partnership City of Madison, American Family, UW-Madison, MGE
  • Route from music venue to the Capitol Square during events – up-and-coming East Washington Avenue corridor in Madison
  • Applied to US DOT for the Automated Driving Systems Grant
    • MGE provided letter of support
    • Up to $10,000 for charging infrastructure
  • UW will be issuing an RFP to select a manufacturer
Dane County

- Dane County Council on Climate Change
  - Proposed goal – 45% reduction from 2010 by 2030 and net-zero by 2050
  - Transportation – 1/3 of Dane County emissions
  - Reduce transportation emissions
    - Focus on cars and light trucks
    - Reducing driving and electrifying vehicles
  - Climate Action Plan to be released in 2019
What’s working elsewhere?

• EV sales are high in California, Colorado, Hawaii, Oregon, Vermont and Washington

• Here’s why:
  • Variety of models available, sufficient inventories
  • Incentives – state, local, fee exemptions, parking
  • Adequate charging opportunities
  • Outreach and education
Policies and Programs

• EV-ready construction provisions for:
  • Affordable housing
  • Commercial developments
  • Multifamily developments
  • Residential housing
• Right-of-way, charging hubs
• Workplace charging at county and municipal buildings
• Bulk purchasing opportunities for vehicles, charging
• Streamline the planning review process
• Evaluate permit review and inspections
Thank you!

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