I-80 STAKEHOLDER CONVENING & FUNDING UPDATES

WHEN: TUESDAY, AUGUST 16, 2022

WHERE: WESTERN ILLINOIS UNIVERSITY - QUAD CITIES

I-80 MID-AMERICA CLEAN FUELS CORRIDOR
A greener way across the USA

Argonne NATIONAL LABORATORY

IOWA DOT

Bi-State Regional Commission

2030

CHICAGO AREA CLEAN CITIES

Illinois Department of Transportation

IOWA CLEAN CITIES COALITION

IOWA economic development


Illinois Department
of Transportation


IOWADOT


CHICAGO AREA
CLEAN CITIES


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IOWA CLEAN CITIES COALITION
IOWA
economic development


Green Ways 2Go


2030
A REGIONAL ACTION PLAN
Cool • Creative • Connected • Prosperous


Bi-State
Regional Commission

Mayor’s Welcome

Mayor Sangeetha Rayapati
Mayor of Moline, Illinois

Overview and Purpose

Photo by Warren Gretz / NREL

Participating Via Zoom

- Participants are in listen-only mode
- Post your questions at any time in Q&A
- Event recording and slides available this week
- Please complete event questionnaire

Introductions

Argonne National Laboratory, Marianne Mintz

Bi-State Regional Commission, Gena McCullough

Chicago Area Clean Cities & Green Ways 2Go, Tim Milburn

Illinois Department of Transportation, Chris Schmidt

Iowa Clean Cities & Iowa Economic Development Authority, Abbie Christophersen

Iowa Department of Transportation, Craig Markley

Q2030, Kate Jennings

Bi-State Regional Commission

Gena McCullough
Bi-State Regional Commission
Asst. Executive Director/Planning Director

I-80 MID-AMERICA CLEAN FUELS CORRIDOR
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I-80 MID-AMERICA CORRIDOR QUAD CITIES CONVENING

MARIANNE MINTZ
Principal Transportation Energy Analyst
August 16, 2022

Clean Cities

This work was supported by the Clean Cities Program in the USDOE's Office of Energy Efficiency and Renewable Energy, under Contract DE-AC02-06CH11357.

Fixing America's Surface Transportation Act – FHWA's Alternative Fuels **Corridor** Program

FHWA designated highest volume portions of I-80 Corridor "Ready" or "Pending" in November 2016

FHWA designated highest volume portions of I-70 Corridor "Ready" or "Pending" in April 2019

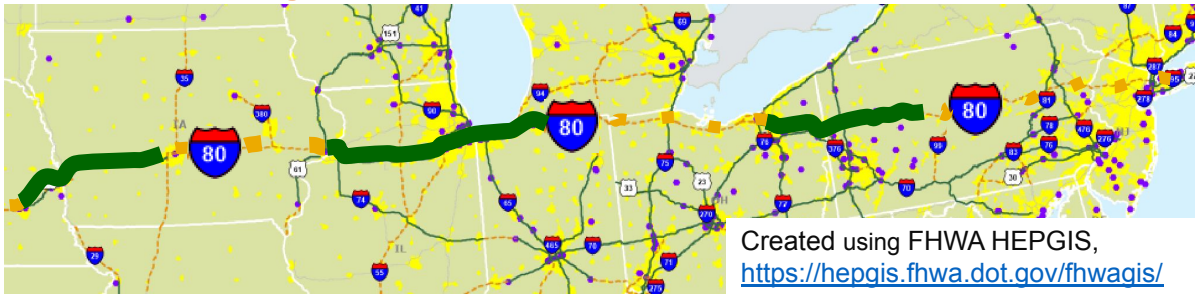
I-80 MID-AMERICA CLEAN FUELS CORRIDOR
A greener way across the USA

I-70 Main Street USA Alternative Fuel Corridor
Clean Fuels from the Chesapeake to the Great Plains

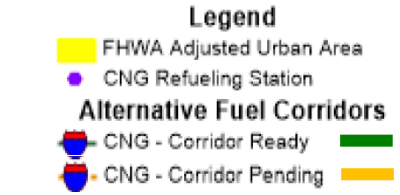
- IDOT/Argonne collaboration to develop alternative fuel corridors and multi-state nominations
- **FHWA funding to flip I-80 to EV and NGV Ready by developing deployment plan with outreach and education**
- Multiple jurisdictions and partners in planning (FHWA, Argonne, 6 state DOTs, 7 Clean Cities Coalitions, multiple utilities, stakeholders and infrastructure providers)

FHWA-Designated I-80 CNG Corridor

CNG-Ready in Illinois and Western Iowa

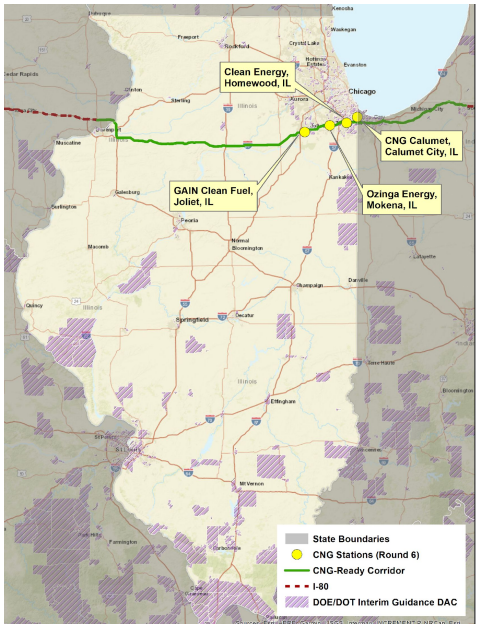


Created using FHWA HEPGIS, https://hepgis.fhwa.dot.gov/fhwagis/



CNG readiness criteria:

- Public fueling available within 5 miles of exit
- Locations no more than 150 miles apart
- Locations providing fast fill



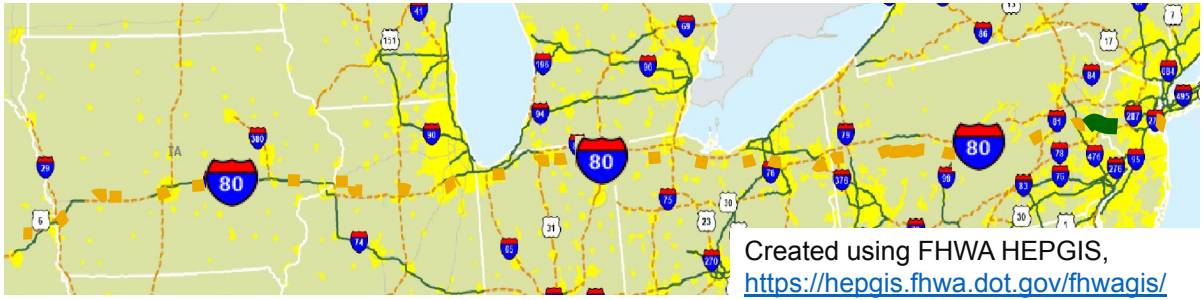
Today, a growing share of CNG is renewable natural gas (RNG) produced from landfills and other waste.

US Gain's Joliet CNG Station, August 15, 2022

- Industrial area, large "truck-friendly" footprint
- Two dispensers, up to 3600 psi
- $3.75/gal equivalent

FHWA-Designated I-80 EV Corridor

Pending throughout Illinois and Iowa



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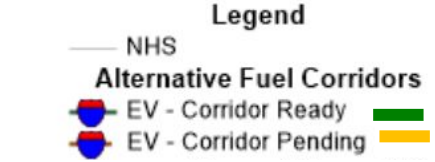
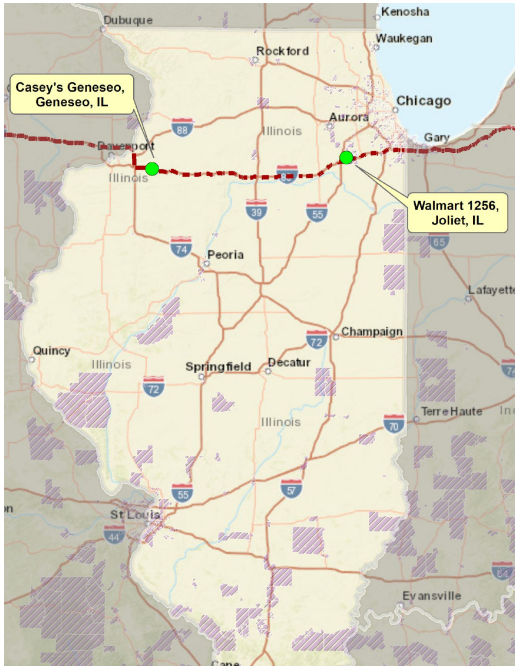
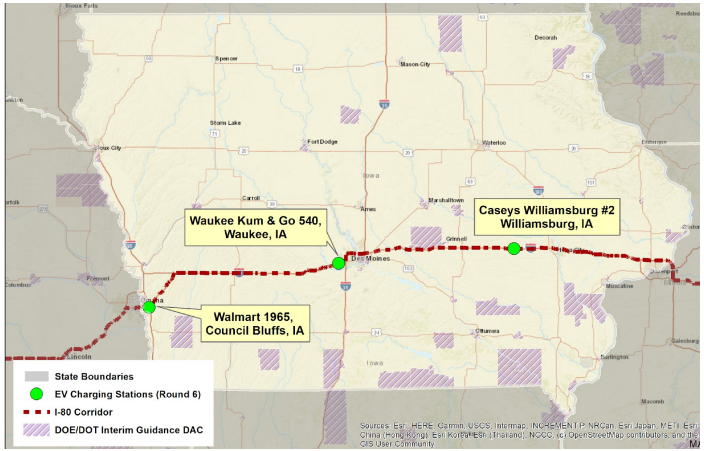




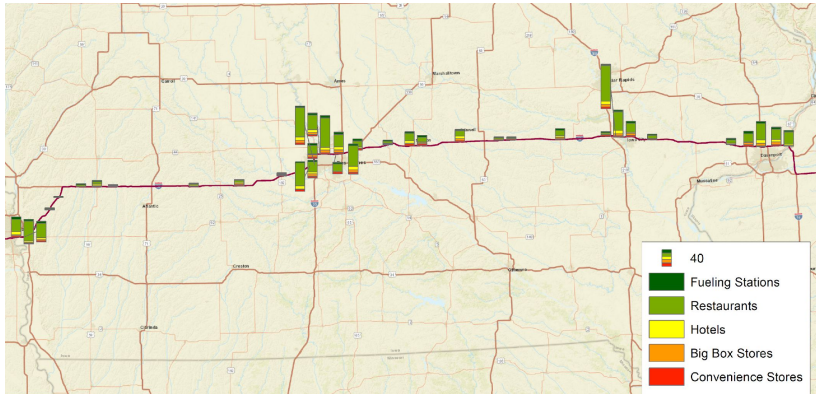
<u>New EV readiness criteria</u>:

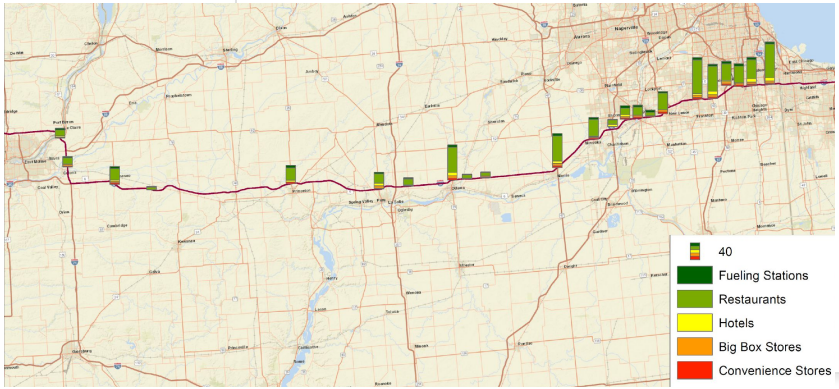
- Public charging within 1 mile of end of exit ramp
- Locations no more than 50 miles apart
- Locations with at least (4) CCS-1 ports (≥150 kW)



Other Useful Siting Criteria: Where People (or Trucks) Go or Stop Enroute

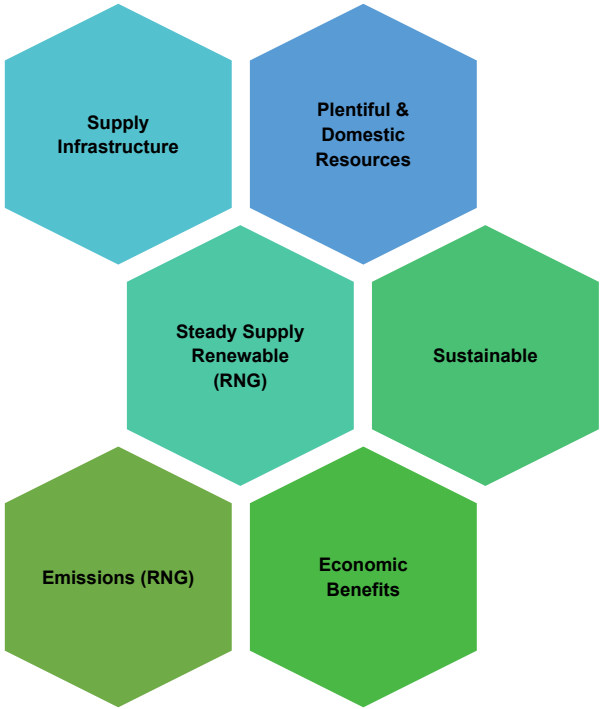
- Amenities tend to be concentrated in and around urban areas and major interchanges
- Most amenities have ample parking and serve other travel needs
- Suitability differences: EV charging aims to increase access in underserved communities while NG fueling aims to reduce emissions and traffic burden on disadvantaged communities





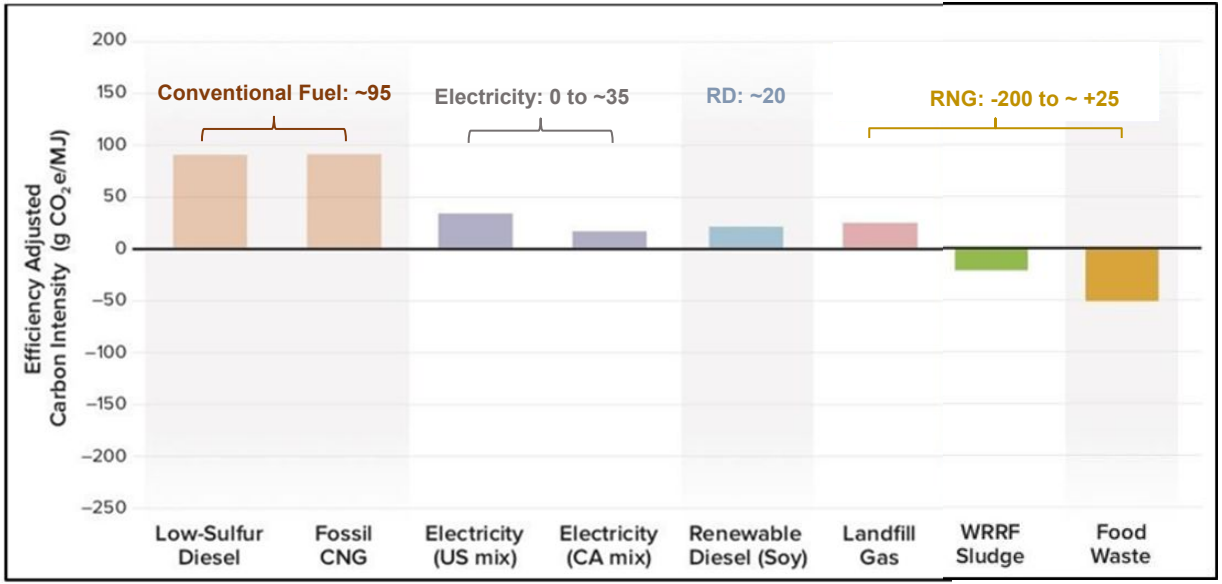
Benefits of Electric and Compressed Natural Gas (CNG) Vehicles

Electricity & RNG Are Domestic Energy Sources That Build on Existing Experience & Infrastructure



- Electric and natural gas grids are ubiquitous
- RNG and electricity — produced from plentiful domestic and increasingly renewable feedstocks — are readily available here and now
- Support sustainability goals
- Create jobs due to increased energy demand and infrastructure expansion
- RNG can provide additional environmental benefits (reducing odor and runoff) and a steady supply of renewable energy

Electricity & Renewable Natural Gas (RNG) Can Cut GHG Emissions from Heavy Trucks by 75% or More



https://www.anl.gov/esia/reference/renewable-natural-gas-rng-for-transportation-frequently-asked-questions.
Based on GREET 2020 https://greet.es.anl.gov/.

- Greenhouse Gas (GHG) emissions are typically measured from “well-to-wheel” to capture the full fuel cycle of energy production and use.
- GHGs for EVs depend on how electricity is generated.
- Because RNG production often prevents emissions of methane (more powerful than CO2) it can have NEGATIVE Carbon Intensity.
- Carbon Intensity of RNG from animal manure (not shown) varies greatly and is often below -200 (It reduces GHG that would have been emitted to the atmosphere).

Policies & Programs Supporting Alternative Fuels

Photo by Clean Cities - Georgia

Illinois Electric Vehicle Programs

August 16th, 2022

Illinois Department of Transportation

Covered Today

1. What is NEVI and how did we get here? (Federal)
2. State of Electric Vehicles (EV) and EV Infrastructure in Illinois (State)
3. Status of the Illinois Electric Vehicle Infrastructure Plan
4. Status of the Illinois NEVI plan and next steps on stakeholder engagement and implementation

WHAT IS NEVI?

National Electric Vehicle Infrastructure Program

- On November 15, 2021, President Biden signed the $1 trillion bipartisan infrastructure bill Infrastructure Investment and Jobs Act or IIJA.
- IIJA includes $7.5 billion in dedicated funding to help make EV charging accessible to all Americans for local and long-distance trips.
- That $7.5 billion is comprised of a $5 billion formula program and a $2.5 billion discretionary grant program

NEVI Formula Program

- Provides dedicated funding to states to strategically deploy **public EV charging infrastructure** and establishes an interconnected network to facilitate data collection, access, and reliability.
- Illinois will receive **$148 million** from this federal program between 2022-2026.
- Initially, funding under this program is **directed to designated Alternative Fuel Corridors** for electric vehicles including **stations every 50 miles** and **no more than 1 mile off the designated corridor**.
- When the national network is fully built out, funding may be used on any public road or in other publicly accessible locations.

What do we mean by Public EV Charging?

- **Public Charging=** stations available to the public **24 hours a day, 7 days a week**
- Public charging **does not** mean free charging. Charging stations can charge a fee, which will be subject to regulations
- **Fast Charging=** at minimum, 4 combined charging system (CCS) plugs capable of each charging at 150 kilowatts per hour (kWh)
- This means, at minimum, **4 vehicles can charge at the same time**, at a charging speed that will **fully charge an average EV in under a half hour**

NEVI State EV Infrastructure Deployment Plan

- States must submit EV Infrastructure Deployment Plan to the federal government **on or before August 1, 2022**
- Outlines how a state plans to begin implementing the NEVI program
- Does not identify specific sites for charging stations, or how procurement process will work, but **sets a framework** for accomplishing those things **with additional stakeholder input**

Detailed Specifications Still Under Development by Federal Government

- On June 22, 2022, the Federal government released a Notice of Proposed Rulemaking for the NEVI program. This draft guidance is subject to public comment through mid-August and will not be final until the fall. It includes:
  - Specifications on contracting and service requirements
  - Installation, operation, and maintenance standards
  - Americans with Disability Act (ADA) requirements and other accessibility considerations
  - Justice 40 and Environmental Justice considerations
  - Stakeholder and outreach suggestions
  - Data and uptime reliability minimums

$2.5 Billion Discretionary Grant Program

- The **Federal Highway Administration** will be running separate competitive grant programs to support EV charger deployment.
- **Corridor Charging Grant Program.** This program will strategically deploy publicly accessible EV charging infrastructure and hydrogen, propane, and natural gas fueling infrastructure along designated Alternative Fuel Corridors.
- **Community Charging Grant Program.** This program will strategically deploy publicly accessible EV charging infrastructure and hydrogen, propane, and natural gas fueling infrastructure in communities.

STATE OF ELECTRIC VEHICLES (EV) AND EV INFRASTRUCTURE IN ILLINOIS

State goal: 1 million EVs by 2030

- **June 2019** - Rebuild Illinois
- **April 2021** - Ex. Order 2021-08
- **September 2021** – Climate and Equitable Jobs Act
- **November 2021** – Reimagining Electric Vehicles in Illinois Act

“Here in Illinois, we enacted a nation-leading climate action plan. That includes putting 1 million electric vehicles on the roads by 2030 & providing $4,000 electric vehicle rebates.” -Gov. Pritzer

Illinois Department of Transportation

Illinois EPA Vehicle Rebates/Grants

- Existing : Illinois residents that purchase a new or used all-electric vehicle after July 1,2022 will be eligible for a rebate. Low-income customers are prioritized
  - $4,000 rebate for the purchase of an all-electric vehicle that is not an electric motorcycle
  - A $1,500 rebate for the purchase of an all-electric motorcycle
- Future: IEPA will also develop grants/rebates for vehicles with funds from the VW settlement
  - $27 million for all-electric public transit buses and public passenger/commuter locomotives
  - $27 million for all-electric school buses
  - $16 million for all-electric Class 4-8 local freight trucks (including municipal trucks, refuse trucks, dump trucks, concrete mixer trucks, delivery vehicles, and Class 8 port

Illinois Environmental Protection Agency

Illinois Charging Rebates/Grants

CEJA grants

- $70 m towards supporting 80% of installed cost of charging infrastructure
  - Rules being developed at IEPA

VW settlement

- $12.6 m towards light duty charging
  - To issue Notice of funding opportunity by Q4, 2022

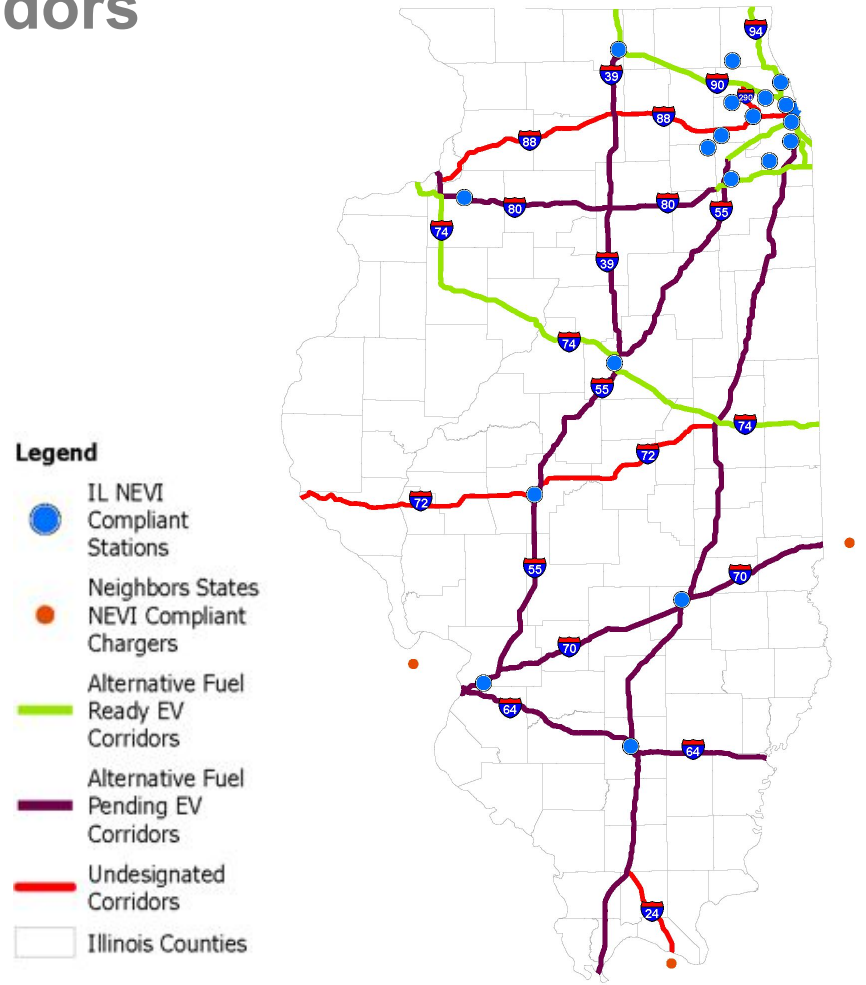
Illinois Environmental Protection Agency

