Midwest Alternative Fuel Corridor Convening

Tuesday, June 12, 2018

Stassen Building, 600 N. Robert Street, St. Paul, Minnesota [Skjegstad Room]

SUMMARY REPORT

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Background

Section 1413 of the Fixing America's Surface Transportation (FAST) Act requires the Secretary of Transportation to designate national electric vehicle (EV) charging, hydrogen, propane, and natural gas fueling corridors. The Federal Highway Administration (FHWA) is working with other federal, state, and local officials, as well as private industry, to help plan and promote an Interstate network of stations that will fuel vehicles powered by clean and domestically produced alternative fuels, so commercial and passenger vehicles can reliably travel between cities, regions, and across the entire nation. FHWA has completed two rounds of alternative fuel corridor designations, the first in 2016 and the second in 2017. One of two designations have been assigned to each nominated highway segment:

- "Corridor Ready" - A sufficient number of facilities exist on the corridor to allow for corridor travel using one or more alternative fuels; and
- "Corridor Pending" - An insufficient number of facilities currently exist on the corridor to allow for corridor travel using one or more alternative fuels.

Designation status for each fuel type were based on the following criteria:

- EV charging: EV charging[1] facilities at 50-mile intervals along designated EV corridors.
- Hydrogen: Hydrogen fueling facilities at 100-mile intervals along designated hydrogen corridors.
- Propane: Propane fueling facilities at 150-mile intervals along designated propane corridors.
- Natural gas: Compressed natural gas (CNG) and liquefied natural gas (LNG) facilities at 150-mile intervals and at 200-mile intervals respectively, along designated corridors.

In 2018, FHWA initiated a series of regional convenings to encourage multi-state and regional coordination for the development and implementation of alternative fueling infrastructure along corridors. The convenings foster an important opportunity for states to evaluate the potential of shared infrastructure investments and improved collaboration for education/outreach efforts among and between the public and private sectors. The Midwest Alternative Fuel Corridor Convening was the first convening in the series and was hosted by the Minnesota Department of Transportation (MnDOT) in St. Paul on June 12, 2018. The convening facilitated meaningful engagement among stakeholders to identify key barriers and opportunities to expand the network of alternative fuel corridors in the Midwest. To support a regionally-tailored program on Midwest priorities, a planning committee was organized to help shape the goals and objectives of the convening's program and included stakeholders from state and federal government, metropolitan planning organizations, industry, alternative fuel providers, Clean Cities Coalitions and other non-profit organizations.

Convening Summary

The Midwest Alternative Fuel Corridor Convening was hosted by the Minnesota Department of Transportation (MnDOT) in St. Paul on June 12, 2018. A total of 52 stakeholders participated, five of which participated remotely via teleconference. The day began with introductions from MnDOT and FHWA leadership, followed by an overview of the goals and objectives for the day. To help set the stage and prepare participants for the day's discussion,

[1] FHWA's objective is to establish direct current (DC) Fast Charge (Level 3) infrastructure at 50-mile intervals for corridor designations made in 2017, and later.

representatives from the U.S. Department of Transportation (USDOT) Volpe Center provided analyses that can be used to support future corridor nominations for designation in the Midwest region.

After a panel discussion on existing alternative fuel corridor initiatives in the Midwest, sessions focused on key aspects related to improving the regional network of alternative fuel corridors. The "Filling the Gap" session featured alternative fuel infrastructure provider perspectives and breakout group discussions on the top challenges and corresponding best practices for the planning and implementation of alternative fuel corridors. A representative from the National Renewable Energy Laboratory (NREL) provided attendees with a preview of upcoming changes to the Alternative Fuels Data Center (AFDC) alternative fueling station locator and introduced a corridor planning tool under development. Later sessions focused on issues relating to funding and building awareness of the availability and benefits of alternative fuel corridors. The closing session focused on the action items that convening attendees and FHWA should prioritize moving forward.

Key Takeaways

The following are the key takeaways for enhancing and expanding alternative fuel corridors in the Midwest that emerged throughout the day's presentations and discussions:

Figure 1. Convening attendees participate in discussions about alternative fuel corridors.