Illinois Alternative Fuel Corridors

- **Electric Vehicle Signage Ready**
  - **I-39** from Rockford IL to Sun Prairie WI
  - **I-55** from Chicago IL to Bolingbrook, IL
  - **I-74** from IL/IA border to IL/IN border
  - **I-80** from IL/IN border to Joliet IL
  - **I-90** from IL/IN border to Sun Prairie WI; and, from La Crosse WI to Sparta WI
  - **I-94** from Sun Prairie WI to IL/IN border
- **Electric Vehicle Signage Pending**
  - **I-39** from Normal IL to Rockford IL
  - **I-55** from Joliet IL to St. Louis
  - **I-80** from Joliet IL to IL/IA border
  - **I-70** from St. Louis to Indiana boarder
  - **I-57** from Chicago to Missouri border
  - **I-64** from St. Louis to Indiana boarder

Illinois Department of Transportation

Illinois Designated Electric Vehicle Corridors



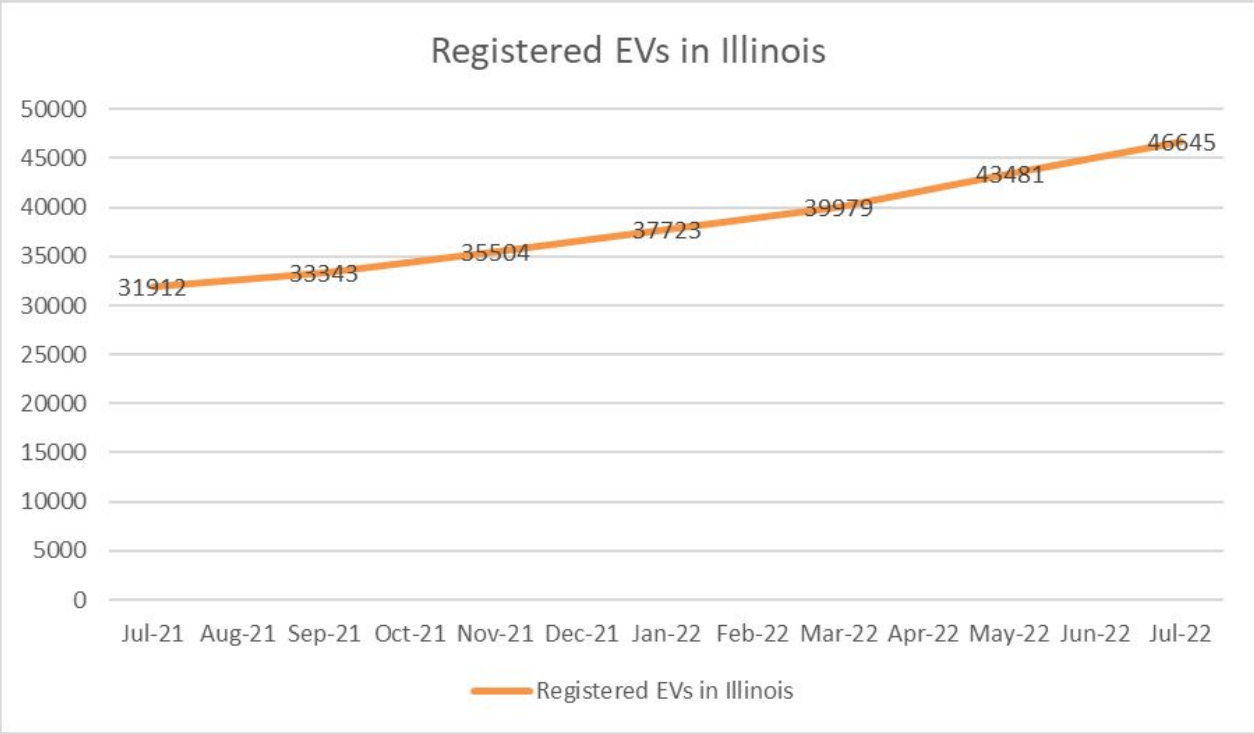
Illinois Alternative Fuel Corridor Award

- In 2019 IDOT and 8 other states were awarded funds to study I-80 from Nebraska to New Jersey
- This was a multistate effort including: Iowa, Illinois, Indiana, Ohio, Pennsylvania, and New Jersey.
- Other partners include Argonne National Laboratory and Trillium

Illinois Department of Transportation

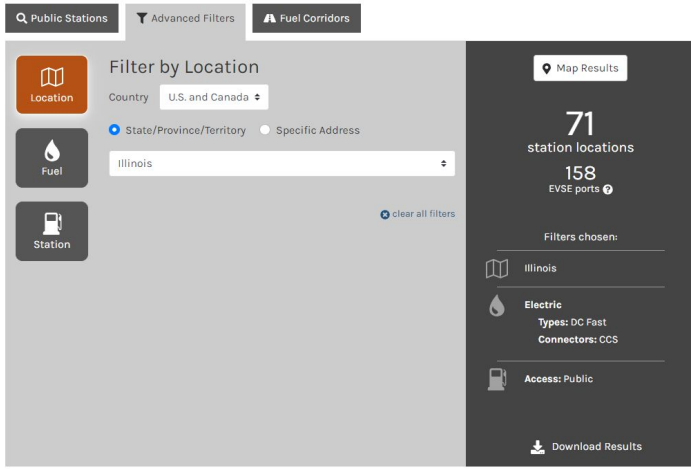
I-80 MID-AMERICA CLEAN FUELS CORRIDOR
A greener way across the USA

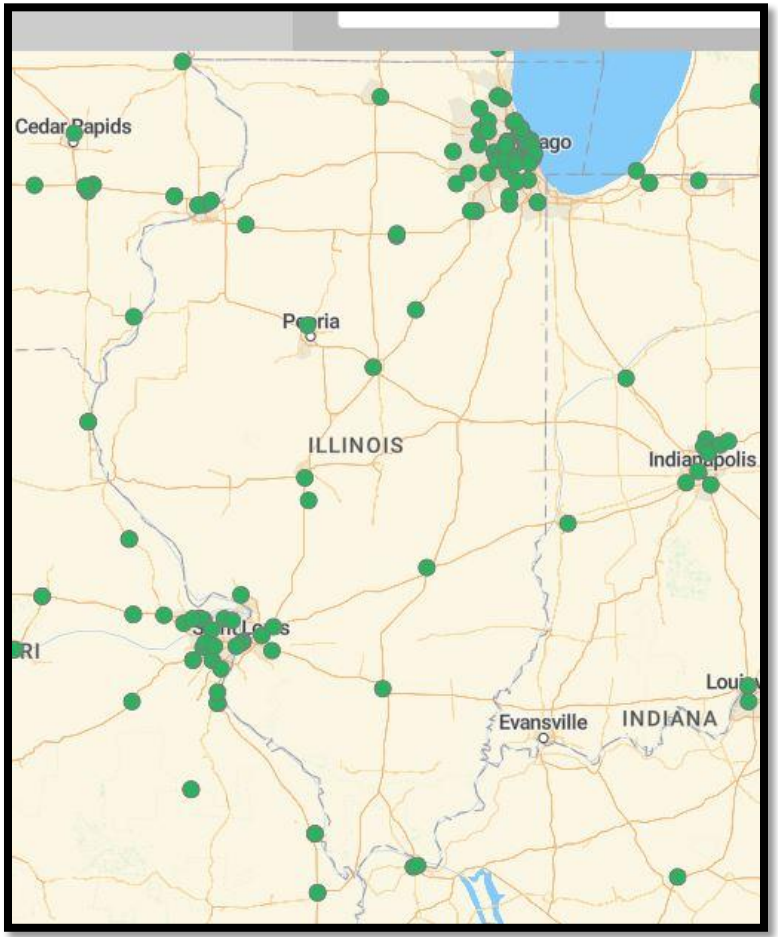
Number of Electric Vehicles Registered In Illinois



Illinois Department of Transportation

Current Direct Current Fast Charge Charging Network





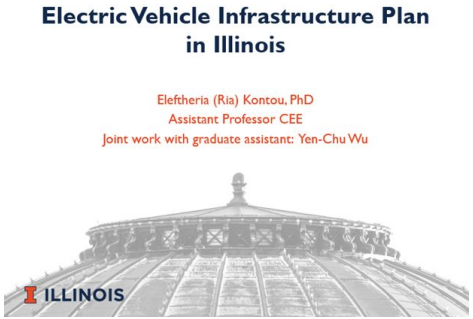
Illinois Department of Transportation

Electric Vehicle Coordination in Illinois

- In 2021 the state of Illinois formed the Interagency Working Group on Electric Vehicles. Meeting monthly these state agencies coordinate efforts to increase EV adoption and develop polices to entice EV manufacturers to the state. This group includes:
  - Illinois Department of Transportation (IDOT)
  - Illinois Commerce Commission (ICC)
  - Illinois Environmental Protection Agency (IEPA)
  - Department of Commerce and Economic Opportunity (DCEO)
  - Central Management Services (CMS)
  - Illinois Finance Authority (IFA)
  - Illinois Power Agency (IPA)
  - Illinois Department of Natural Resources (IDNR)

Starting Planning in Illinois (University of Illinois)

- In Spring of 2021 IDOT started work on an EV Deployment Plan. The plan included these goals:
  - EV adoption level projection
  - EV charging infrastructure investment allocation and placement optimization
  - Benefits/cost analysis of EV transitions
  - Statewide EV infrastructure steering committee
  - Final report preparation



STATUS OF THE ILLINOIS ELECTRIC VEHICLE INFRASTRUCTURE PLAN

Illinois NEVI Plan

The current Illinois NEVI Plan (like many other states) is a plan for a plan. It identifies:

- A vision and goals for the NEVI program
- Key risks and challenges
- Initial analysis on potential charging station locations to meet program requirements
- Important considerations around contracting, labor and workforce, equity, and support for medium/heavy duty electrification
- A plan for further stakeholder and public engagement

Next Steps in NEVI Program Implementation

- **August 1, 2022:** Deadline to submit state NEVI plans
- **August 22, 2022:** Comment period closes on Notice of Proposed Rulemaking for NEVI minimum standards and requirements
- **September 30, 2022:** Deadline for Federal Highway Administration to approve state plans or notify State DOTs that changes are needed
- **Fall 2022:** NEVI Funds available for states to begin investing in public charging

Ways you can provide input

- Suggest a charging station location

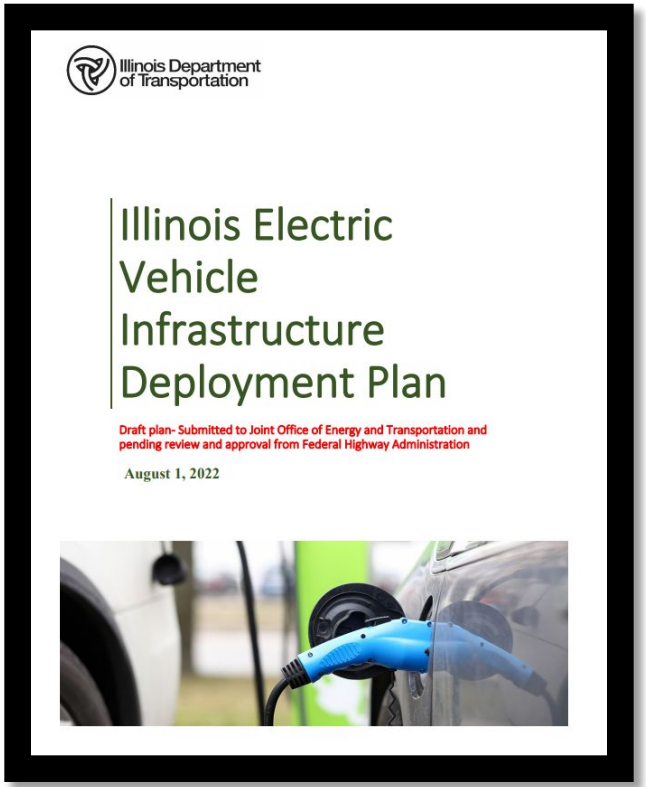
https://idot.click/drive-electric

Comments

Comments can be seen by the public.

1000

Draft Illinois NEVI Plan Available Online



Ways you can provide input: attend future meetings

- Working to schedule meetings this fall on specific topics, including:
  - Justice40/equity benefits
  - Prioritization considerations for locations, providers, and site hosts
  - Program evaluation and performance indicators

- **Next meeting: September 8th, 2022, 6pm (online)**

Resources

- IDOT Email: DOT.DriveElectric@Illinois.gov
- IDOT EV Webpage: https://idot.click/drive-electric
- IEPA Webpage: Electric Vehicle Rebate Program - Climate and Equitable Jobs Act (illinois.gov)

Thank you for attending today's public outreach for I-80!!!

Contact info:

DOT.DriveElectric@Illinois.gov

Comment form and place a charger interactive map found at:

https://idot.illinois.gov/home/drive-electric-illinois

Iowa EV Infrastructure Deployment Plan

Craig Markley, Iowa DOT

IOWA DOT

Electric Vehicle Infrastructure Deployment

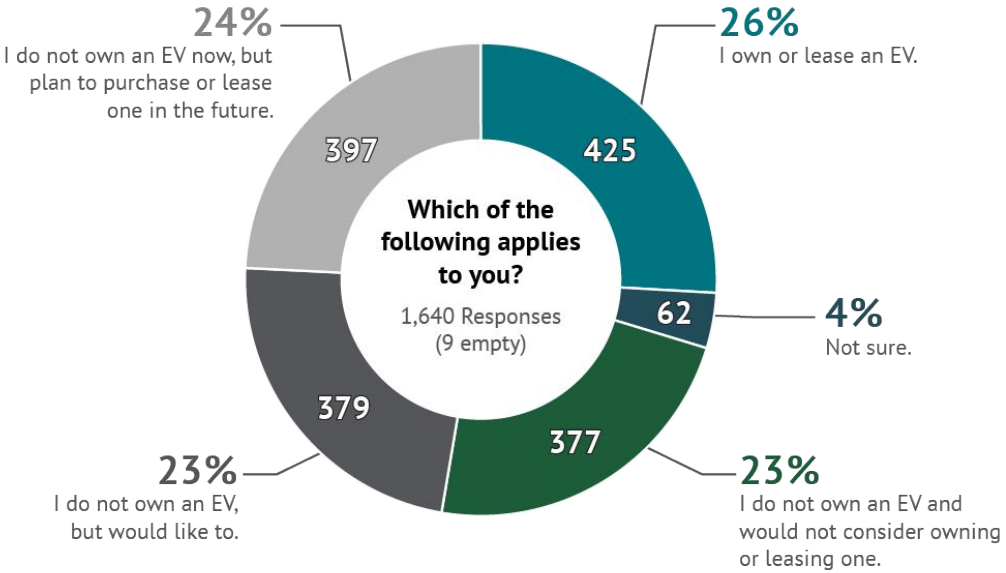
Iowa's Approach to Develop NEVI Plan

Iowa DOT partnered with the Iowa Economic Development Agency (IEDA) to oversee development of an EV Infrastructure Deployment Plan that supports the transportation electrification efforts for Iowa.

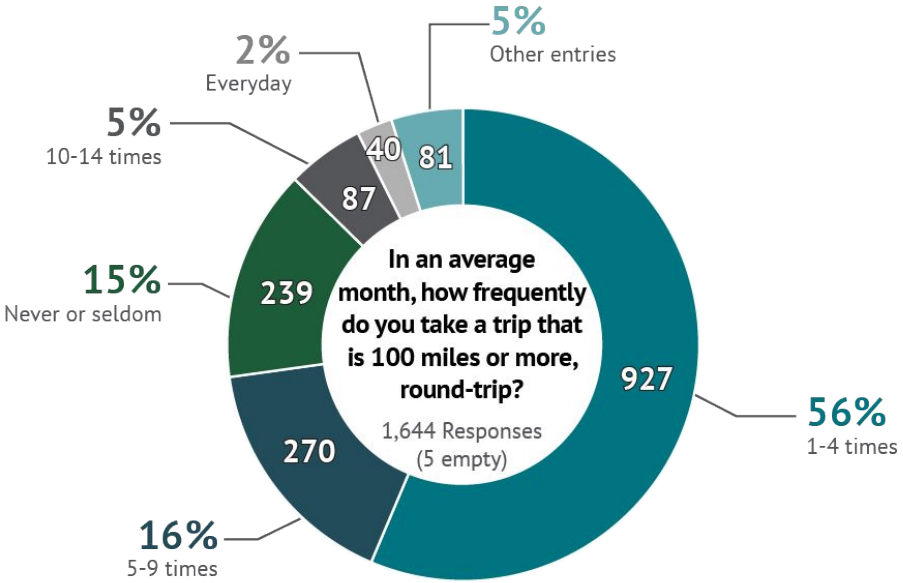
Iowa's Commitment to Fuel Diversity

- Iowa is a proud and nationally recognized leader in renewable energy and biodiesel and ethanol production. Our state has made a significant investment in renewable fuels infrastructure. State leaders, local communities, private companies, and utilities are making solid progress to add electric vehicle infrastructure to our diverse fuel mix.
- Iowa will remain unwavering in our support for varied fuel resources and associated infrastructure, including ethanol, biodiesel, propane, renewable natural gas and electric.

Iowa DOT EV Plan Survey Results



Iowa DOT EV Plan Survey Results



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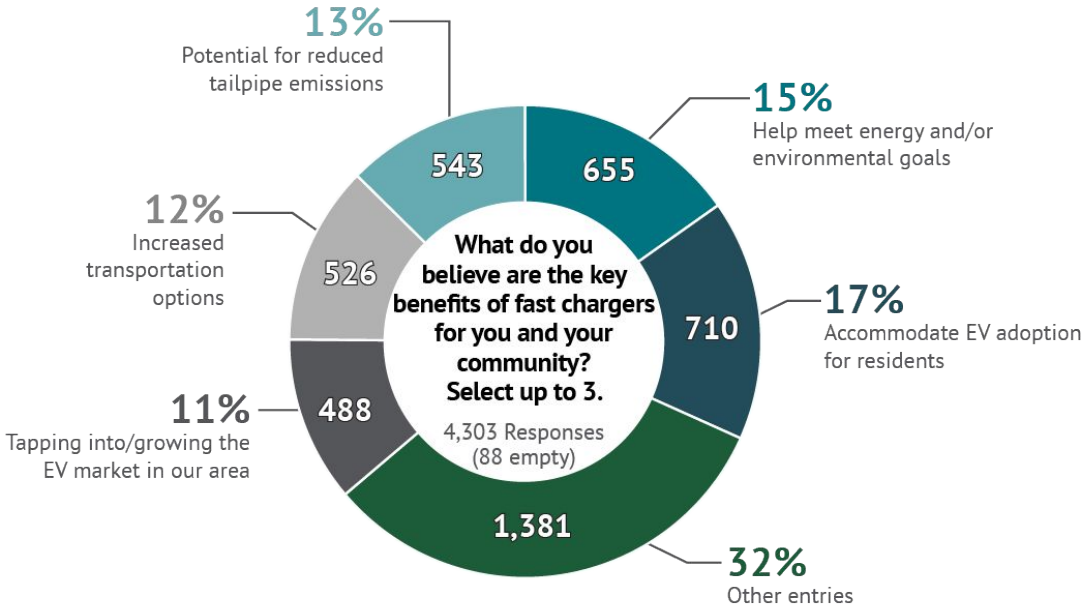
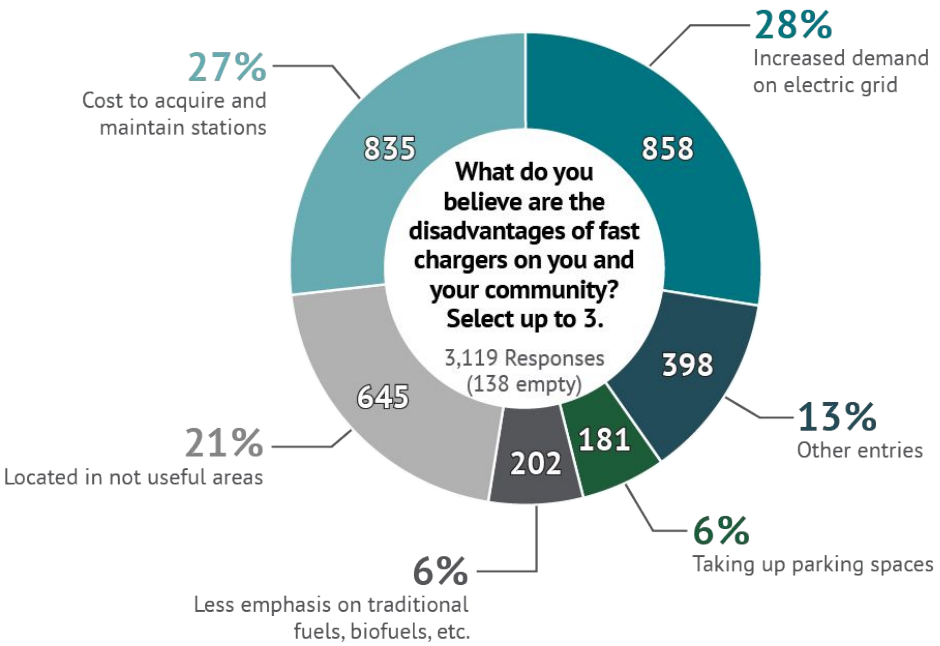


Iowa DOT EV Plan Survey Results



Iowa DOT EV Survey Results

1,649 survey responses

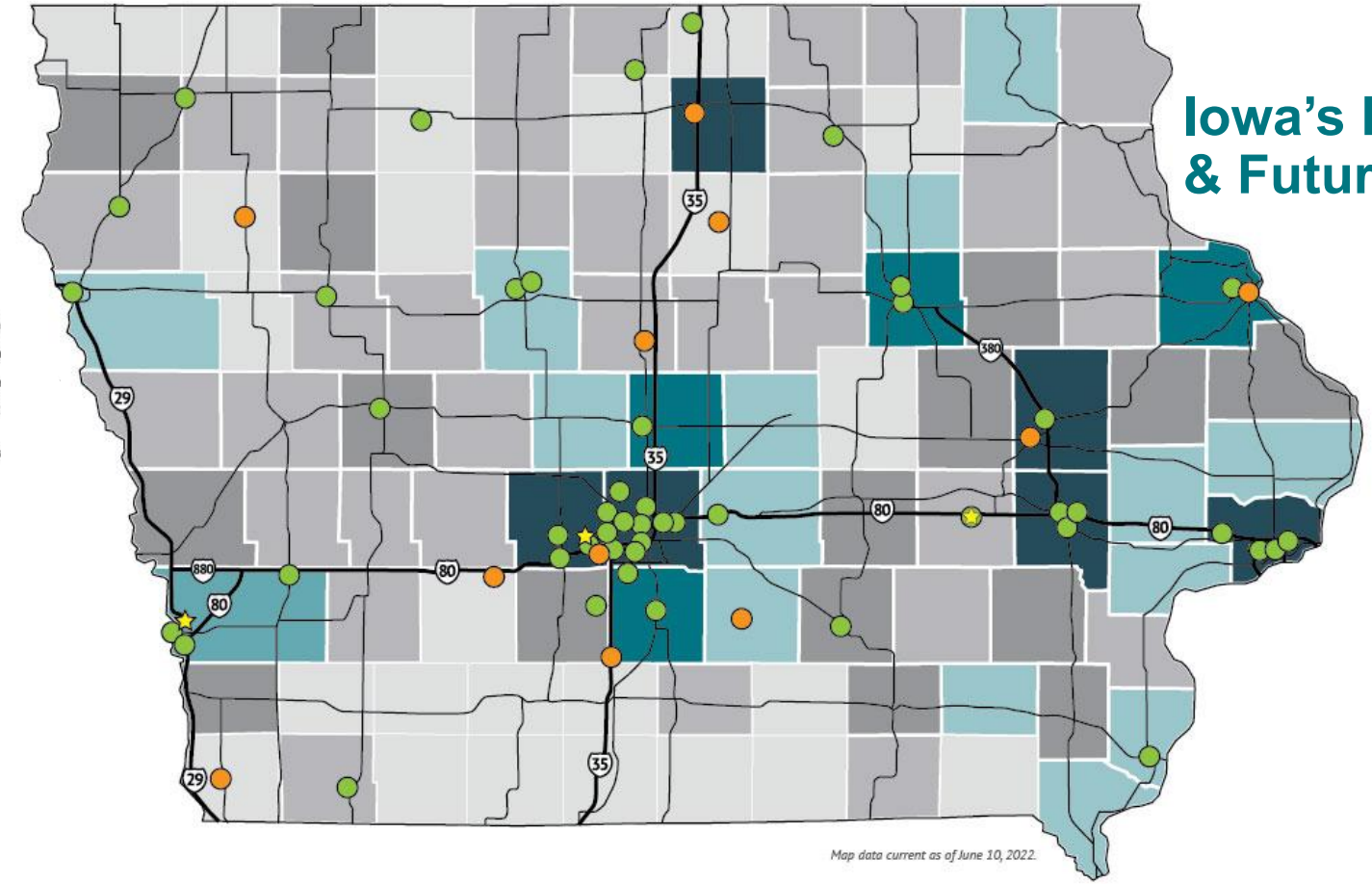
713 comment responses

- 30% positive ☺
- 45% neutral 😐
- 25% negative ☹

Comment themes

- Station amenities and location
- General support
- Power needs
- General opposition
- Affordability
- Cost/funding of infrastructure
- Range anxiety
- Disadvantaged communities

Iowa's Existing & Future Stations



Map data current as of June 10, 2022.

LEGEND

- Interstate
- Roadway

Type of Charger
(Does not include stations exclusive to Tesla vehicles.)

- Level 3/Fast Charging
- Pending Charging Stations
- NEVI Compliant Station

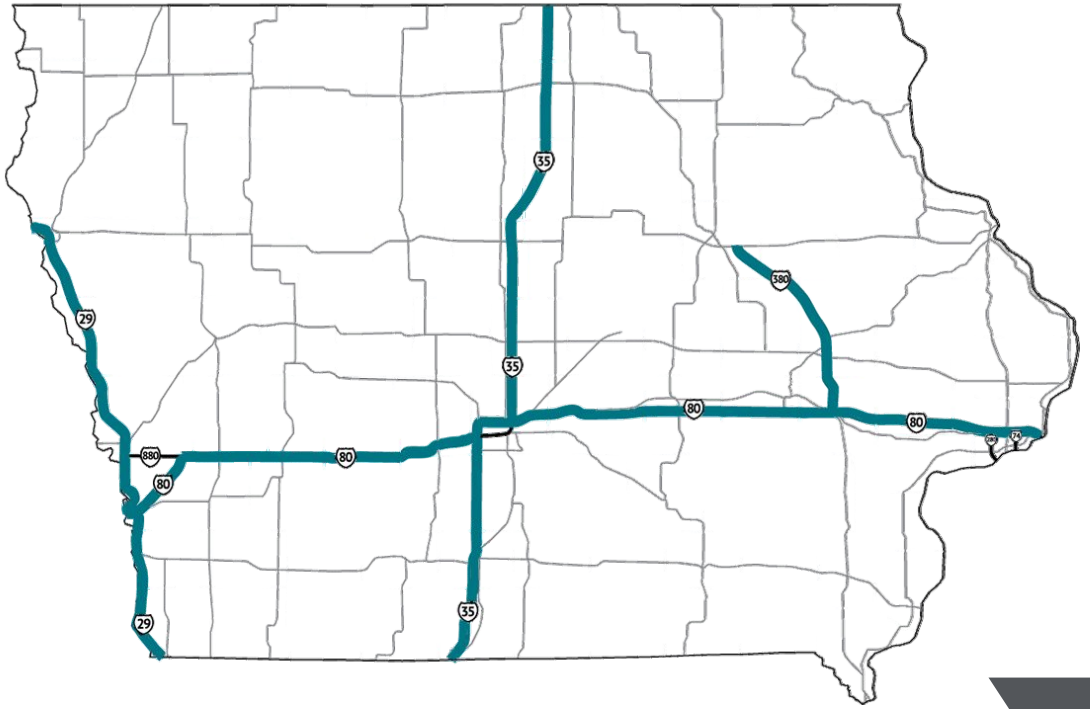
Registered EVs by County

- 1-10
- 11-25
- 26-50
- 51-100
- 101-200
- 201- 500
- 501+

View the map at: iowadot.gov/IowaEVPlan

IOWADOT
Electric Vehicle Infrastructure Deployment

Iowa's EV Alternative Fuel Corridors



Iowa's Allocated NEVI Formula Funds

$7.6 million
Federal Fiscal Year 2022 Funding

$51.4 million
5-Year NEVI Federal Funding

NEVI Formula Funds and Matching Funds (Millions)

FEDERAL FISCAL YEAR	FORECASTED NEVI FUNDS (80%)	MINIMUM NON-FEDERAL MATCH FUNDS (MIN 20%)	TOTAL (100%)
2022	$7.6	$1.5	$9.1
2023	$10.95	$2.2	$13.15
2024	$10.95	$2.2	$13.15
2025	$10.95	$2.2	$13.15
2026	$10.95	$2.2	$13.15
Total (5 Year)	$51.4	$10.3	$61.7

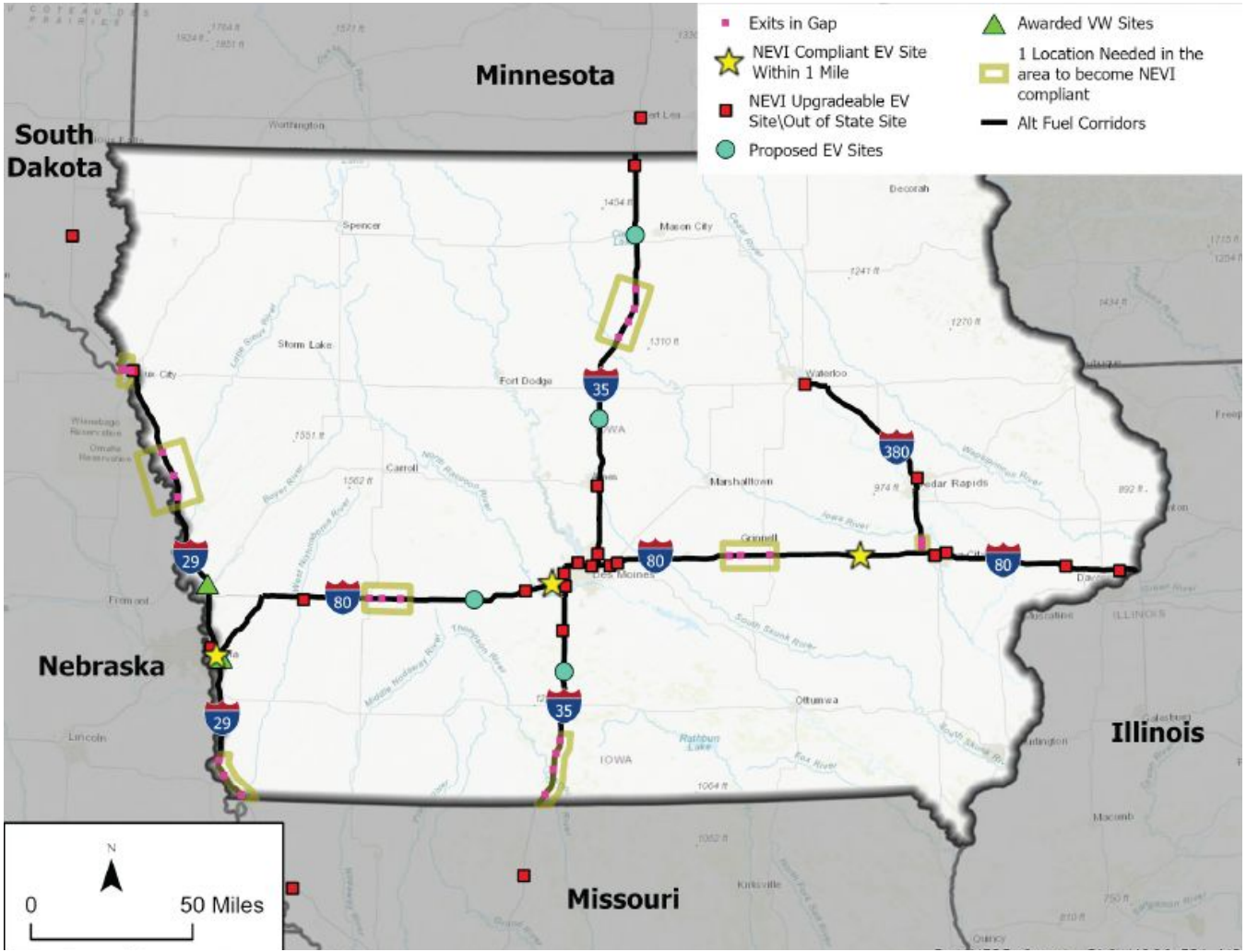
IOWADOT
Electric Vehicle Infrastructure Deployment

Gap Analysis and Scoring

- A weighted scoring analysis tool was developed to identify and prioritize suitable areas that could host NEVI-compliant fast-charging sites.

- The tool considered several factors, including:
  - Voltage of nearest power source
  - Amenity density
  - Urban vs. rural areas
  - Disadvantaged areas
  - AFC corridor location
  - Miles covered

Gap Analysis



IOWADOT

Electric Vehicle Infrastructure Deployment

Stay Informed

- Visit the website: **iowadot.gov/IowaEVPlan**
- Understand the grant cycle and when funding is expected to be available
- Start conversations with your peers and communities
- This is just the beginning of a five-year process
- **Iowa.EvPlan@iowadot.us**

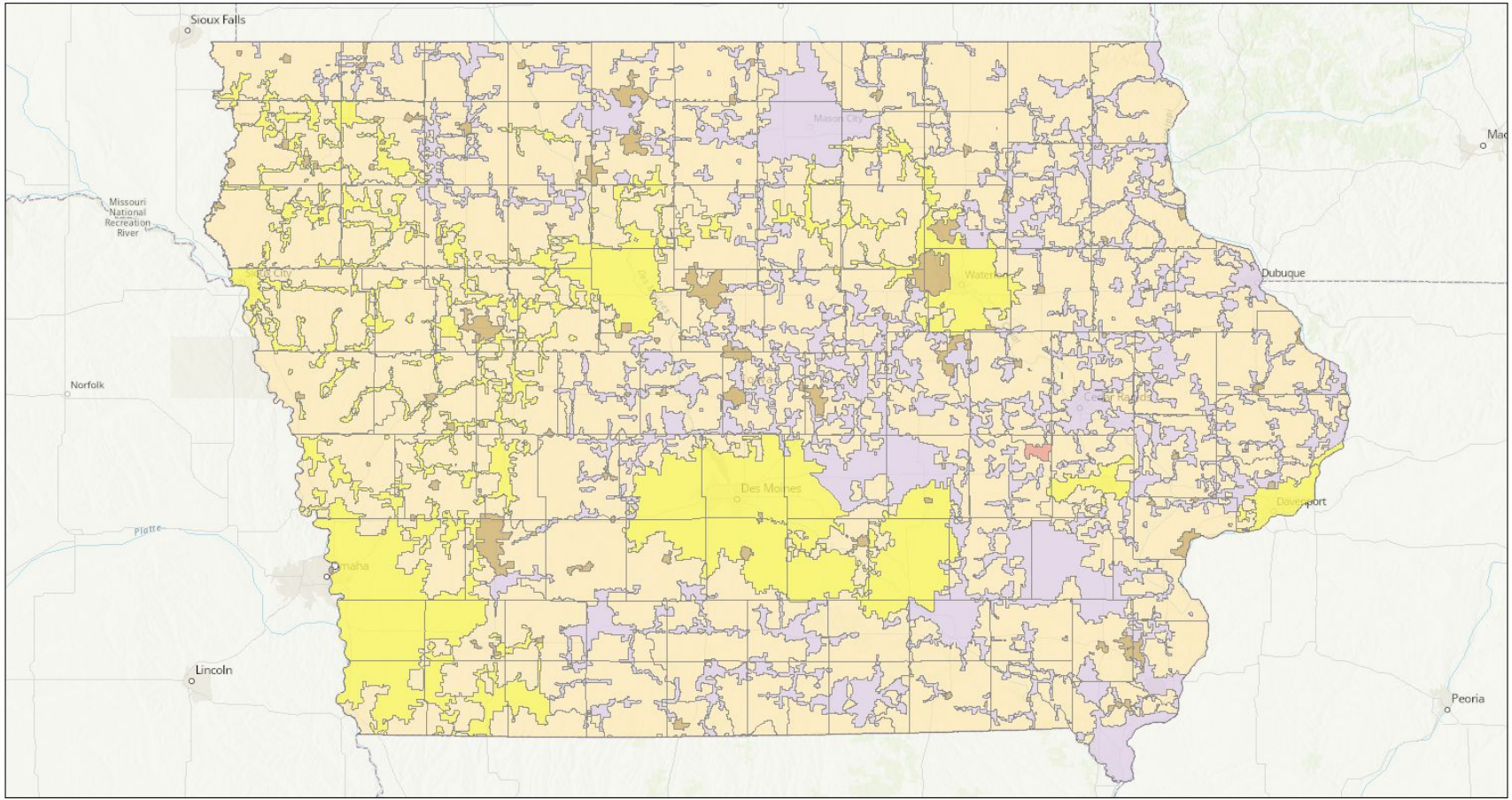
VW EV Focused Funding

- Volkswagen Settlement funding to Iowa totaled approximately $21,000,000 with Iowa taking advantage of allocating 15 percent for electric vehicle chargers.
- The third and final round coincided with release of NEVI guidance so Iowa requested applications to meet NEVI requirements – recently awarded 6 out of 8 applications.
- Volkswagen Clean Air Act Settlements - State of Iowa (iowadot.gov) for more information about Iowa's awards.

Iowa's Electric Vehicle Fees

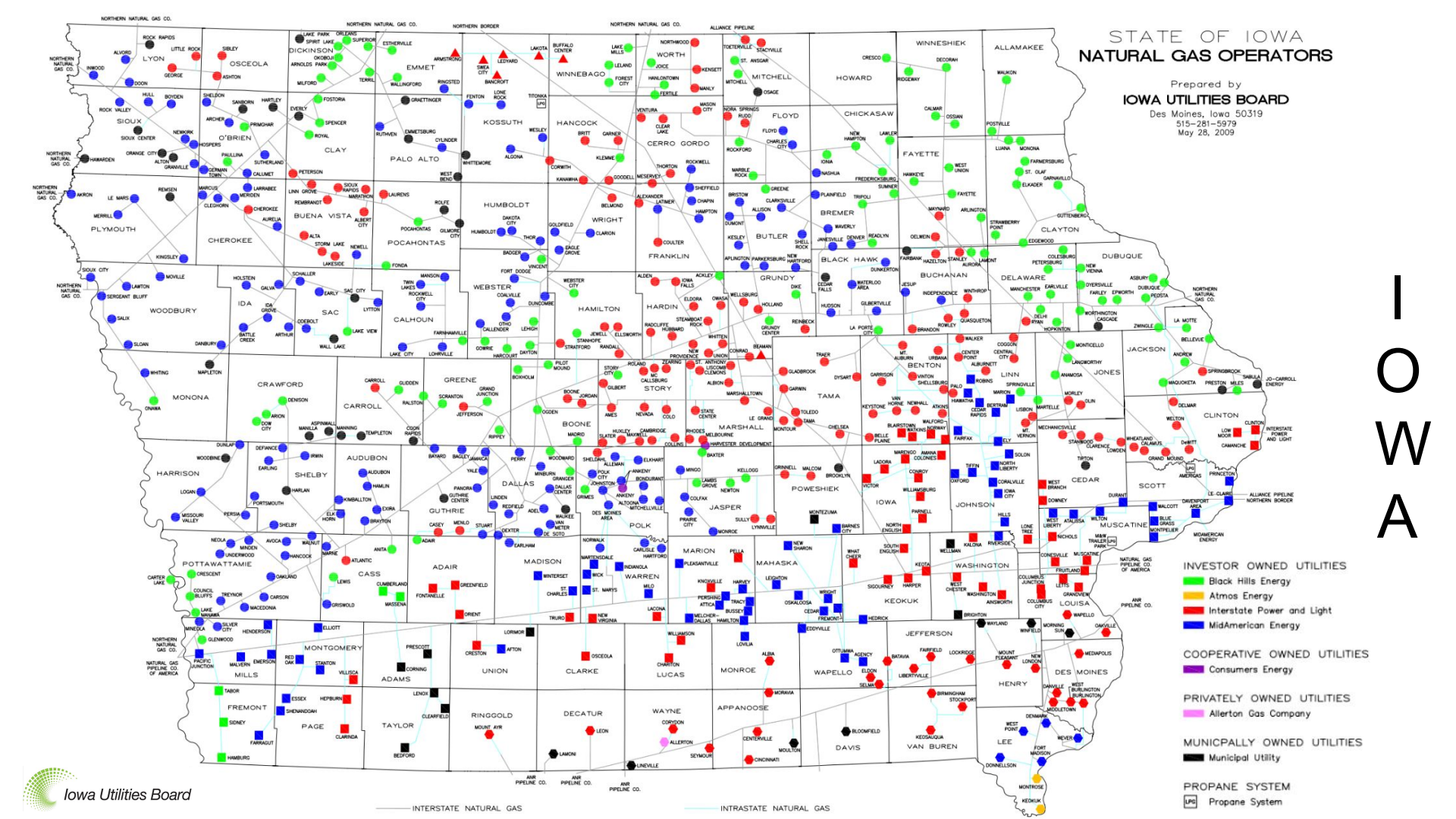
- Nearly 40% of Iowa's state roads are funded by fuel taxes. 2019 Legislative Session passed the following to help offset the decline in fuel tax revenue due to electric vehicles:
- Beginning January 1, 2020 electric vehicle owners began being charged an extra annual registration fee phased in over 3 years – now extra amounts are Battery Electric - $130, Plug-in Hybrid - $65.00 and Motorcycles - $9.00.
- Beginning July 1, 2023, there will be a $0.026 per kilowatt hour excise tax for charging at non-residential locations.
- A similar hydrogen fuel excise tax went into effect January 1, 2020 and is $0.65 per diesel gallon equivalent.

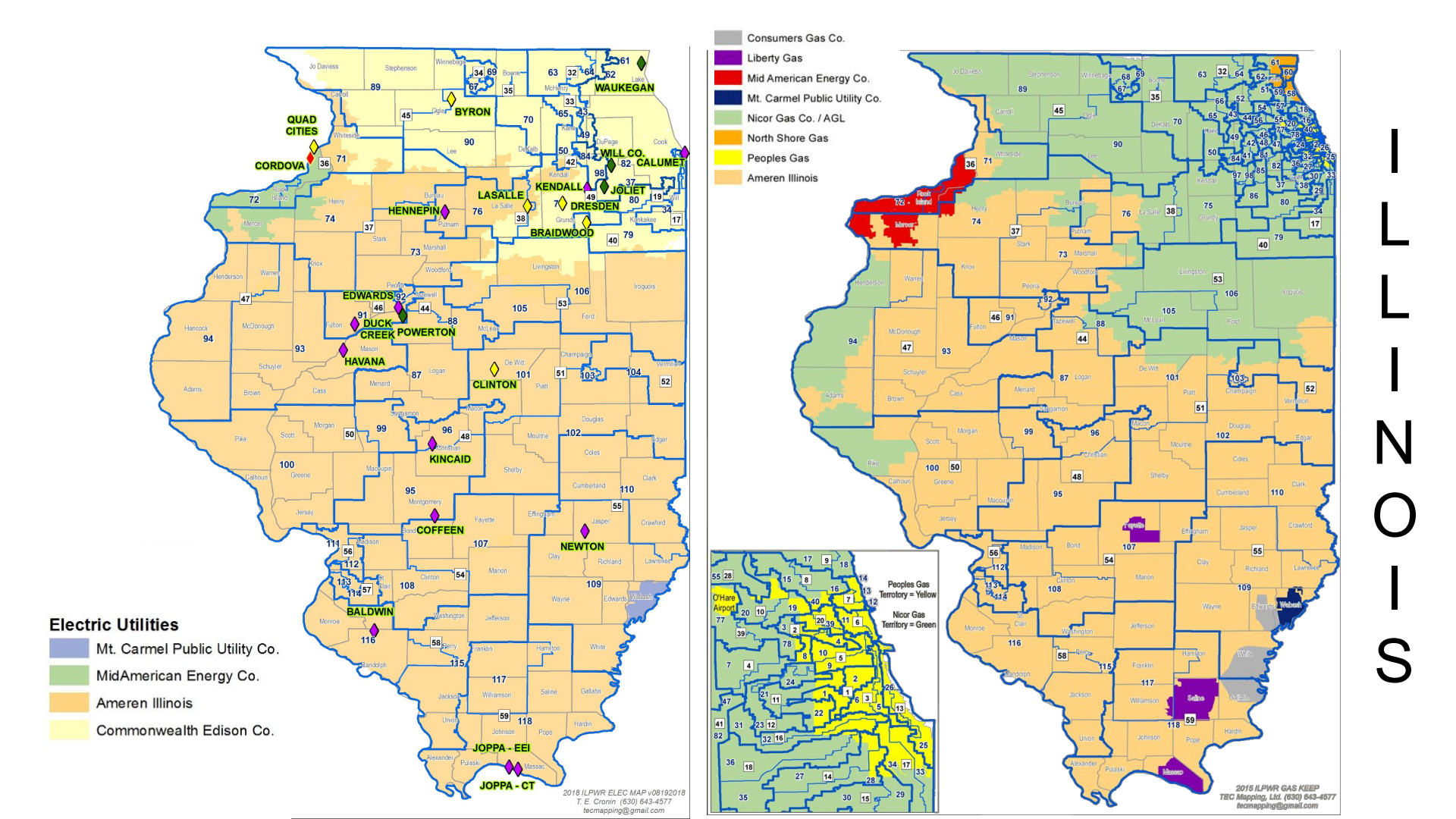
Introduction to the Role of Utilities



IOWA

Iowa Utilities Board


STATE OF IOWA
NATURAL GAS OPERATORS
Prepared by
IOWA UTILITIES BOARD
Des Moines, Iowa 50319
515-281-5979
May 28, 2009
IOWA
INVESTOR OWNED UTILITIES
Black Hills Energy
Atmos Energy
Interstate Power and Light
MidAmerican Energy
COOPERATIVE OWNED UTILITIES
Consumers Energy
PRIVATELY OWNED UTILITIES
Allerton Gas Company
MUNICPALLY OWNED UTILITIES
Municipal Utility
PROPANE SYSTEM
LPG Propane System
INTERSTATE NATURAL GAS
INTRASTATE NATURAL GAS
NORTHERN NATURAL GAS CO.
NORTHERN BORDER
ALLIANCE PIPELINE
ANR PIPELINE CO.
NATURAL GAS PIPELINE CO. OF AMERICA
MIDAMERICAN ENERGY
Iowa Utilities Board