- FHWA's national alternative fuel corridor initiative has helped build momentum towards greater alternative fuel corridor planning and coordination among states resulting in increased partnerships.
- Corridors present a unique infrastructure challenge because they transect multiple jurisdictions and require greater collaboration to ensure success.
- Encouraging states to submit nominations for alternative fuel corridors where there is demonstrated eligibility for designation (e.g. I-35 in Minnesota for EV charging) is critical for building out the regional network of corridors.
- Electric and hydrogen fuel cell auto manufacturers may be prioritizing vehicle sales in Zero Emission Vehicle Memorandum of Understanding (ZEV MOU) states to meet credit requirements, which may present a challenge around vehicle availability in the Midwest.
- Ohio has the largest deployment of medium- and heavy-duty hydrogen fuel cell electric vehicles of any state, outside of California.
- Key regulatory and policy considerations for strengthening EV charging networks include: the level of coordination with utilities to streamline interconnection, the relationship between electricity rates and the profitability of the station, and whether charging site hosts are regulated as utilities.
- State leaders can influence the adoption of alternative fuel vehicles in several ways.
    - Through signage, DOTs can make consumers aware of station availability and begin to normalize the use of alternative fuels. However, signage must be strategically incorporated in such a way that drivers are not overwhelmed.

- States can also show leadership by streamlining permitting processes related to alternative fuel infrastructure and incentivizing the use of alternative fuels in procurements that the state has the ability to control.
- State leaders can also initiate collaboration among different states in a region and present a shared commitment to alternative fuel vehicles.

Convening Proceedings

Host Welcome

Diane Turchetta, Transportation Specialist, U.S. Federal Highway Administration

See presentation for more information.

Figure 2. Diane Turchetta provides an overview of FHWA's alternative fuel corridor initiative.

- Diane kicked off the convening by welcoming attendees and providing an overview of the national alternative fuel corridor initiative.
- The benefits of having a national system of designated alternative fuel corridors include:
  - Allowing for inter-city, regional, and national travel using clean-burning fuels;
  - Addressing range anxiety;
  - Integrating corridor planning with existing transportation planning processes; and
  - Accelerating public interest and awareness of alternative fuel availability.
- The criteria for corridor designation were determined in conjunction with the Department of Energy and NREL.
- FHWA led two rounds of designations, in 2016 and 2017. Between the first and second rounds, FHWA made two changes to the designation process: (1) only direct current fast chargers (DCFC) sites will be considered for EV corridors and (2) non-road hydrogen stations can be included.
- The third nomination period will take place in the fall of 2018, with the third round of designations to be announced in the spring of 2019.
- Developing signage to correspond with the corridor designations is a priority for FHWA, as reflected in the memorandum on the Manual on Uniform Traffic Control Devices (MUTCD) issued by the agency. The first corridor signs were installed along I-94 in Minnesota and I-26 in South Carolina.
- FHWA developed a frequently asked questions (FAQ) page to address signage questions: https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/resources/faq/#toc494791843

Charles Zelle, Commissioner, Minnesota Department of Transportation

See presentation for more information.

Figure 3. Commissioner Zelle welcomes convening attendees and discusses MnDOT's alternative fuel initiatives.

- Commissioner Zelle welcomed attendees and emphasized that MnDOT has great interest in supporting alternative vehicle deployment.
- MnDOT has a sustainability program that includes applying statewide greenhouse gas (GHG) targets to the transportation sector and improving fuel economy of the MnDOT fleet.
- MnDOT is working in collaboration with the Minnesota Pollution Control Agency and Great Plains Institute on an EV roadmap for Minnesota.
- Minnesota established a target of 20% of all light-duty vehicles (on-road, not sales) in Minnesota being EVs by 2030.
- Minnesota is part of the Great Lakes Zero Emission Corridor Memorandum of Understanding alongside Wisconsin, Illinois, Indiana, Michigan, and the City of Detroit.
- MnDOT is coordinating with Electrify America on investments for EV charging infrastructure in the state.
- MnDOT is working with 17 other states to advocate against rollbacks in vehicle emission standards.

Setting the Stage: Partnership Goals and Objectives

Geoff Morrison, Senior Associate, Sustainable Transportation Practice, Cadmus

See presentation for more information.

- The breakdown of attendees at the convening is shown below (Figure 4).