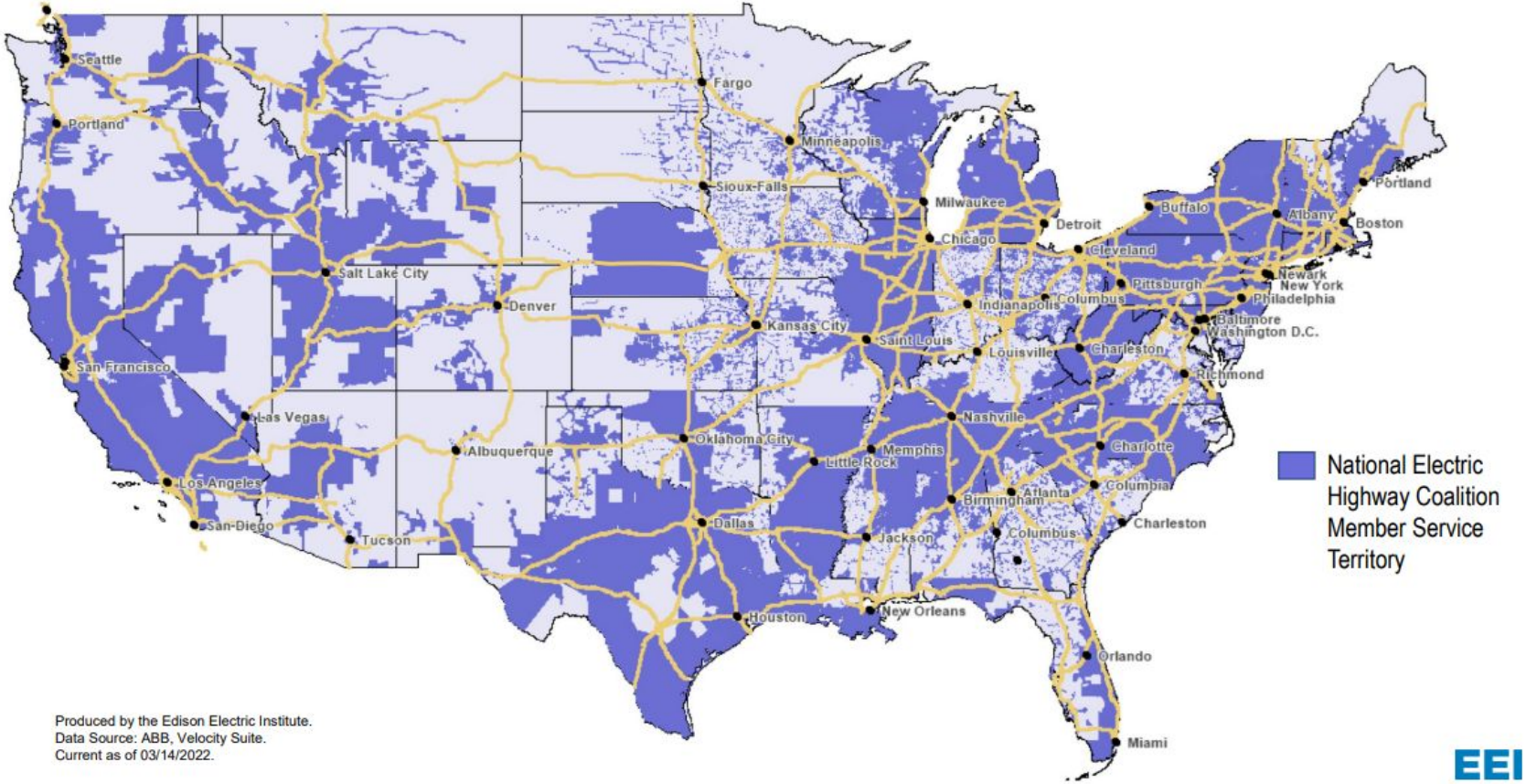

Electric Utilities
Mt. Carmel Public Utility Co.
MidAmerican Energy Co.
Ameren Illinois
Commonwealth Edison Co.
QUAD CITIES
CORDOVA
BYRON
WAUKEGAN
WILL CO.
CALUMET
KENDALL
JOLIET
LASALLE
DRESDEN
HENNEPIN
BRAIDWOOD
EDWARDS
DUCK CREEK
POWERTON
HAVANA
CLINTON
KINCAID
COFFEEN
NEWTON
BALDWIN
JOPPA - EEI
JOPPA - CT
2018 ILPWR ELEC MAP v08192018
T. E. Cronin (630) 643-4577
tecmapping@gmail.com
Consumers Gas Co.
Liberty Gas
Mid American Energy Co.
Mt. Carmel Public Utility Co.
Nicor Gas Co. / AGL
North Shore Gas
Peoples Gas
Ameren Illinois
O'Hare Airport
Peoples Gas Territory = Yellow
Nicor Gas Territory = Green
2015 ILPWR GAS KEEP
TEC Mapping, Ltd. (630) 643-4577
tecmapping@gmail.com
ILLINOIS

Utility Collaboration

Jarred Bruce
Engineer
MidAmerican Energy Company

National Electric Highway Coalition

- The NEHC is a collaboration among electric companies that are committed to providing electric vehicle (EV) fast charging stations that will allow the public to drive EVs with confidence along major U.S. travel corridors by the end of 2023. The NEHC is the largest alliance of electric companies that have organized around the common goal of deploying EV fast charging infrastructure to support the growing number of EVs and to help ensure that the transition to EVs is seamless for drivers.
- The National Electric Highway Coalition (NEHC) started in early 2022 and currently consists of **more than 60** investor-owned and municipal electric companies and electric cooperatives and collectively serve more than 120 million U.S. electric customers across 48 states and the District of Columbia.
- To date, EEI's member companies have invested more than $3.7 billion in customer programs and projects to deploy charging infrastructure and to accelerate electric transportation.
- As EV sales continue to grow, EEI estimates that we will need 140,000 EV fast charging ports, a more than ten-fold increase over today, to support the nearly 27 million EVs projected to be on U.S. roads in 2030.

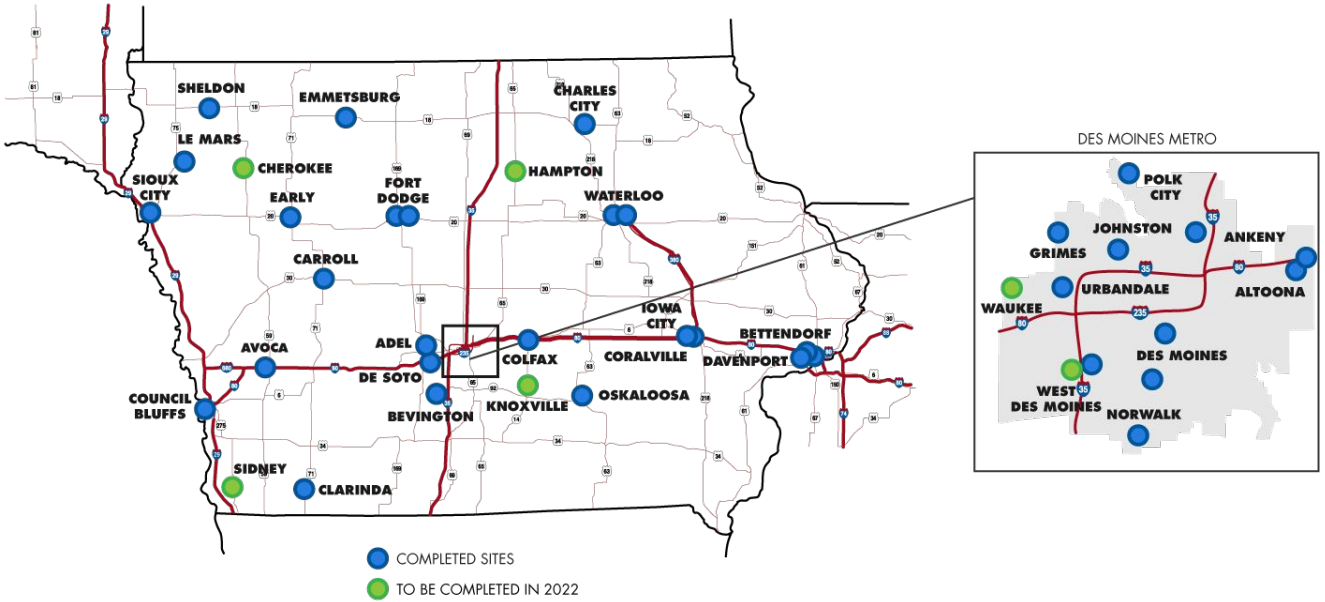


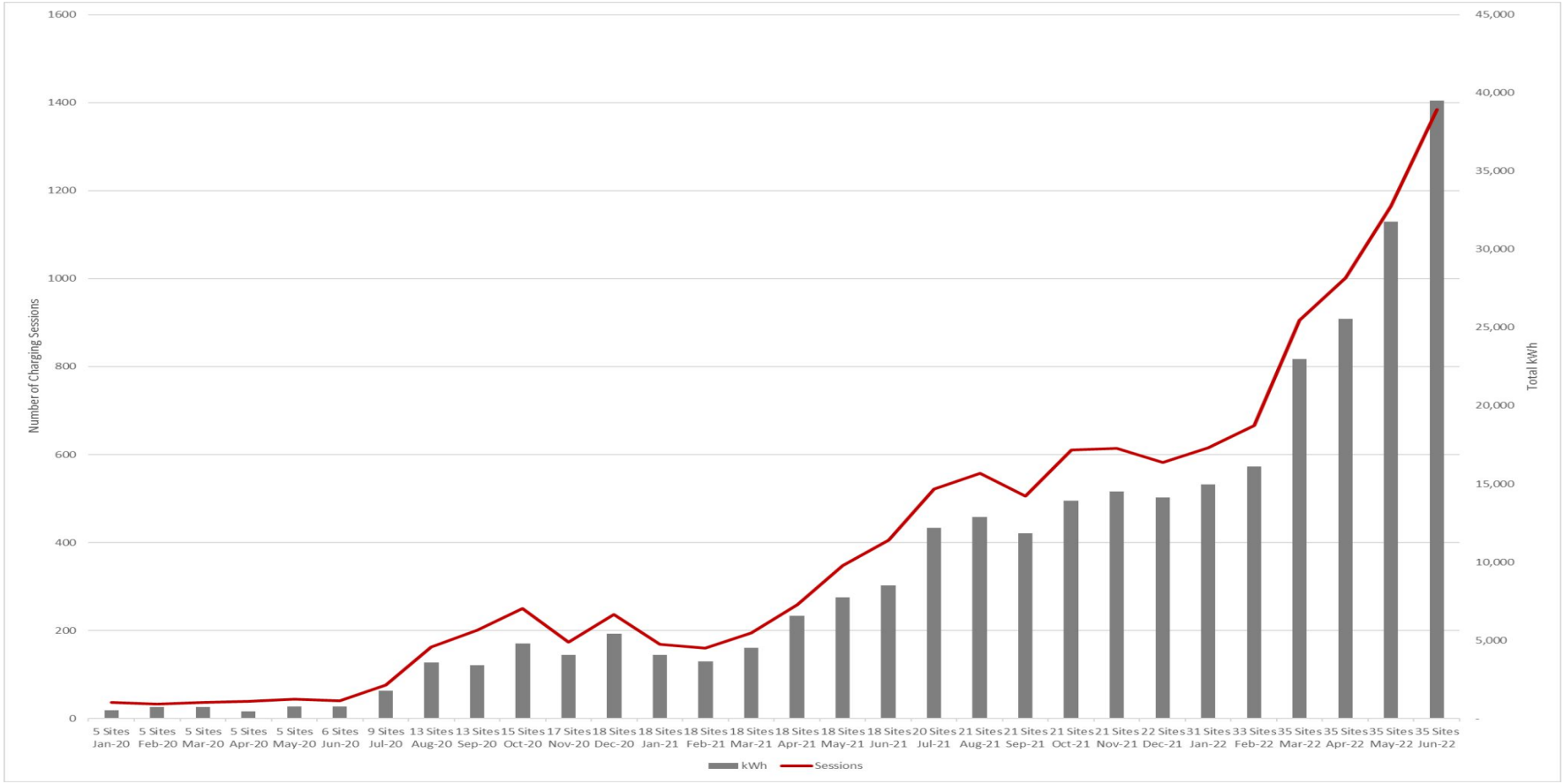
Produced by the Edison Electric Institute.
Data Source: ABB, Velocity Suite.
Current as of 03/14/2022.

EEI

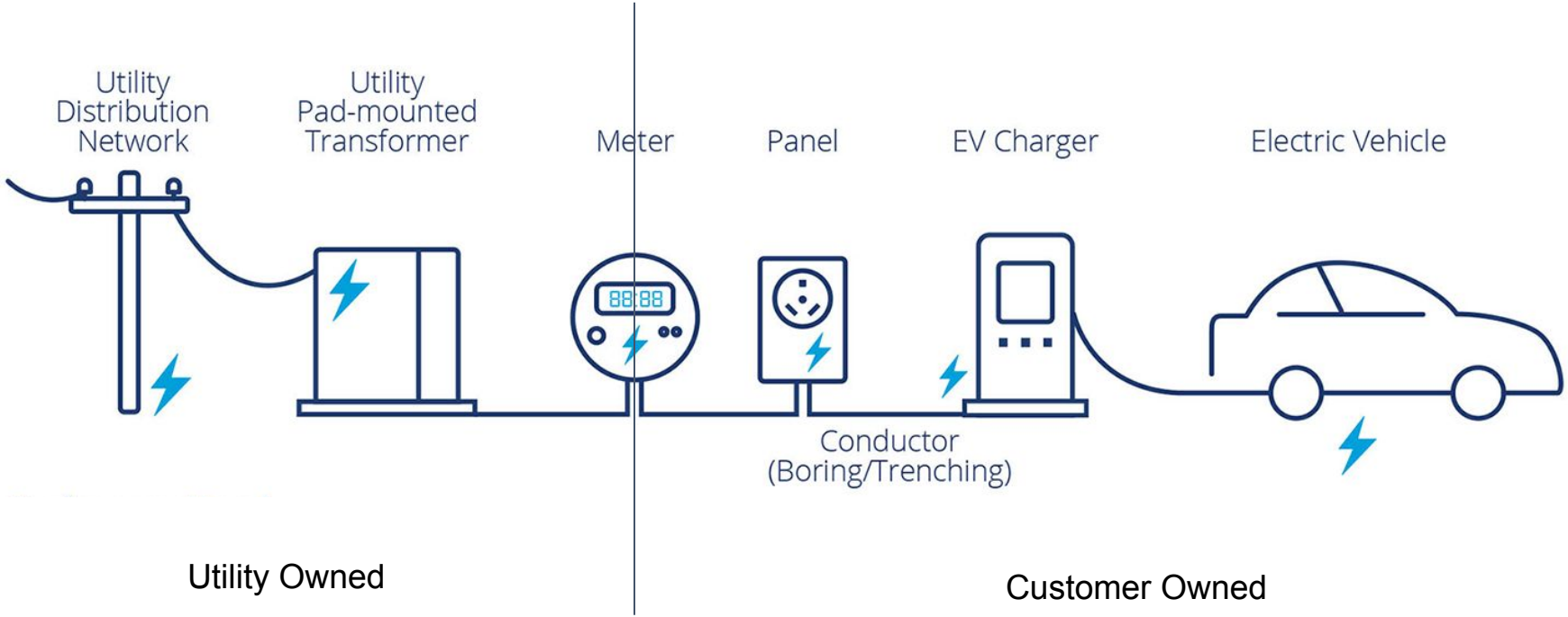
MidAmerican's DC Fast Charging Network

- Targeting 50 locations throughout Iowa in MidAmerican's service territory
  - –35 currently in service
  - –6 planned for 2022
- Areas of focus
  - –Major travel corridors
  - –Rural areas
- Charging capacity
  - –50 kW chargers
  - –150 kW chargers
- Charging connectors
  - –CCS Combo
  - –CHAdeMO




Number of Charging Sessions
Total kWh
1600
1400
1200
1000
800
600
400
200
0
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
-
5 Sites Jan-20
5 Sites Feb-20
5 Sites Mar-20
5 Sites Apr-20
5 Sites May-20
6 Sites Jun-20
9 Sites Jul-20
13 Sites Aug-20
13 Sites Sep-20
15 Sites Oct-20
17 Sites Nov-20
18 Sites Dec-20
18 Sites Jan-21
18 Sites Feb-21
18 Sites Mar-21
18 Sites Apr-21
18 Sites May-21
18 Sites Jun-21
20 Sites Jul-21
21 Sites Aug-21
21 Sites Sep-21
21 Sites Oct-21
21 Sites Nov-21
22 Sites Dec-21
31 Sites Jan-22
33 Sites Feb-22
35 Sites Mar-22
35 Sites Apr-22
35 Sites May-22
35 Sites Jun-22
kWh
Sessions

Customer Installed EV Charging



MidAmerican Customer Incentives

Residential

- $500 rebate for Iowa residential customers for the purchase or lease of a new electric vehicle

Commercial

- $1,500 rebate for Iowa non-residential customers for the purchase a Level 2, dual-port charger

Questions

Marianne Mintz

Gena McCullough

Chris Schmidt

Craig Markley

Jarred Bruce

Break

10:00

Investments and Resources

Photo by Brinley Wilson / Utah Clean Cities

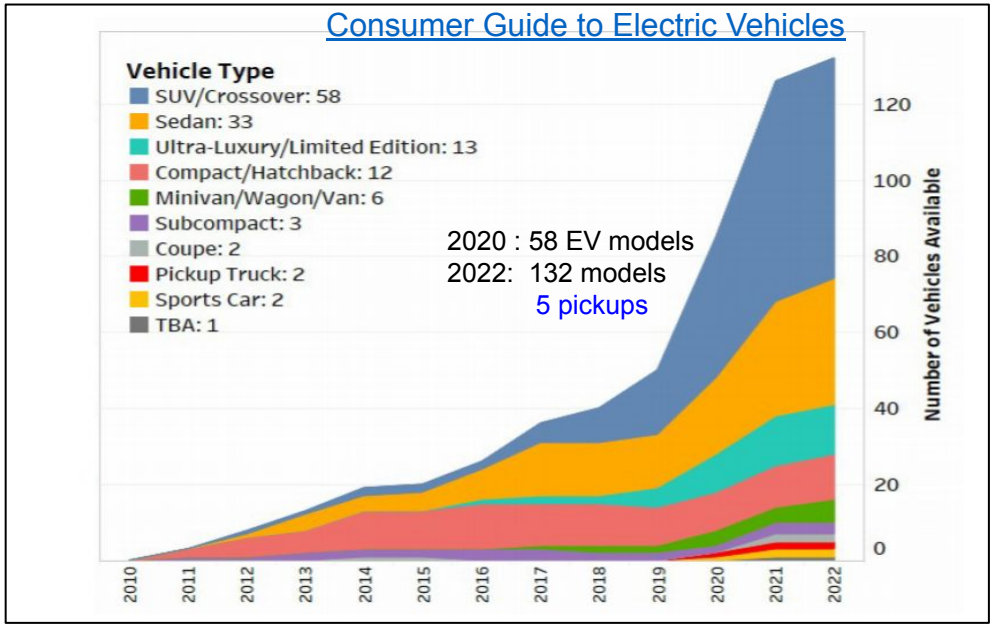
Challenge: Vehicle Availability: CNG

- CNG vehicles available across full range of sizes
- Mature technology
- Mainly qualified 3rd party converters of Original Equipment Manufacturers (OEMs)
- Choices:
  - Gasoline spark ignited to natural gas spark ignited engines and fuel trains = dedicated or bi-fuel
  - Compression Ignition engines – add CNG to diesel fuel system
- Lower emissions

Green Ways 2Go

Challenge: Vehicle Availability: EV

- 5% of new vehicle sales are EVs: 2022
- Many more models coming – passenger through pickups and trucks up to semis, buses, trains, motorcycles
- Rivian with 500-mile range: 2022
- GM plans:
  - 30 models by 2025
  - End production of gas and diesel by 2035
- Ford announced $22 billion in EV investment through 2025
- Toyota is aiming for 40% of US sales to be EV by 2025



Plugstar.com

Finding EVs

Electric Cars: Types and Availability

- AFDC Hybrid and Electric Vehicle Information
- Plugstar
- AFDC, EV Model Availability
- Plug In America
- Plugin Cars
- ComEd EV Ready Program
- Plug in Midwest: Illinois PEVs:
- EV Available Models – EV Adoption Website
- Consumer Reports, “Hot New Electric Cars”
- EV Database Webpage, “Newest EVs”
- My EV Website, "EVs are Better"
- CNET Road Show webpage, "Here's every electric vehicle on sale in the US for 2020 and its range"
- Digital Trends Webpage, "The Best Electric Cars for 2020"

Pre-owned EVs

- Carmax
- Auto Trader
- MyEV

Assessing the True Cost of Ownership

- Edmonds Website,” Cost of Car Ownership”
- AAA, “Your Driving Costs”
- Fuel Economy.Gov

Electric Trucks and Buses

General Lists of Electric Trucks (2021 and later)

·Wikipedia, Electric Trucks
·Top 8 Hybrid and Electric Pickup Trucks Worth Waiting For
·8 Electric Truck and Van Companies to Watch 2020

Light Duty EVs and Medium Duty EVs

·Pickups/ SUVs
·Rivian R1T – Pickup
·Ford 150 Electric – Pickup
·Bollinger B1 & B2 – Pickup
·Nikola Badger – Pickup
·Lordstown Endurance – Pickup
·Atlis XT- Pickup
·Workhorse C1000 - Pickup
·GMC Hummer EV SUT – Sport Utility Truck
·Vans / Shuttles
·Chanje (“Change”) - Panel Vans
·Brightdrop EV600 - Panel Van
·Arrival - Panel Van
·Lightning Electric Vans
·GEST Shuttle
Adomani Class 3-6

Heavy Duty EVs - Class 6 to 8

- Kenworth Electric (Class 6)
- Tesla Cybertruck (Class 8)
- Tesla Semi
- Daimler Freightliner
- eCascadia (Class 8)
- BYD Day Cab (Class 8), Terminal Tractors (Class 8), Class 6 Trucks, Class 6 Refuse Truck, Class 8 Refuse Truck
- Nikola – Hydrogen Fuel Cell Electric Vehicle
- Lion Electric – Class 6 and 8 Trucks and Buses (Illinois Manufacturing)

General List of Electric Buses (Many Manufacturers)

- Wikipedia, Electric Buses
- Wikipedia, “List of Electric Bus Makers and Models”
- EV Trader Website, All Electric Bus Manufacturers

General Information on Electric Trucks

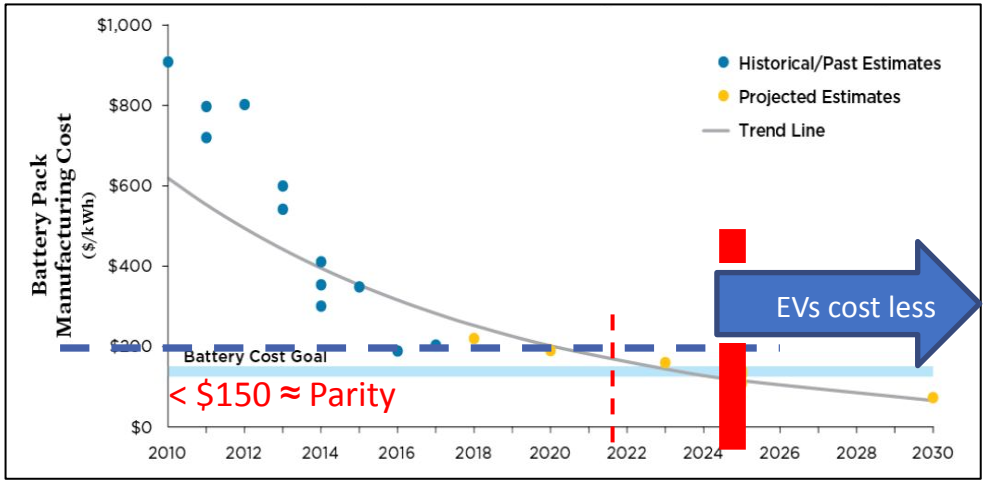
- North American Council for Freight Efficiency (NACFE)

Achieving Cost Parity: Game Changer

Reducing battery costs is key

- Battery Costs dropped 3.5:1 since 2010
- Estimate: when EV battery costs drop below $100-150/kWh storage

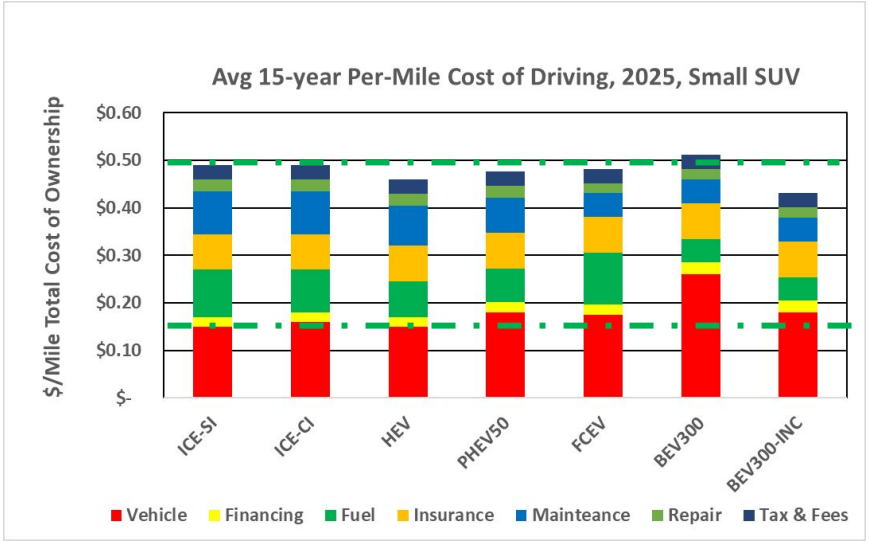
☐ **Passenger** $ EV = $ Gasoline Vehicle between 2024 and 2026 = **Cost Parity**



SOURCES:
Union of Concerned Scientist, 2017. "Accelerating US Leadership in Electric Vehicles"
US Department of Energy, "Batteries"
McKinsey Report/ Sept, 2021, "The Turning Point for US Auto Dealers: The Unstoppable Electric Car": "

Electric Vehicles Can be Affordable to Own

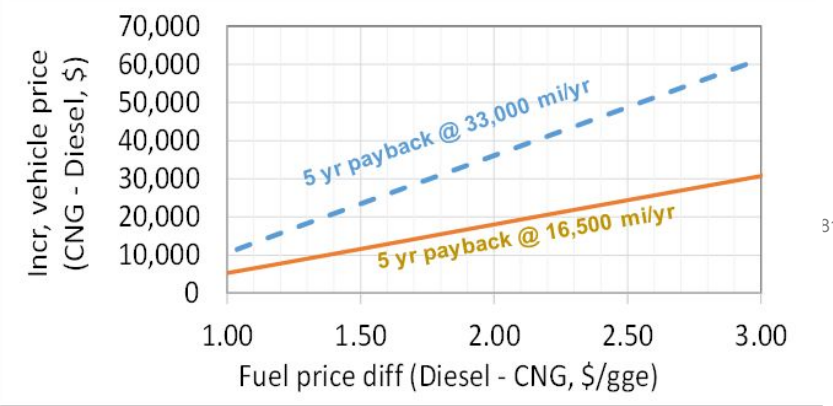
- BEVs compete with comparable gasoline vehicles: ***Total Cost of Ownership***
- Today: EV demand is growing, and prices remain higher than gasoline counterparts
  - Good deals may be hard to find, even for used EVs
- Tax credits and rebates are available for EVs
- Running costs (electricity, maintenance) are much less for EVs
- Medium and heavy-duty vehicles still not competitive on Total Life Cycle Cost, but ROIs may work with incentives

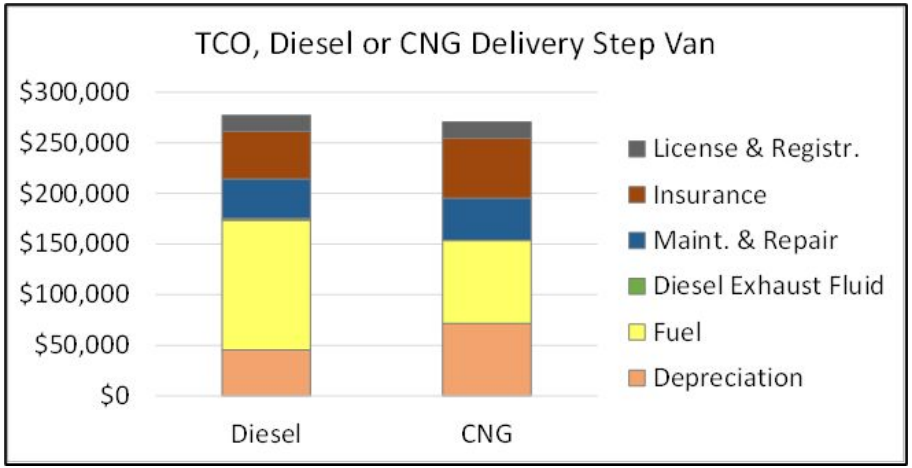


Source “Comprehensive **Total Cost of Ownership** Quantification for Vehicles with Different Size Classes and Powertrains” https://www.osti.gov/biblio/1780970

CNG Vehicles Can be Affordable to Own

- A CNG delivery step van can cost less to own than a comparable diesel van – **without incentives**
- CNG adds $7,000 to $60,000 - size dependent
- If vehicle incentives are available, affordability improves



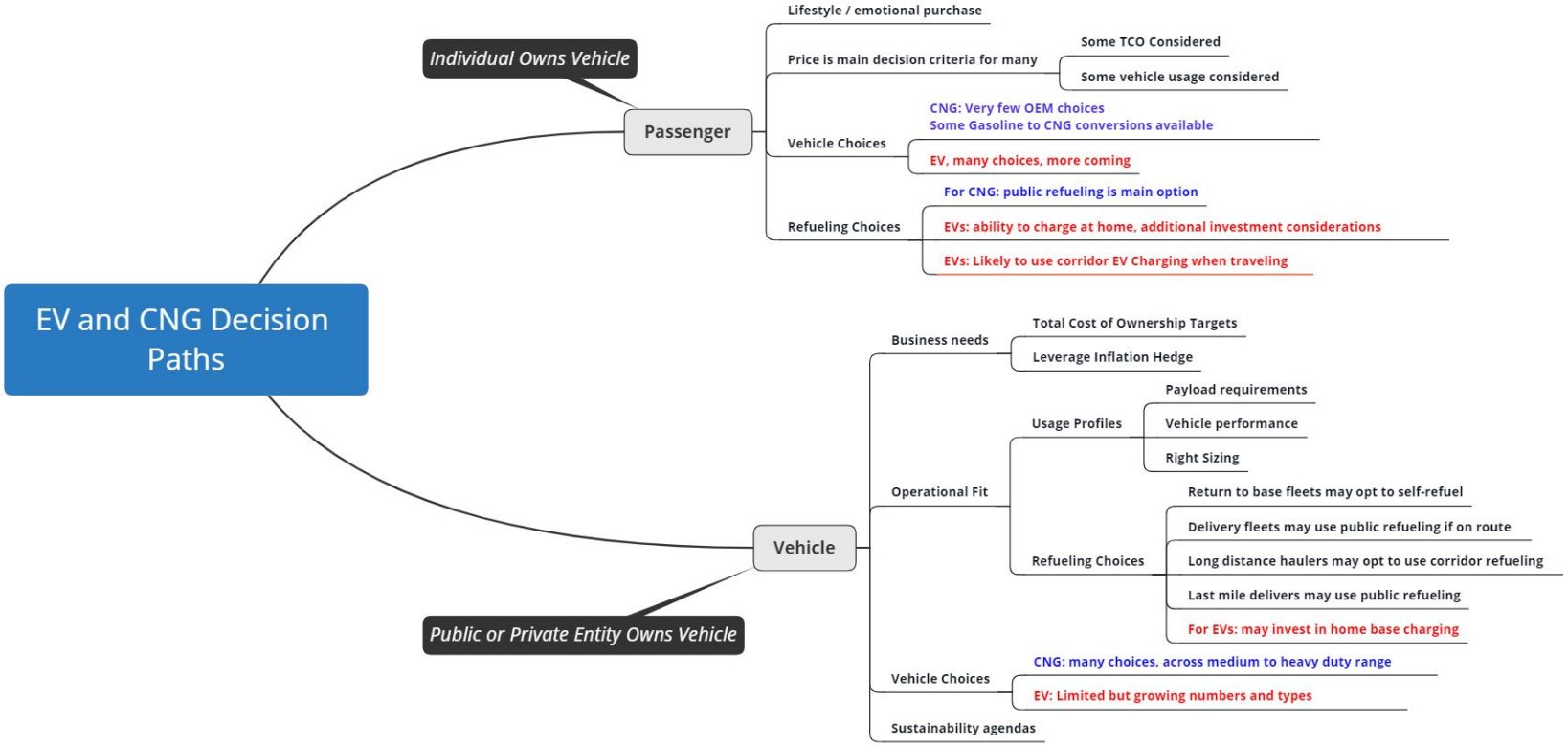


Payback time for a CNG vehicle depends on

- Relative prices of fuels
- Price of vehicles and amount of applicable incentives
- Annual mileage

Thanks to Tom Stephens, Argonne National Labs: Source AFLEET tool https://afleet.es.anl.gov/home/

Vehicle Owner Decision Paths for Nat (NG Vehi



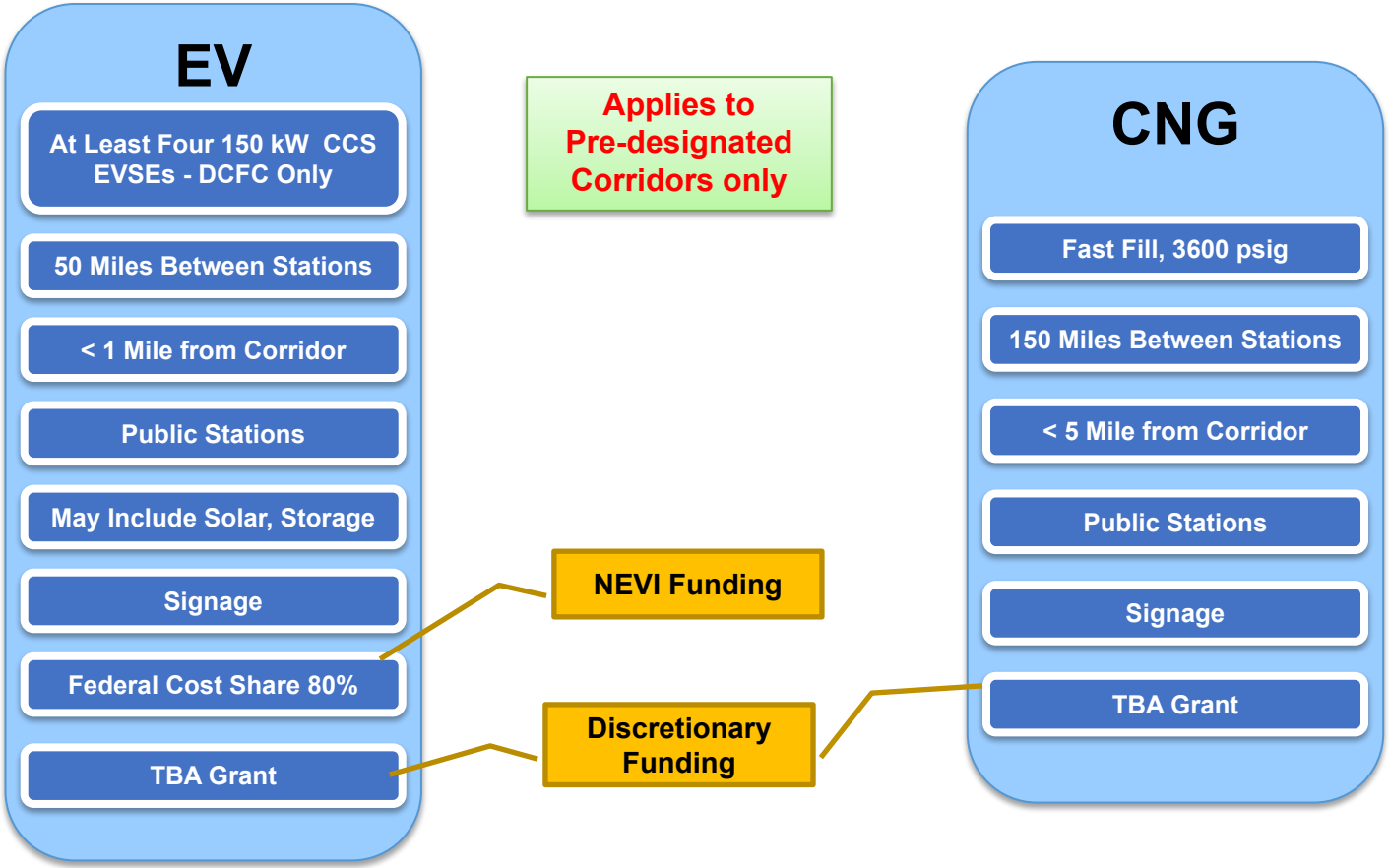
Economics of Alternative Fuel Infrastructure Investments

Tim Milburn

Chicago Area Clean Cities Project Consultant

Green Ways 2Go, Partner

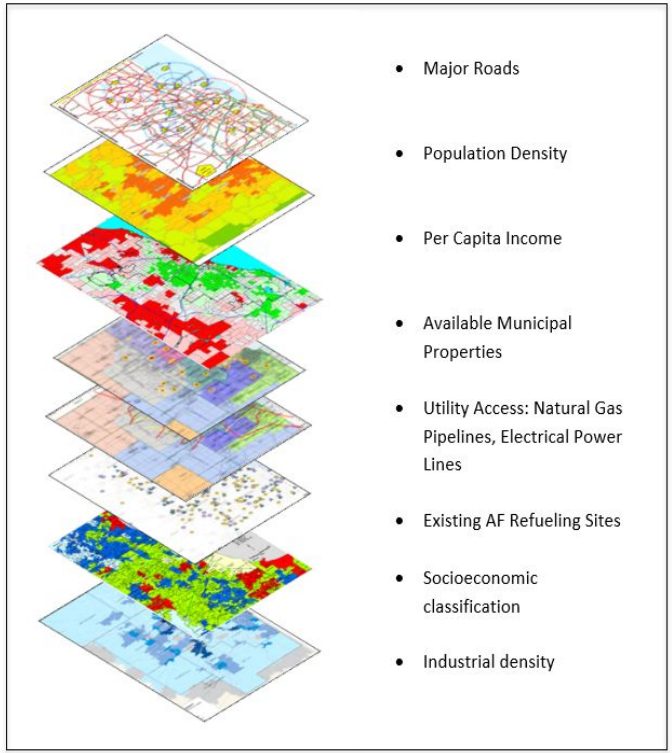
FHWA Alternative Fuels Corridor Readiness Criteria and Funding Sources



FHWA = US Department of Transportation's' Federal Highway Administration
https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/nominations/90d_nevi_formula_program_guidance.pdf

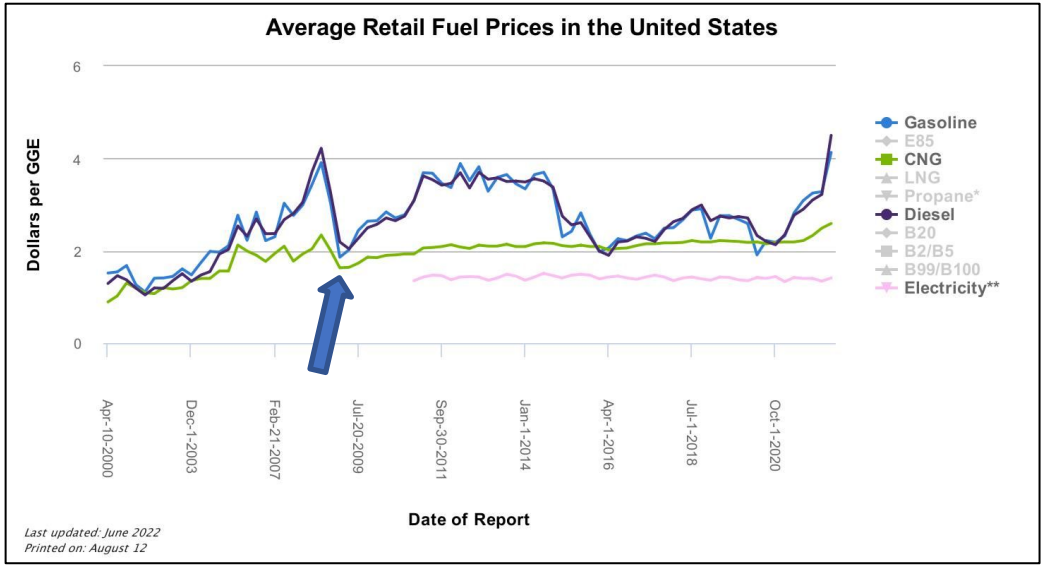
Siting Factors for EV Charging and CNG Refueling

SUPPLY FACTORS
Natural gas pipelines (on site and virtual) with sufficient supply pressure, quality.
Access and egress
Locational **distance from** selected sites to/from nearby **access roadways**
DEMAND FACTORS
Polulations: people, industry, vehicles
Average Annual Daily Traffic (AADT)
Existing and planned Alternative Fuel infrastructure sites
Interested public entities (municipalities, county, state) and available public properties
Economic /social justice/socioeconomic factors
Driver needs - amenities, parking
Proximity to attractions (e.g. retail, parks)



More discussion at Alternative Fuel Corridor Study for Northeastern Illinois, Tim Milburn, June 2021, https://chicagocleancities.org/alternative-fuel-corridors-study/

Comparing Fuel Costs per AFDC: What fleets consider



Normalized pricing for retail transportation fuel

- Diesel/& Gasoline tied to global prices – volatility
- Natural gas prices decoupled from world prices in 2008 □ natural gas prices are steady.
- NG prices have averaged around $2.10/GGE for 20 years, while gasoline and diesel have varied between $2 and $5/GGE
- Electricity prices lower and stable – largely due to public utility commission control of utility prices

AFDC Site Fuel Prices
https://afdc.energy.gov/fuels/prices.html

Investment Factors for Alternative Fuel Stations

Up Front Investment Considerations
Property ownership and physical space requirements
Formation of **strategic partnerships**
Equipment and site **investments**
Capital Incentives: Type (grants, rebates, financing), availability, timing and amount
Operational Incentives: utility rate structures, demand charge programs
Investor's **cost to upgrade utility service**
Ability to gain **fueling contracts** from third party fleets
Price of alternatives ($ gal diesel, gasoline, $/vehicle mi)
Reasonable expectation of **demand meeting supply needs**
Future Proofing investments
Sustainability goals and monetization of emissions
Integration of renewable energy / energy storage

Ongoing Costs
Operation and Maintenance
Operational Incentives: utility rate structures, demand charge programs
Taxes, insurance, other overhead
Total Life Cycle Cost of Ownership Evaluation
Total Life Cycle investment analysis
Go/no-go criteria

What are the Make Ready Costs Involved in EV Charging and CNG?

EV and CNG

Utility Side of the Electric Meter

- Power step-down transformers
- Switchgear
- Service lines (above or below ground)
- Interconnecting conduit and wiring
- Mechanical / Civil work

Customer Side of the Electric Meter

- Connecting conduits and wiring
- Branch Runs
- Power panels and circuit breakers
- Switchgear/ disconnects
- Transformers
- Electrical / Mechanical / Civil work

CNG Only

Utility Side of the Gas Meter

- Gas pressure regulators
- Service lines (above and/or below ground)
- Interconnecting piping
- Mechanical / Civil work

Customer Side of the Gas Meter

- Gas dryer
- Compressors
- Storage
- Dispensing
- Controls
- Mechanical / Civil work

Utility Side : Who pays? varies by region / utility / project

Electrical Supply and Gas Supply upgrades range from $0 to $1 MM!

Contact your utility early

Use Case: Corridor Refueling or Recharging

Requirements:

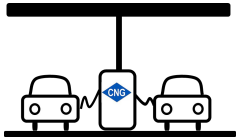
- Total Cost of Ownership – must meet business goals
- Total Installed Cost and fuel Incentives are key
- Engagement with regulators and utilities essential
- Interstate locations with full exchanges and crossroads with good traffic flow
- Supporting regional demographics and population
- Access to utility supplies at peak demand levels
- Multiple ports (redundancy)
- Predictable demand
  - **CNG**: Long term volume contracts
  - **EVs:** Predicted EV Growth

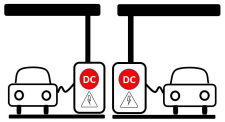
Key Success Criteria:

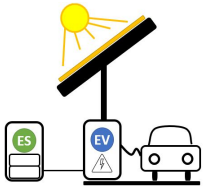
- Easy to see from interstate. Signage helps.
- Driver amenities / parking
- Positive aesthetics and safety
- Things to do while charging
- Utility as collaborator
- Equity considerations

Future considerations:

- Property, gas supply and power to grow
- Anticipate expansion - install higher utility capacity at onset
- Renewable energy and energy storage may help offset grid capacity costs, demand charges
- Monetization of vehicle emissions

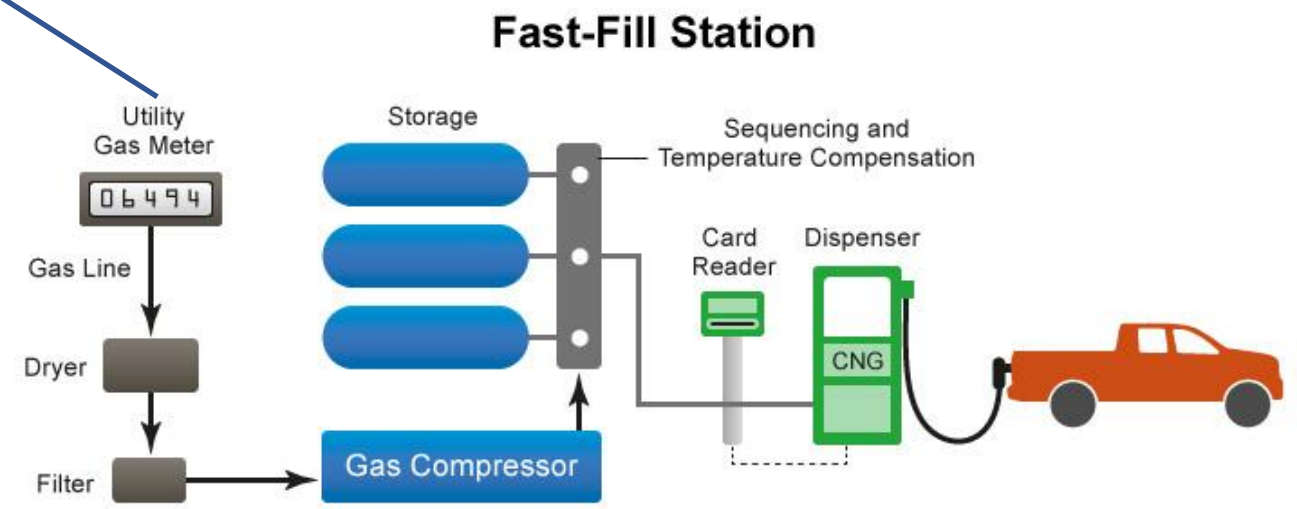






CNG Refueling Capital Investments

Natural Gas supply connections/ upgrades



Electrical utility service and /or facility upgrade

CNG Retail Experience

- Trillium designed and installed alternative fuels at over 200 locations.
- CNG stations built to provide up time, meaning redundancy is essential
- Some of the stations were supported by local and federal incentives.
- Gaining fleet fueling contacts key to success

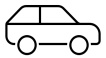
Thanks to

The Love's Family of Companies

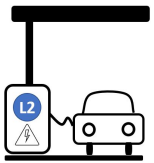
Evolution of EVs & Charging

Siting Evolution

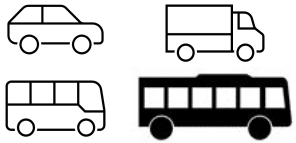
2020



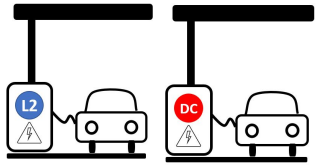
Residential
Public
Workplace



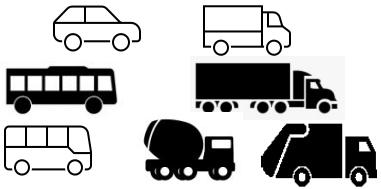
2025



Medium Duty Fleets
School / Transit Buses
Charging as Business

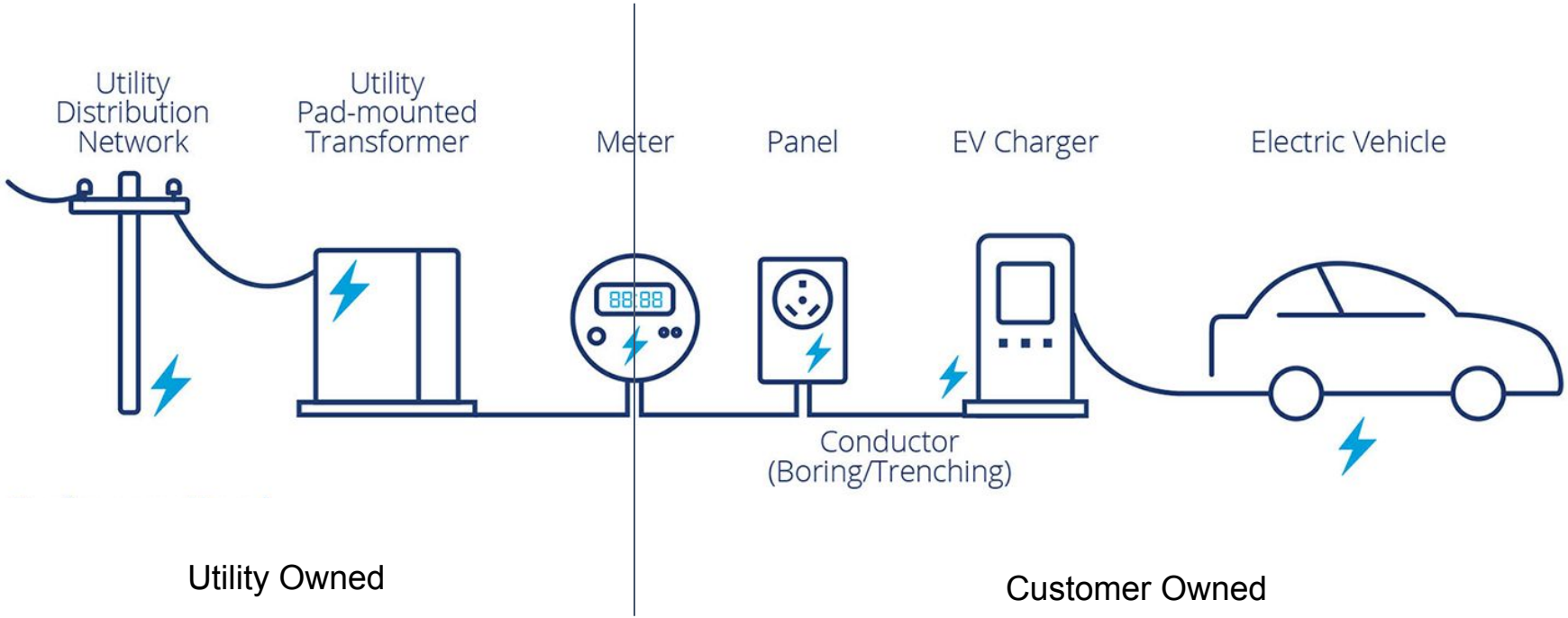


2030



Heavy Duty Fleets
Megawatt Charging

EV Charging Capital Investments



EV Charging Retail Experience

- Trillium designed and installed several EV charging stations at several locations.
- Most of the chargers are fast chargers.
- Many of the chargers were supported by local and federal incentives.
- This was key to investment evaluations