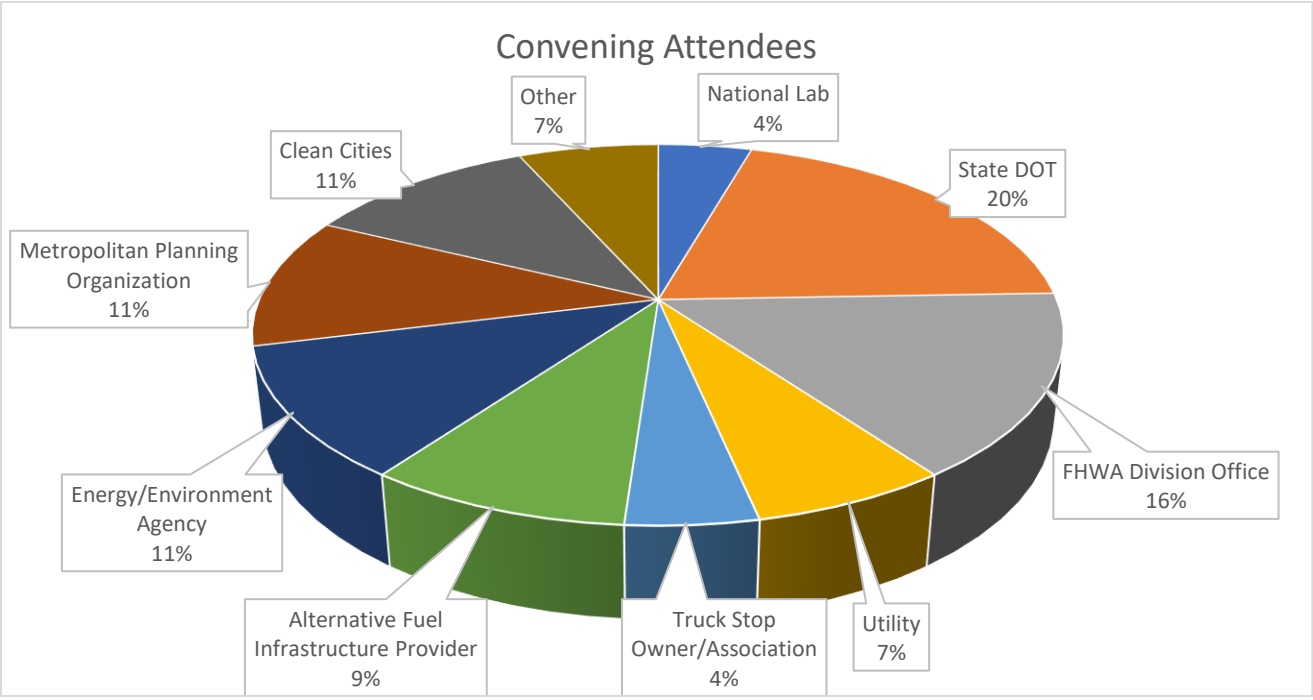

Figure 4. Breakdown of Midwest Convening attendees by representative organization.

- The results of three questions posed to attendees at the beginning of the convening during registration are shown below (Figure 5, Figure 6, Figure 7).

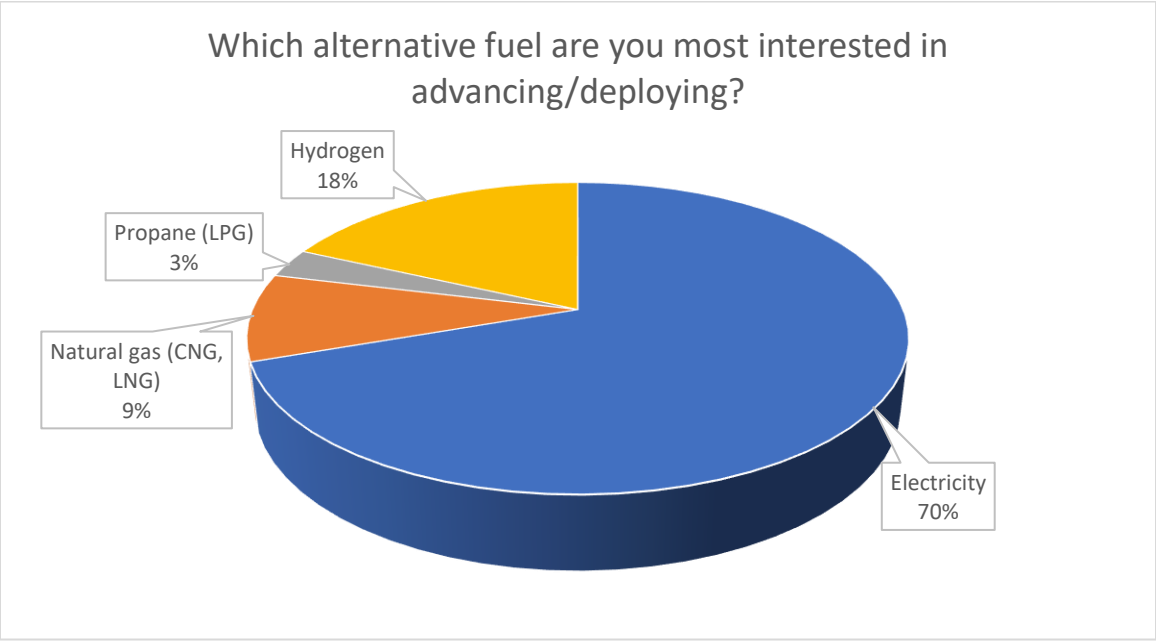

Figure 5. Pie chart showing which alternative fuels attendees were most interested in advancing or deploying.

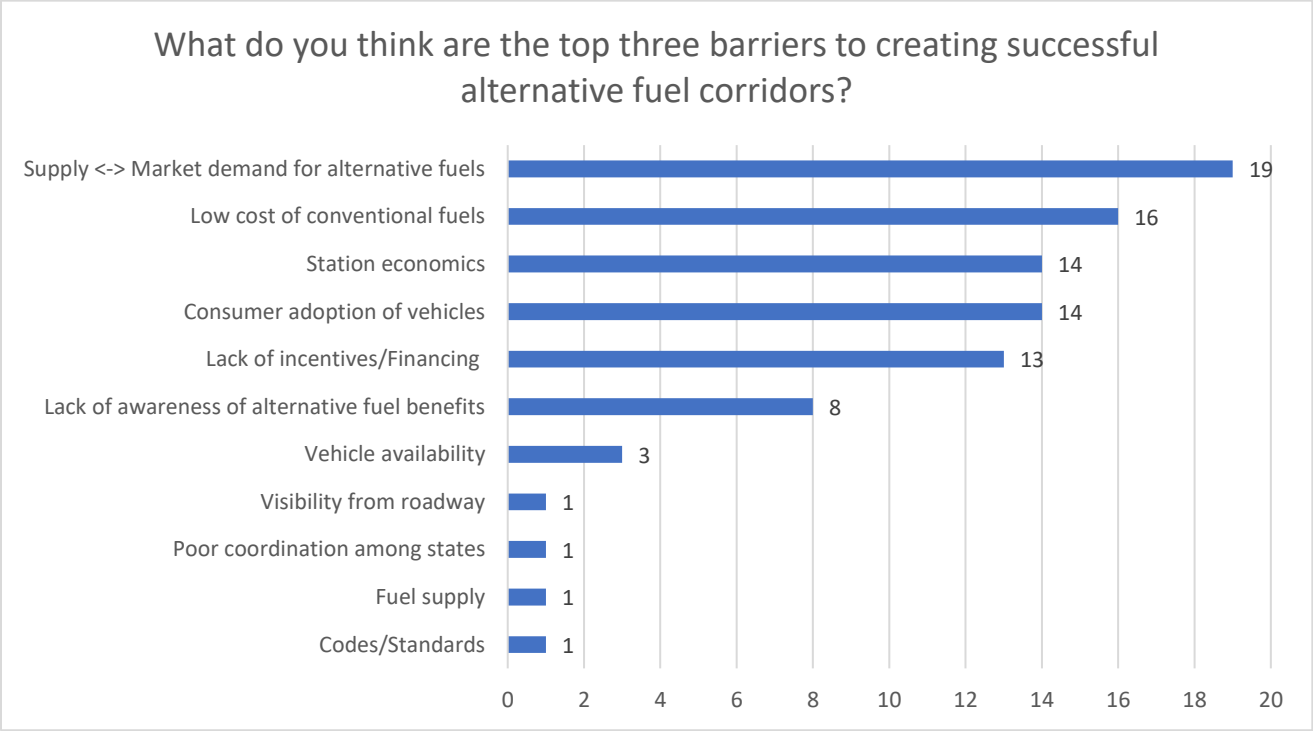

Figure 6. Bar graph showing the top barriers to creating successful alternative fuel corridors, according to convening attendees (each attendee received three votes).