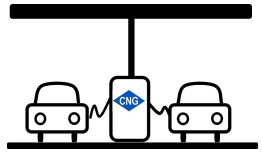
Thanks to

The Love's Family of Companies

Targets: Corridor Refueling or Recharging

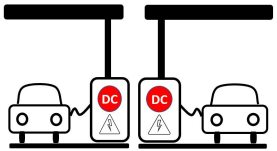
CNG Targets:

- ***CNG Refueling Stations*** – 500 to 1,000 SCFM, 2 to 4 dispensers
- ***Users*:** Interstate drivers, local drivers
- ***NGVs:*** commercial and municipal fleets
  Anchor fleets to secure investment
- ***Investment:*** $2 to $3 million investments (pre-incentive)



EV Targets:

- ***EV Charging Stations***: DCFC (Four @150 kW, CCS connectors)
- ***Users*:** Interstate drivers, local drivers
  Large fleets likely will use home-based charging until fleet EV population and use cases grow
- ***EVs*:** Passenger BEVs, increasing number and type of larger EVs over time
- ***Investment:*** $700,000 to $1.1 million investments (pre-incentive)



Net Present Value Cash Flow Analysis Retail CNG Station*

Key Assumptions:

- 24/7 operation
- CNG Cost $2.00 /DGE
- 30% margin on fuel

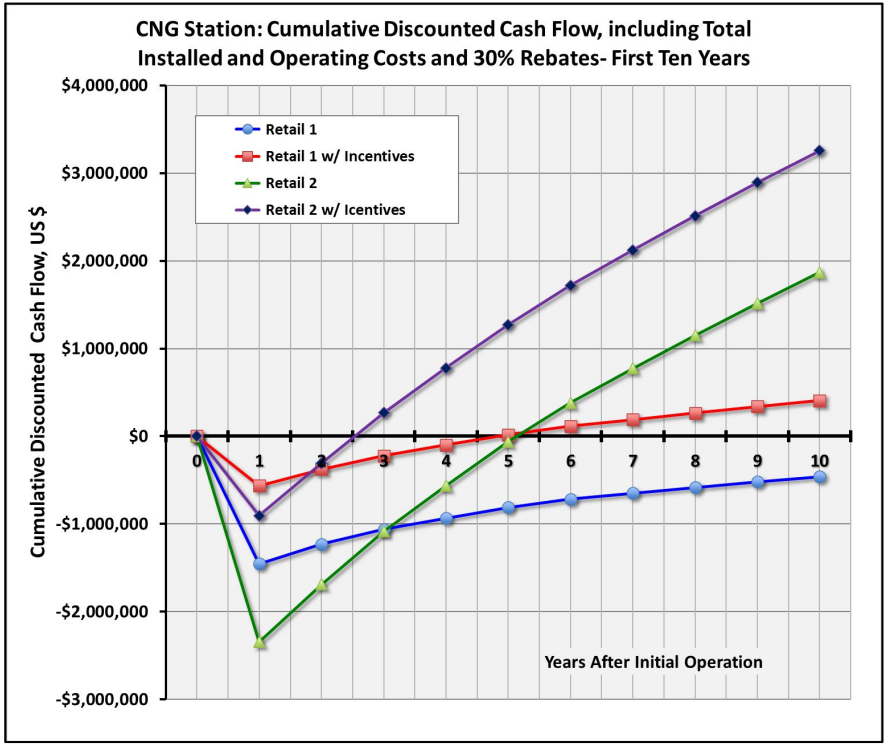
Cases:

- Retail 1- small retail station
- Retail 2- larger retail station

Key Driver of Success: Utilization

- Amount of fuel pumped/day
- Amount of energy transferred per event

CASE	Retail 1	Retail 2
Total Installed Cost – no incentives	$1.6 MM	$2.7 MM
Total Installed Cost – with 30% incentives	$1.1 MM	$1.9 MM
Annual DGE	1.9 MM	3.7 MM



*Values are for illustrative purposes only

Net Present Value Cash Flow Analysis Retail EV Charging Station*

Key Assumptions

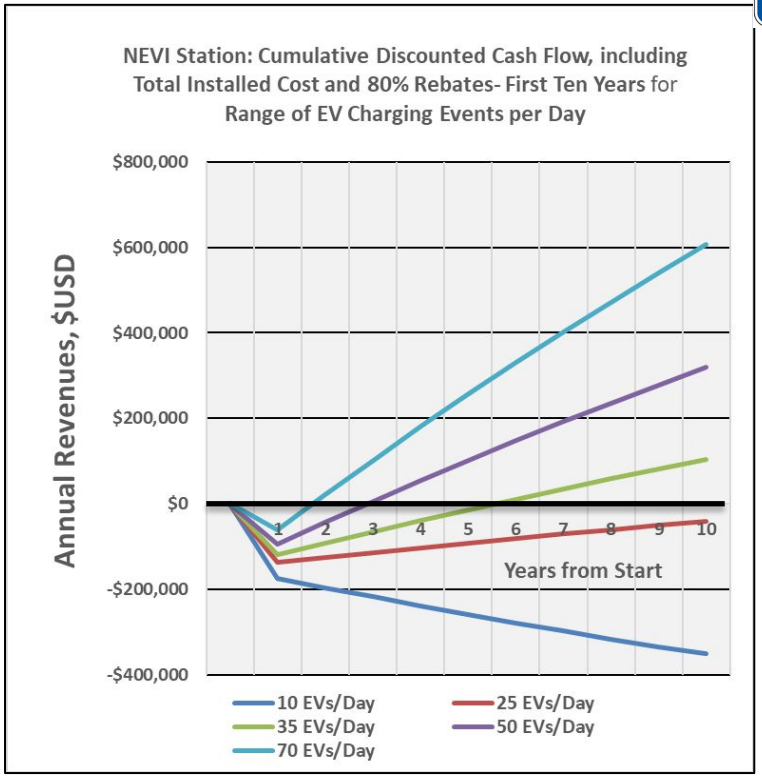
- 24/7 operation
- Four 150 kW EVSEs available
- Average recharge: 200 miles 30-minute session
- Electricity $0.13 /kWh, demand charges
- Total installed Cost (TIC) $1,038,000
- 80% Grant for TIC
- 30% margin on fuel

Cases:

- Vary the average number of EVs per day *(Note at 70 EVs per day – at about 50% of maximum capacity)*

Key Driver of Success: Utilization

- Number of EV charging events per day
- Amount of energy transferred per event
- Growth in EV market acceptance



*Values are for illustrative purposes only

IOWA CLEAN CITIES COALITION

IOWA economic development

Electric and CNG Vehicles and Station Locator

Abbie Christophersen

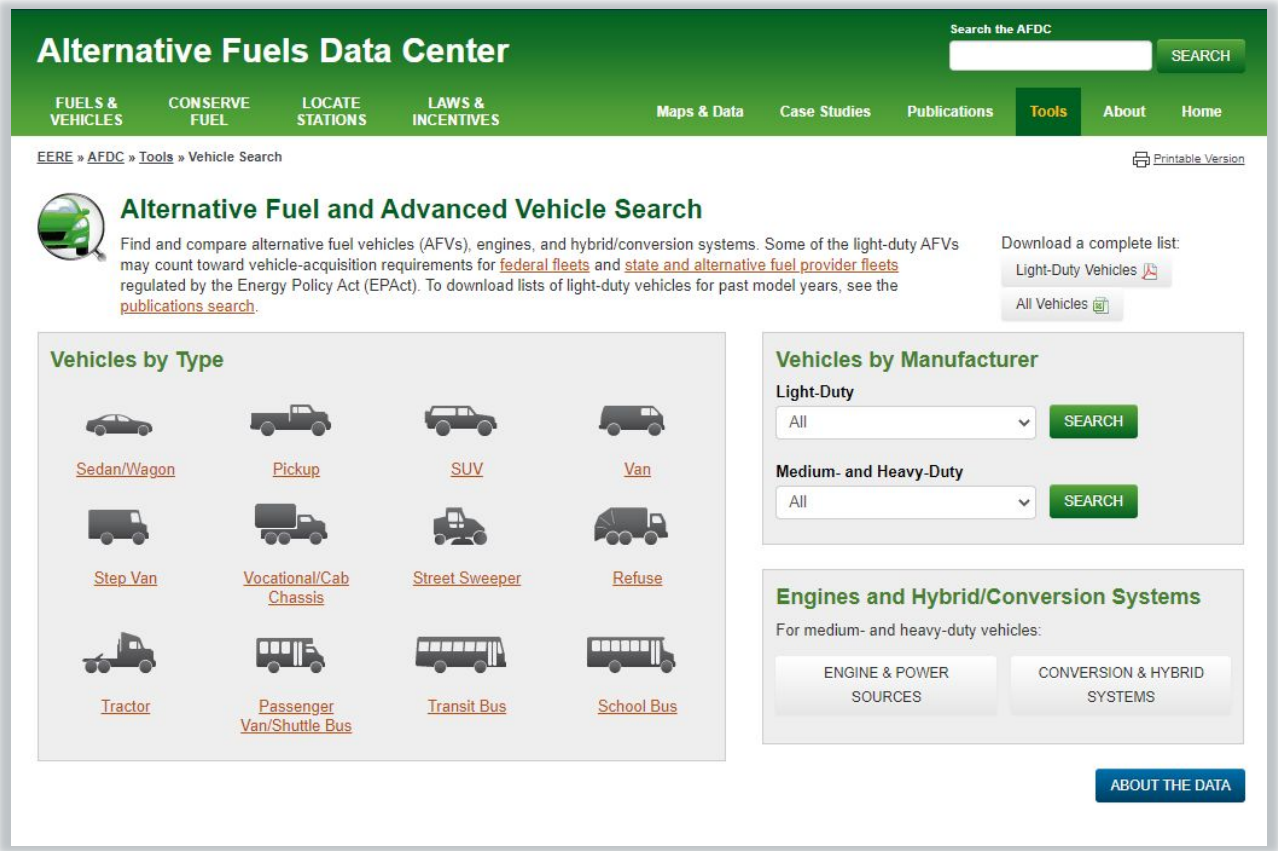
Iowa Clean Cities Coordinator

Iowa Economic Development Authority

AFDC Vehicle Search

Compare all classes of alternative fuel vehicles, electric vehicles, and hybrids.

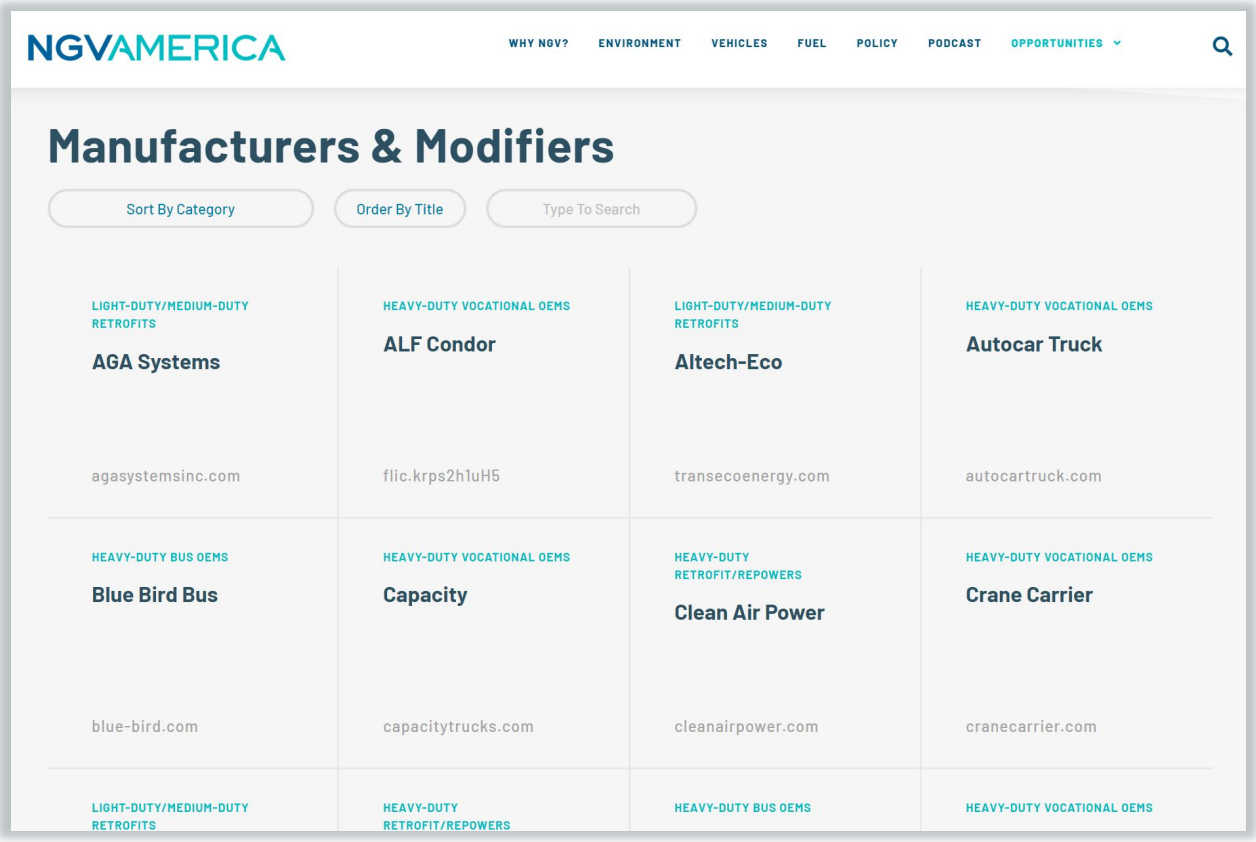
- **afdc.energy.gov/vehicles/search**



NGV America Vehicle Availability

Compare manufacture conversion systems that have been certified and approved by the U.S. Environmental Protection Agency and/or the California Air Resources Board.

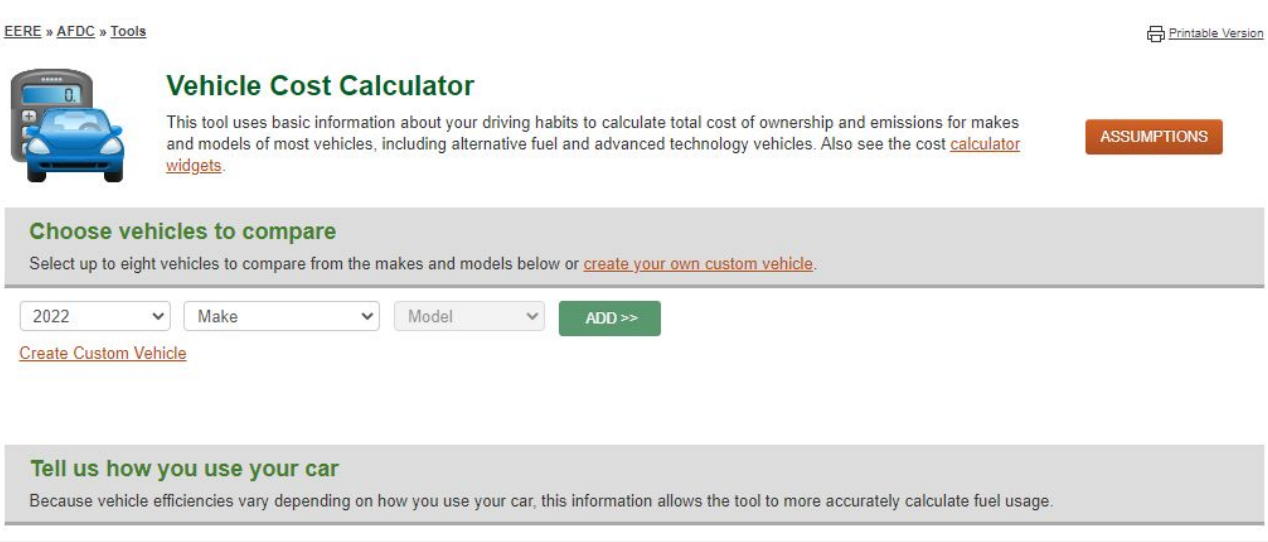
- **ngvamerica.org/vehicles/availability**



Vehicle Cost Calculator

Compare all classes of alternative fuel vehicles, electric vehicles, and hybrids.

- **afdc.energy.gov/calc**



Results

- ✔ Total cost of ownership
- ✔ Annual fuel use and operating costs
- ✔ Cost per mile
- ✔ Annual emissions

Vehicle Cost Calculator

	Vehicle	Price	Fuel Economy (City/Hwy)	Fuel Type
	2022 Volkswagen ID.4 AWD Pro Automatic (A1) EV	$ 44,440 Tax credit?	32/35 kWh/100mi	Electric
	2022 Nissan Leaf (40 kW-hr battery pack) Automatic (A1) EV	$ 27,400 Tax credit?	27/34 kWh/100mi	Electric
	2022 Chevrolet Bolt EV Automatic (variable gear ratios) EV	$ 31,000 Tax credit?	26/31 kWh/100mi	Electric
	2022 Honda Accord 4cyl 1.5L Automatic (variable gear ratios) Gasoline	$ 26,520	30/38 mpg	Gasoline
	2022 Hyundai Santa Fe AWD 4cyl 2.5L Automatic (S8) Gasoline	$ 29,400	22/25 mpg	Gasoline
	2022 Kia Seltos AWD 4cyl 1.6L Automatic (AM-S7) Gasoline	$ 22,590	25/30 mpg	Gasoline

Clear all

Fuel Prices

Gasoline
$ 4.13 /gal

Tell us how you use your car EDIT

Normal Daily Use

Average daily driving distance: 34 miles
Days per week: 5
Weeks per year: 49
Percent highway: 45

Other Trips

Annual mileage: 3596 miles
Percent highway: 80

Electricity Use
Select a state so we can find the electricity price and calculate the emissions from generating electricity in your area.

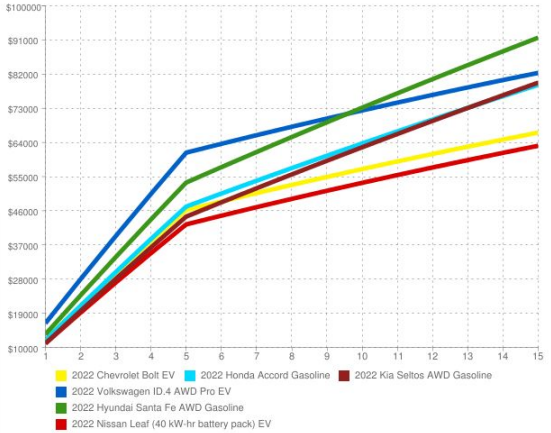
Iowa

Annual Driving Distance 11926 miles
City Distance 5301 miles
Highway Distance 6625 miles

Results

Vehicle	Annual Fuel Use	Annual Electricity Use	Annual Fuel/Elec Cost	Annual Operating Cost	Cost Per Mile	Annual Emissions (lbs CO2)
2022 Volkswagen ID.4 AWD Pro EV	0 gal	4,019 kWh	$512	$2,617	$0.22	3,943
2022 Nissan Leaf (40 kW-hr battery pack) EV	0 gal	3,713 kWh	$473	$2,578	$0.22	3,642
2022 Chevrolet Bolt EV	0 gal	3,417 kWh	$436	$2,541	$0.21	3,352
2022 Honda Accord Gasoline	351 gal	0 kWh	$1,450	$3,707	$0.31	8,425
2022 Hyundai Santa Fe AWD Gasoline	506 gal	0 kWh	$2,090	$4,347	$0.36	12,143
2022 Kia Seltos AWD Gasoline	433 gal	0 kWh	$1,788	$4,045	$0.34	10,389
	Graph	Graph	Graph	Graph	Graph	Graph

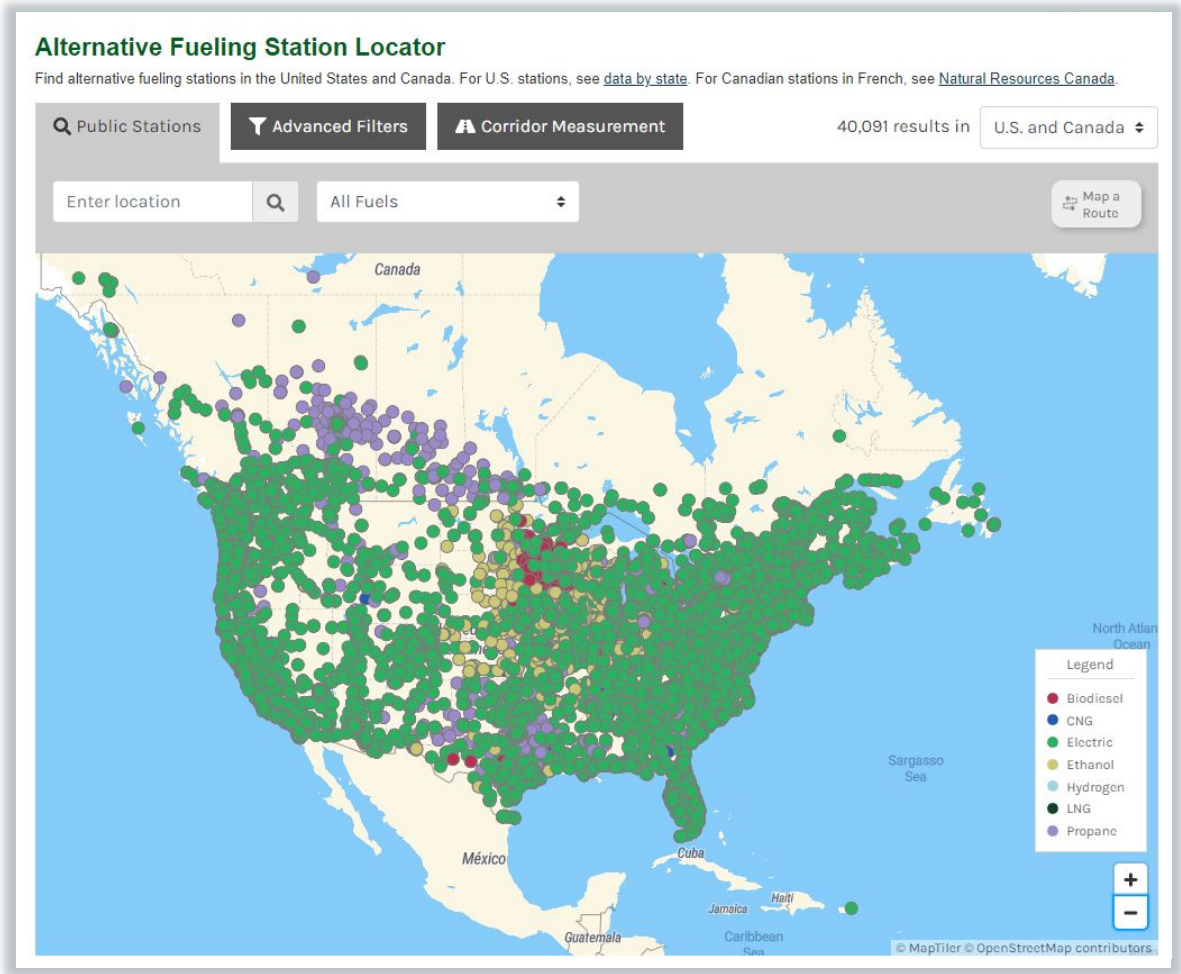
Cumulative Cost of Ownership by Year (Dollars)