Figure 7. Word cloud showing what attendees hoped to achieve during the convening, using one word.

Alycia Gilde, Director, CALSTART

See presentation for more information.

- Alycia outlined the goals and objectives for the day, including identifying key barriers, evaluating needs, increasing awareness, developing a regional strategy, and building sustainable partnerships.
- She emphasized the importance of engagement and participation throughout the day.

Designated Corridors and Infrastructure Gap Analysis

Mike Scarpino, Transportation Project Engineer, U.S. Department of Transportation Volpe Center

Stephen Costa, Technical Analyst, U.S. Department of Transportation Volpe Center

See presentation for more information.

- Stephen and Mike showcased alternative fuel infrastructure gap analysis examples for the Midwest.
- For the gap analysis, Stephen and Mike highlighted available data on traffic and on-road freight volumes (current and projected), and location of existing alternative fuel infrastructure, and showed how these data can be used to prioritize corridor development efforts. Infrastructure gaps and areas with highest potential infrastructure demand were shown for both MN and IN.
- Minnesota has opportunities to designate portions of I-35 as corridor-ready or corridor-pending for EV charging. Portions of I-35, I-90, and I-94 could also be designated as corridor-ready or corridor-pending for CNG. Portions of I-35 could be designated as corridor ready or corridor pending for LPG.
- High traffic volume growth is projected in Indiana (relative to adjacent states), providing opportunity to serve additional alternative fuel vehicle customers.
- In Indiana, the I-465 loop could be designated corridor-ready for EV charging and portions of I-70 could be designated as corridor-ready or corridor-pending for EV charging. The I-465 loop as well as portions of I-65,

I-94, and I-70 could be designated as corridor-ready or corridor-pending for CNG. The I-465 loop as well as portions of I-65, I-69, and I-70 could be designated as corridor-ready or corridor-pending for LPG.

- For designation nominations, FHWA recommends using existing infrastructure data provided by NREL through the Alternative Fueling Station Locator. Data from other sources, such as PlugShare, is incorporated into the Alternative Fueling Station Locator as it is confirmed. Tesla charging stations are not considered public charging stations since they use proprietary technology.
- Conducting an infrastructure gap analysis helps identify property hosts with whom to initiate conversations for potential alternative fuel station locations.
- Coordination with state and planning agencies can help identify potential funding sources. Collaboration with neighboring states can help identify priority corridors and ensure effective infrastructure placement.
- Clean Cities coalitions are a valuable partner to have when compiling alternative fuel corridor designation applications.

Midwest Alternative Fuel Corridor Initiatives

Partners throughout the region presented on innovative programs currently advancing alternative fuel corridors for electric, hydrogen, propane, and compressed natural gas vehicles.

Moderator: Marcy Rood, Principal Transportation Analyst, Argonne National Lab

Carl Lisek, Executive Director, South Shore Clean Cities [I-80 Corridor]

See presentation for more information.

Figure 8. Panelists discuss current alternative fuel corridor initiatives in the Midwest.

- I-80 is second longest highway in the United States with a length of 2,900 miles and over 3 billion vehicle miles traveled along the corridor per year.
- Coordination calls with partners in the Midwest have been held to discuss items such as infrastructure barriers and signage opportunities. Partners include Clean Cities Coalitions, DOTs, Argonne National Lab, state energy offices, and utilities. Representatives from toll roads, ports, national parks, travel bureaus, and metropolitan planning organizations (MPOs) have also been engaged.
- The partners coordinating alternative fuel infrastructure development along I-80 in the Midwest have surveyed local property owners and businesses to engage them as stakeholders, assessed support for EV development, looked at the potential for DC fast chargers, and are exploring options for biofuel and clean diesel infrastructure as well as truck stop electrification.

Lisa Thurstin, Senior Manager, Clean Fuel & Vehicle Technologies, American Lung Association and Minnesota Clean Cities [Michigan to Montana "M2M" Alternative Fuels Corridor]

See presentation for more information.

- The Michigan to Montana (M2M) corridor project covers I-94 from Billings, Montana to Huron, Michigan. It began in 2016.
- The main goal of the M2M corridor project is to create partnerships to support the development of alternative fuel corridors, commission stations, deploy vehicles, and provide education and training on alternative fuels and the advanced vehicle market.
- The alternative fuels being focused on along the M2M corridor are electricity, natural gas, and propane. To date, 6,000 gallons of diesel have been displaced along the corridor.
- The M2M project partners will continue providing education and outreach to stakeholders through auto shows and community events. The partners also plan to conduct a gap analysis of infrastructure along the corridor.