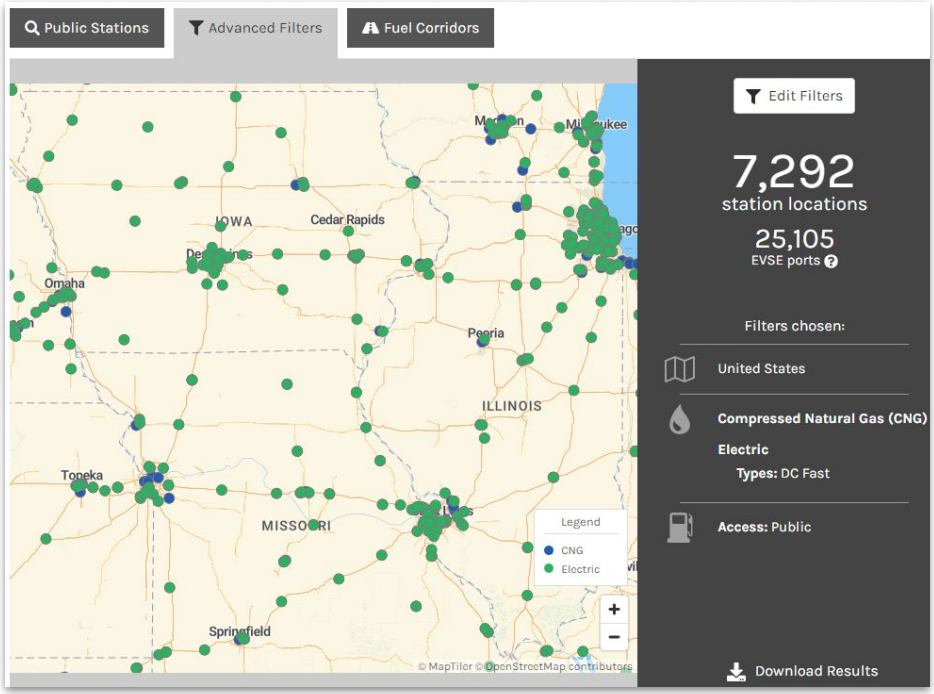
Alternative Fueling Station Locator

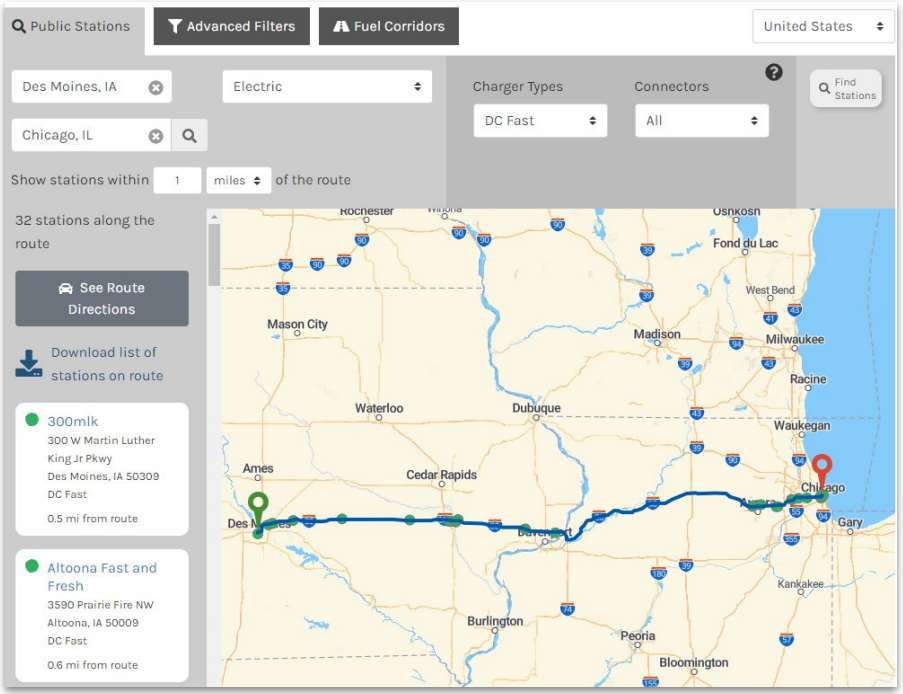
Locate alternative fueling stations and get maps and driving directions.

- **afdc.energy.gov/stations**



Alternative Fueling Stations





IOWA CLEAN CITIES COALITION

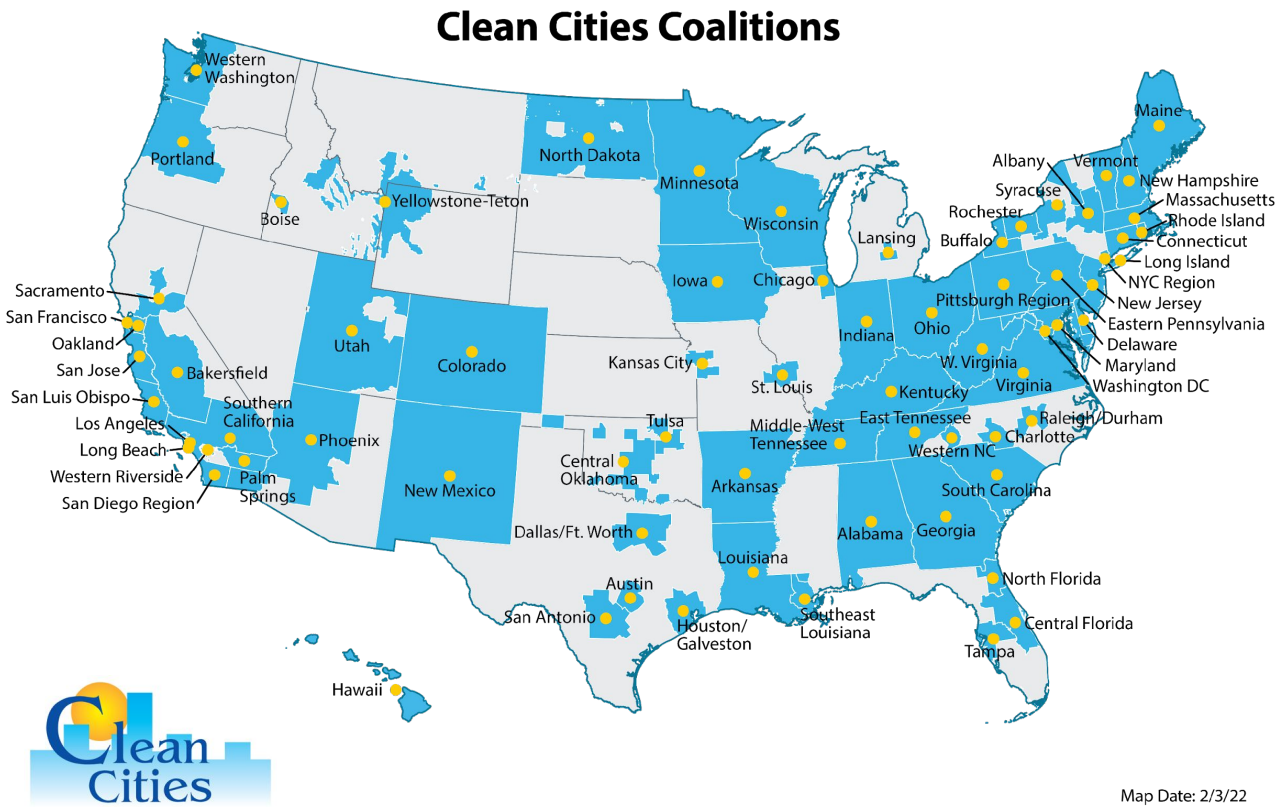
U.S. Department of Energy Clean Cities Coalitions

Abbie Christophersen
Iowa Clean Cities Coordinator
Iowa Economic Development Authority

National Network of Clean Cities Coalitions

More than 75 active coalitions covering nearly every state with thousands of stakeholders

cleancities.energy.gov

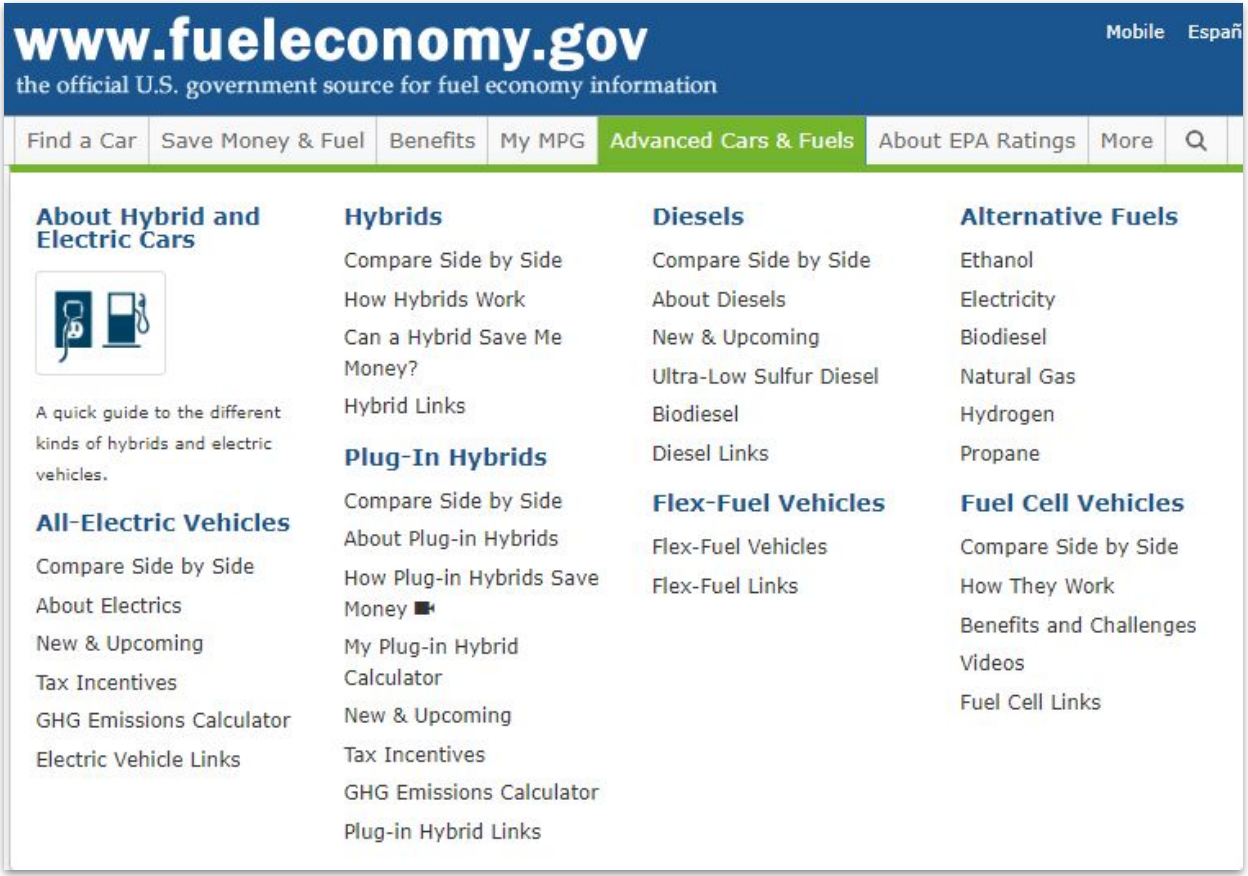


Technology Integration Program

Provides objective/unbiased data and real-world lessons learned that inform future research needs and support local decision-making

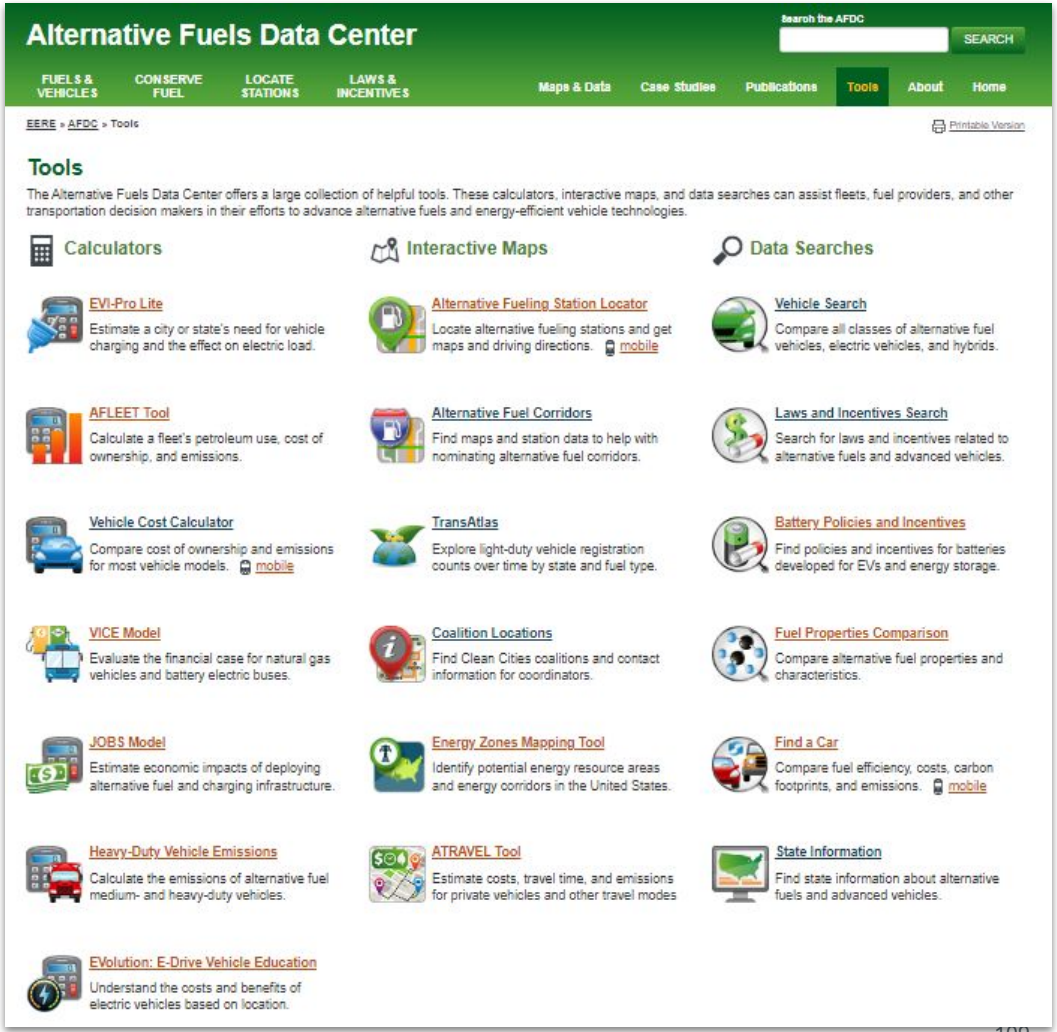
FuelEconomy.gov : Advanced Cars & Fuels

fueleconomy.gov



Alternative Fuels Data Center: Tools

afdc.energy.gov/tools



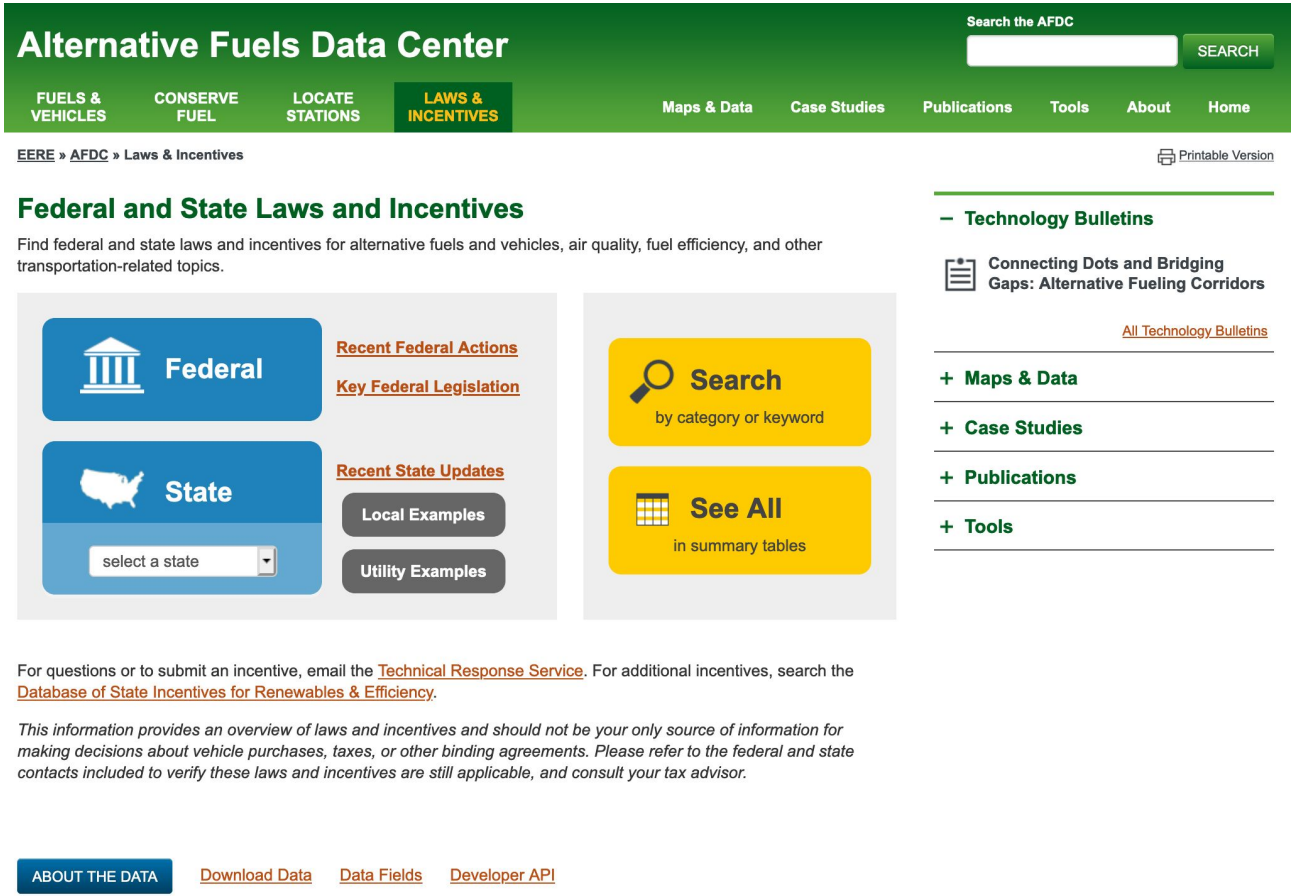
Information & Education: Publications

afdc.energy.gov/publications

Federal and State Laws and Incentives Database

Find federal and state laws and incentives for alternative fuels and vehicles, air quality, fuel efficiency, and other transportation-related topics.

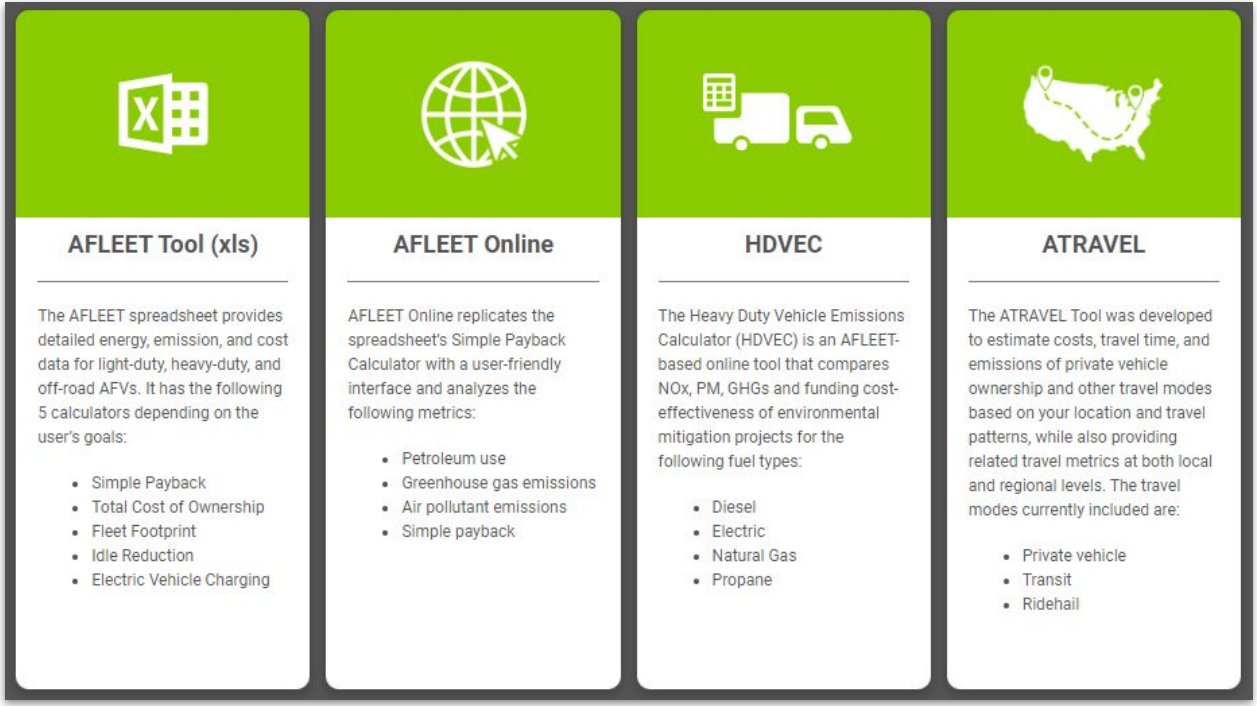
- **afdc.energy.gov/laws**



Alternative Fuel Life-Cycle Environmental and Economic Transportation (AFLEET) Tool

Calculate a fleet's petroleum use, cost of ownership, and emissions.

- **greet.es.anl.gov/afleet**



Questions

Tim Milburn

Abbie Christophersen

Local Success Stories

Photo by Dennis Schroeder / NREL

METROLINK

ROCK ISLAND COUNTY METROPOLITAN
MASS TRANSIT DISTRICT, MOLINE, IL

I-80 CLEAN FUELS
AUGUST 2022

METROLINK - AGENCY OVERVIEW

- Serving the Illinois Quad Cities communities of Moline, Rock Island, East Moline, Silvis, Hampton, Carbon Cliff, Colona, and Milan

- Approximately 160 employees in a service area population of approximately 148,000

- State-of-the-art Operations and Maintenance Center completed in 2014, which includes a solar thermal hot water system and a rooftop solar array

- 13 fixed-routes
- 1 Microtransit van
- Paratransit service
- Special Transportation Services division
- Seasonal ferryboat service on Mississippi River

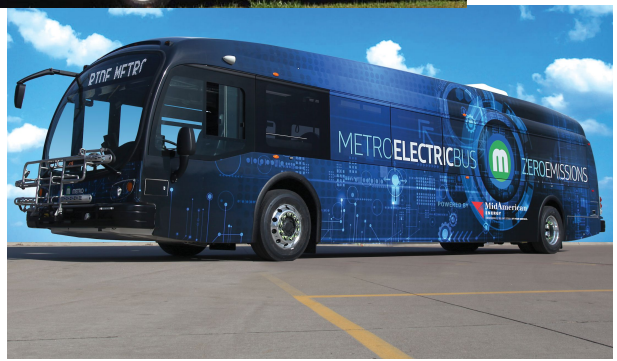
Fleet (As of 01/2022)
- 17 battery electric (40')
- 45 CNG (30', 35', 40')
- 16 paratransit vehicles
- 3 ferryboats (49-passenger)

Service Data (Pre-COVID)
- Annual UPT – 3.3 Million

ALTERNATIVE FUELS JOURNEY

COMPRESSED NATURAL GAS

Over 20 years ago Metro made the decision to be a sustainable leader in our community through a commitment to alternative fuels. In 2002 Metro converted 40% of our fixed route fleet to Compressed Natural Gas (CNG) buses powered by John Deere Engines. Today 70% of the fleet runs on Compressed Natural Gas.



BATTERY ELECTRIC

We've continued to seek the latest alternative fuel technologies to reduce vehicle emissions, and welcomed three (3) all electric fixed-route buses into our fleet in 2018. In 2019, we brought five (5) more all electric buses to the Quad Cities. Nine (9) additional buses deployed in May of 2022. **With this deployment, Metro will have a fleet of nearly 30% electric and will be able to decommission its last remaining diesel buses from the fleet.**

ALTERNATIVE FUELS JOURNEY

CHARGING INFRASTRUCTURE

First utilization of a Proterra depot pedestal dispenser with a ceiling-mounted installation

Key-operated hoist raises and lowers dispenser cable for charging

No loss in vehicle storage space from a traditional floor mount unit

2019 Metro Magazine “Innovation Solution Award” for creative design

SOLAR INFRASTRUCTURE

Operations & Maintenance Facility (Completed in 2014)

Rooftop photovoltaic array with bidirectional meter

1,344 panels

Average annual output – 350,000-380,000 kWh

ALTERNATIVE FUELS JOURNEY

FUTURE ELECTRIFICATION PROJECT - CHARGING

Metro has received nearly $8,000,000 in state and federal funds to build out overhead pantograph chargers at major Metro terminals in East Moline, Centre Station, and District Station as well as the QC International Airport. During each stop at the terminal, buses will utilize charge rails and an automated pantograph to “top off” charge in 5-7 minutes to allow greater vehicle utilization and operating range. In addition, the charging system at our Operations and Maintenance Center will be upgraded to a high speed charging system.

FUTURE ELECTRIFICATION PROJECT – COMMUNITY DEVELOPMENT

In tandem with infrastructure improvements in downtown facilities, Metro plans to partner with local governments and stakeholders on the purchase and installation of on-street EV automobile chargers to prepare for the industry demand in coming years.

METROLINK-ELECTRIFYING OUR COMMUNITY

<u>MetroLINK Transit Automobile EV Charging Scope</u>

- Install a total of 50 Level 3 automobile EV chargers in the downtown areas of East Moline, Moline, and Rock Island, IL
- Focus on short-term parking intervals with charges that offer 250-500 miles of range with a charge time of 1-2 hours
- Purchase to include enterprise program for power management, software updates, customer service, data collection, end-user mobile app, and payment systems.
- Opportunities for audible alerts or additional charge fees if a vehicle continues to use the parking space after charging is complete
- Purchase to include vendor commissioning following install, as well as options for extended warranty or maintenance services.
- Est. cost $40-60k per dispenser (excluding installation or any applicable electrical service upgrades)

EMISSIONS REDUCTION GOALS

- Purchase only low or no emission heavy duty buses beginning in FY2022, with a focus on zero emission where feasible.
- Apply green principles to the design of all new facilities and renovation of existing facilities (where feasible).
- Coordinate with education institutions on workforce development relative to emerging technologies, such as EV buses and sustainable facilities
- Introduce alternative fuels to support vehicles and/or paratransit vehicles
- Consider renewable energy sources to reduce environmental impact of non-facility and non-vehicle emissions, such as additional solar-powered passenger shelters
- Expand resiliency efforts to anticipate, prepare for, and respond to events, trends, or disturbances related to climate change.


100%
WE'VE MADE OUR ENTIRE OPERATING FLEET

ROCK ISLAND COUNTY METROPOLITAN MASS TRANSIT DISTRICT - METROLINK

JENNIFER HIRSCH, MANAGER OF ADMINISTRATION
309-235-9945
JHIRSCH@QCMETROLINK.COM

City of Moline
Fleet Diversity and Use of Alternative Fuels

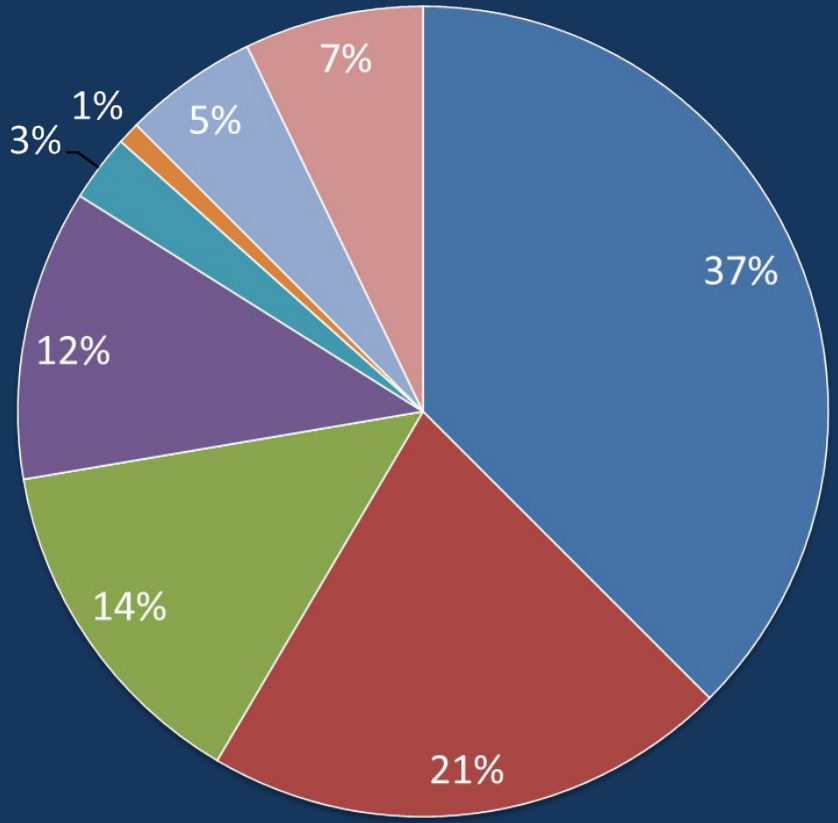
Mike Doi, P.E.
Director of Public Works

The mission of the Moline City Government is to act in a financially responsible manner while providing quality and efficient City services and creating a sustainable City.

100%

of the City of Moline's fleet operates on some type of alternative fuel!

City of Moline Alternative Fuel Vehicles



City of Moline Fleet
232 Fueled Pieces of Equipment

B20 Biodiesel	(92)
E85	(47)
Gasohol	(31)
Hybrid Electric	(26)
All Electric	(6)
Propane	(2)
Bifuel (UNL + CNG)	(12)
CNG	(16)

Why Alternative Fuels?

B20 Biodiesel	Ethanol	CNG
57% Reduction in Greenhouse Gas Emissions	Almost 40% reduction of greenhouse gases	Lower Exhaust Emissions
15% Less Carbon Dioxide	Cleaner Burning and Renewable	Currently More Cost Effective
10% Reduction in Particulate Matter	Absorbs Moisture - Helps Prevent Freezing	Domestically Produced
Safer to Handle - Less Combustible	Corn and Sorghum - 99% of Feedstock	Reduced Range, Longer PM Intervals
Non Toxic - Biodegradable	Iowa Leads Nation in Ethanol Production	
Less Dependence on Foreign Oil	Ethanol requires less water to produce 3:1	

The City of Moline is an inaugural member of the B20 Club, a partnership between the Illinois Soybean Association Checkoff Program and the American Lung Association.

The B20 Club recognizes a select group of Illinois-based organizations with strong commitments to run fleets on biodiesel blends of 20% or greater.


CITY OF
MOLINE
ILLINOIS
PUBLIC WORKS
STERLING
Powered By:
BIODIESEL
CLEANER BURNING & RENEWABLE
www.biodiesel.org

Regional Fueling

In addition to the City's fleet, our fueling site is a regional facility selling fuels to another 157 vehicles or pieces of equipment belonging to Black Hawk College, the Moline Housing Authority, the Moline-Coal Valley School District, the TaxSlayer Center, and our neighbors in the City of East Moline.

Selling fuel to our neighbors is not only a good way to foster a strong sense of community cooperation, but also extends the positive benefits of alternative fuel use beyond Moline!

The City of Moline has an Intergovernmental Agreement with MetroLINK for the CNG fueling station at Moline's Public Works facility

Gallons by the Year

	B20 BIODIESEL	E85	GASOHOL	CNG*	PROPANE*
2013	127,006.77	78,874.22	22,117.93	-	-
2014	131,779.66	74,980.25	22,330.03	1,291.39	-
2015	158,772.82	74,670.03	89,104.14	3,105.93	2,060.70
2016	138,425.72	74,730.83	89,487.63	10,376.10	759.50
2017	116,632.33	68,617.42	83,935.29	17,579.01	375.00
2018	123,902.55	69,195.24	88,336.83	15,943.35	720.50
2019	119,798.91	74,896.59	86,673.29	48,313.24	850.00
2020	78,585.27	53,383.56	86,387.94	58,184.48	748.00
2021	84,946.94	27,507.78	98,772.90	66,560.06	714.00

*CNG and Propane are measured in GGE (gas gallon equivalents), not gallons

Future Fleet Goals

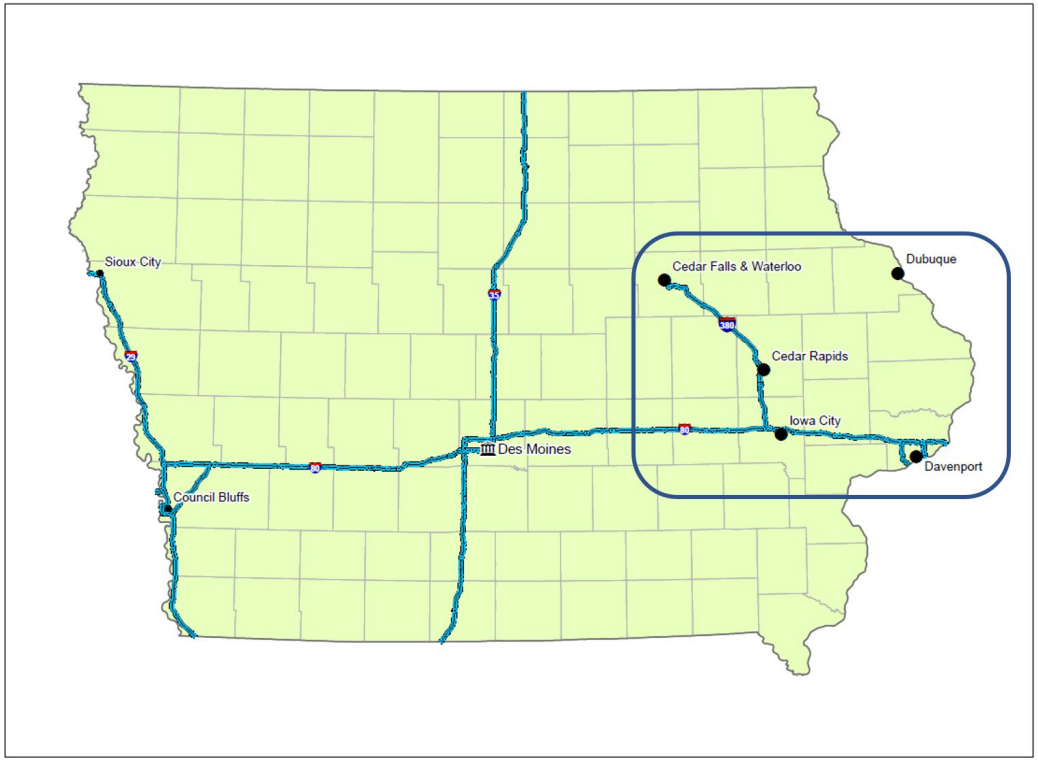
- Add to our EV/CNG fleet
- Implement a higher blend of biodiesel
- Expand the use of bio-based fluids and supplies in the garage


Thank You

Eastern Iowa
Electric Vehicle Readiness Plan



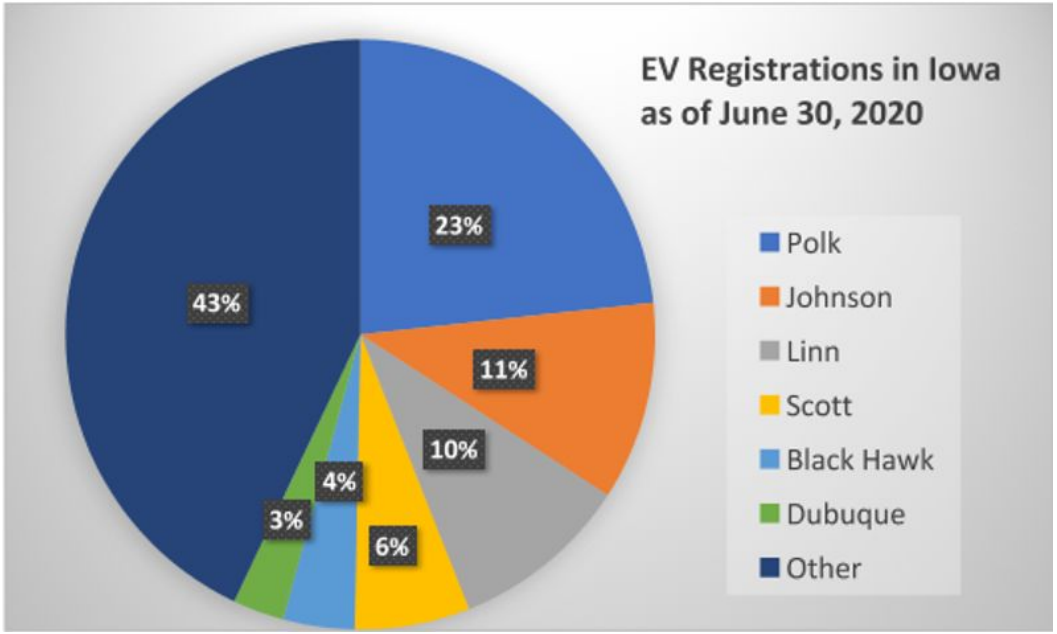
Study Area & Goals



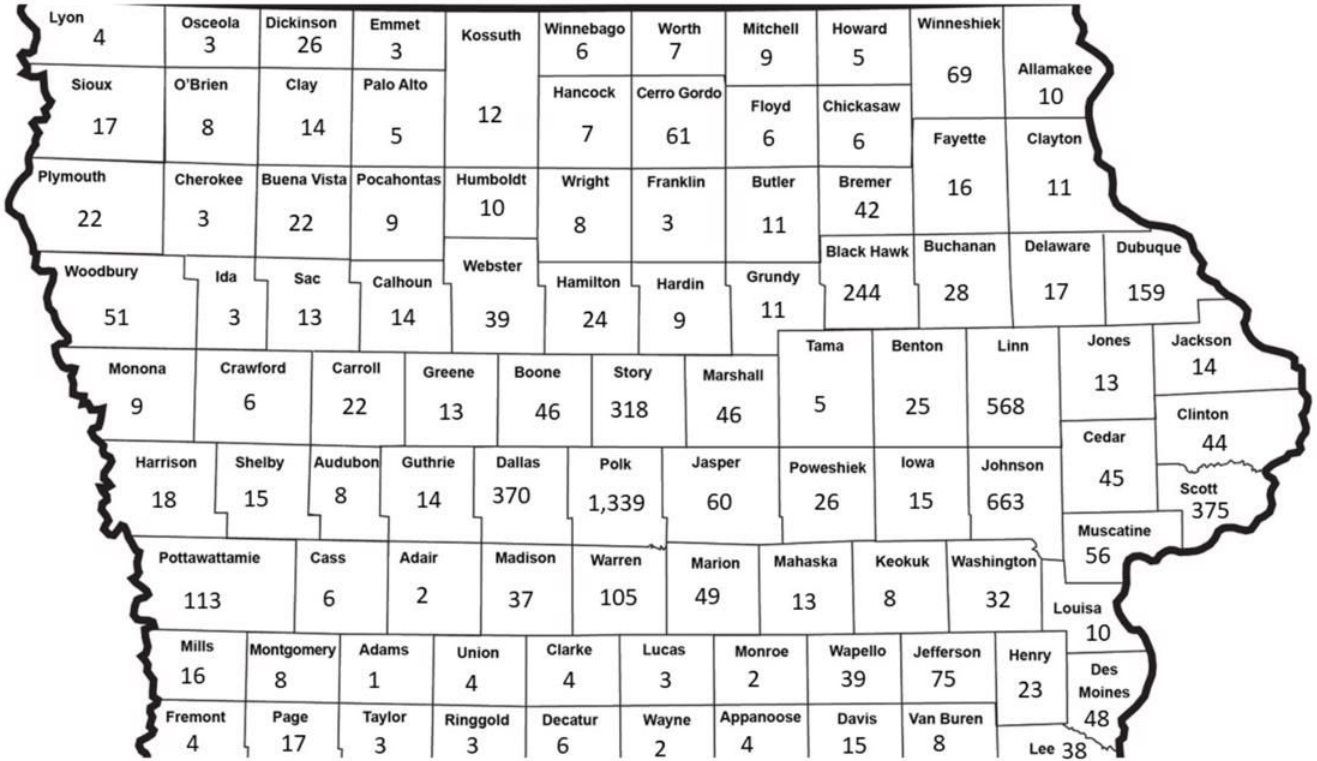
- Increase EV use
- Increase EV charger availability
- Increase equitable access to EVs and charging
- Reduce emissions
- Improve air quality
- Generate economic benefits
- Establish regional collaboration to leverage resources and share learnings

EV adoption trends in Iowa

- EV ownership has become more widespread throughout the state
- Increase from < 1,000 vehicles to > 8,300 between 2016-2021
- Shifting from PHEVs to BEVs, following national trends



EV registrations by county



Source: WOI-TV, 2021

Rapidly increasing EV adoption

- EVs represent 4.4% of the 2021 passenger vehicle, more than doubling sales from 2020
- During this same time, the sales of internal combustion engine (ICE) vehicles declined 1.1%, and total number of vehicle sales declined overall

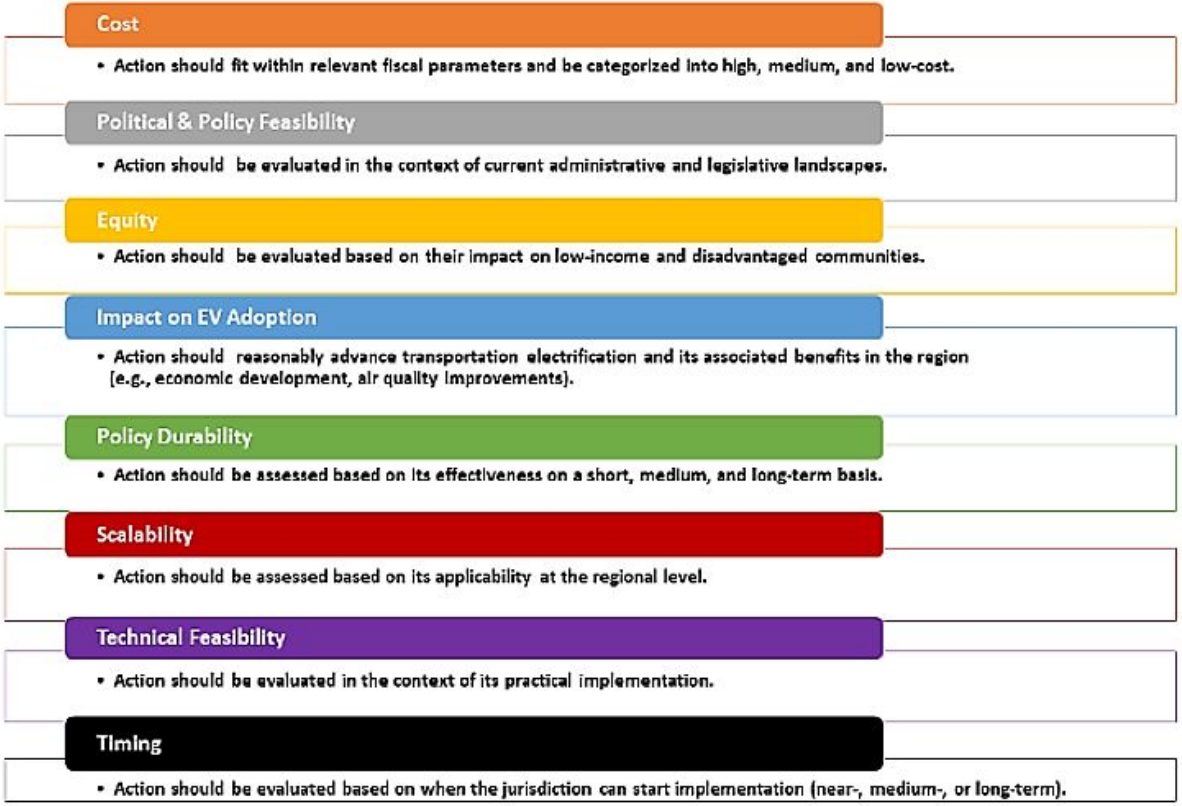
[1] See, the "Get Connected: Electric Vehicle Report" for the third quarter.
[2] For the full year 2020, EVs comprised just two percent, or roughly 320,000 of the nation's 14.5 million new light-duty vehicle sales.

Charging infrastructure in eastern Iowa

City	Population (2019)	Public EV charge points	Charge Points Per Million Population
Cedar Rapids	133,562	26	195
Davenport	101,590	11	108
Iowa City	75,130	29	386
Waterloo	67,328	6	89
Dubuque	57,882	13	225
Cedar Falls	40,536	10	247
Bettendorf	36,543	2	55

- Optimal number of publicly available charge points is 400-450 ports/million people to spur EV adoption
- 25 charge points in QC/383,781 MPA population =
- 65 charge points/million

Stakeholder input



Strategies and implementation

Key Readiness Strategy
Invest in EV Charging Infrastructure
Expand Access to EV Charging Infrastructure
Adoption of and Access to EVs
Increase Education and Awareness of EVs and EV Charging
Coordinate Regionally to Implement Actions and Strategies
Lead by Example

Each strategy includes:

- Lead stakeholders
- Strategies for implementation
- Best practices
- Key performance indicators

Strategy: Invest in EV infrastructure

Actions:

High Priority

- Quantify the need for new publicly available charging equipment to fill gaps at both local and regional level, including DC fast chargers to enable long-distance travel along corridors.

Medium Priority

- Identify and pursue opportunities to fund city-owned and operated charging infrastructure (available for employee and public use) in high-traffic locations such as parking lots nearby major roadways, retail, and recreational areas.
- Collaborate with external entities (e.g., other government agencies, chambers of commerce, workplaces, businesses) to track and pursue grants for public and workplace charging infrastructure.
- Promote existing utility programs offering rebates for EV charging.

Strategy: Coordinate regionally

Actions:

High Priority

- Integrate EV readiness into regional planning efforts, including regional transportation plans and sustainable communities' strategies.

Medium Priority

- Engage in state, regional, and national advocacy efforts to support laws, incentives and policies that further EV adoption (e.g., zero-emission vehicle or ZEV mandates, low-income rebates, point of sale vouchers), aligning with other leading cities and complementary regional initiatives.
- Create a regional working group or steering committee to share lessons learned, monitor emerging EV applications and track progress toward EV readiness at the regional level.
- Develop common metrics to track progress on EV readiness at the local and regional level. Monitor and report progress toward EV readiness at the municipal/county level.

Source: https://iowa80truckstop.com/services-amenities/amenities/ev-chargers/

What comes next?

Continued coordination

- Continued steering committee meetings (quarterly)
- Share funding opportunities, regional coordination, best practices, track progress
- Coordinate events:
  - National Drive Electric Week
  - Fleet manager field trips

QUESTIONS?

Sarah Gardner, Climate Action Coordinator

(319) 887-6162 | sarah-gardner@iowa-city.org

IOWA CITY CLIMATE ACTION MATTERS

Questions

Jennifer Hirsch

Mike Doi

Sarah Gardner

Next Steps & Survey

Photo by Deb Lastowka / NREL

Survey

Will be provided to participants

Contact Information

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Craig Markley, Iowa DOT: Iowa.EVPlan@IowaDOT.us

Tim Milburn, Green Ways 2Go / Chicago Area Clean Cities:
Tim.Milburn@GreenWays2Go.com

Jennifer Hirsch, MetroLINK: JHirsch@QCMetroLINK.com

Sarah Gardner, City of Iowa City: Sarah-Gardner@Iowa-City.org

Networking