Tim Sexton, Director, Transit and Active Transportation, Minnesota Department of Transportation [I-94 Corridor]

See presentation for more information.

- MnDOT focuses on EVs because they allow progress towards the state's climate goals.
- MnDOT helped form a partnership called the Great Lakes Zero Emission Vehicle Corridor, which includes five states and the City of Detroit, with technical support from NREL and Argonne National Lab.
- Semi-regular meetings are held with the partners, and the partnership has allowed for coordination of related efforts such as prioritization of the Volkswagen Mitigation Fund.
- Coordinating efforts among state partners has been challenging without dedicated funding or a binding deployment target, such as the ZEV mandate.
- MnDOT fabricates and installs their signage in-house, with a cost of $700 - $1000 per sign. So far, four locations in Minnesota have alternative fuel corridor signage, with three additional locations planned.

Mark Finnicum, Chief Operations Officer, Stark Area Regional Transit Authority (SARTA) [Hydrogen Roadmap for the Midwest]

See presentation for more information.

- Outside of California, Ohio is the state with the highest use of heavy-duty hydrogen.
- SARTA is working in collaboration with CALSTART and other partners to develop a roadmap for hydrogen fuel cell electric vehicles in the Midwest. The strategy is to use deployment of heavy-duty hydrogen to lead to light-duty deployment of hydrogen.
- Michigan and Ohio DOTs are seeking funding for a Zero-Emission Transit Corridor Action Plan, which would allow for local, regional, and interregional travel by EVs and fuel cell electric vehicles (FCEVs). They are also looking to create a "smart corridor" for connected and autonomous vehicles along the Ohio Turnpike.

During the discussion that followed, the following emerged as key takeaways:

- Some partners that could be further engaged on existing alternative fuel corridor initiatives in the Midwest include clean diesel partners and commercial fleets deploying alternative fuels.
- Working on ZEV deployment in non-ZEV MOU states makes acquiring financial support challenging.
- Ohio's strategy of leveraging heavy-duty hydrogen deployment to support light-duty deployment is based on what was done with CNG infrastructure development in the state. SARTA installed a CNG station along a corridor frequently used by a major food distributor, and other infrastructure providers then built out CNG stations along the same route. Once the infrastructure gaps along a corridor are filled in, range anxiety dissipates.
- South Shore Clean Cities can share best management practices for LPG station development. South Shore Clean Cities has worked with Indiana DOT (INDOT) to apply for Congestion Mitigation and Air Quality (CMAQ) grants and have worked with the private sector to install infrastructure.
- The Alternative Fueling Station Locator only shows LPG stations that have LPG available for vehicles, known as primary stations. There are thousands of locations with LPG available for equipment such as grills, and these are known as secondary stations. Siting an LPG station for vehicles in the same location as a secondary station may still be a good idea as the critical infrastructure is already there.
- Within the area of alternative fuel corridor development, one role state DOTs can take leadership on is signage, though each state is unique in terms of how it develops and implements signage. Not all DOTs would like to be directly involved with owning and operating alternative fuel stations.
- The way different states define what a "utility" is can affect the economics of charging infrastructure. For instance, if a retailer installs a DC fast charger, it may only be able to charge customers based on the charging time period instead of based on exact kilowatt usage.
- Educating state legislators on alternative fuels and having them become familiar with the vehicles and infrastructure involved is key to garnering their support.
- State DOTs can mobilize quickly and be valuable partners if there are clear goals and objectives outlined for a specific initiative.
- Title 23 of the U.S. code prohibits commercialization of rest areas along corridors. Therefore, an EV charger can be installed at a rest area, but the owner cannot charge a fee for its use. Some portions of the interstate highway system were grandfathered in, so there are charging stations at rest areas along I-95 in Connecticut, for example, that customers are charged for.

Filling the Gap: Strategy, Technology, and Partnership for Infrastructure Development

Public and private partners discussed the challenges and best practices for the planning and implementation of alternative fuel corridors. Technology and fuel suppliers, utilities, government and fleets shared perspectives on how to "fill the infrastructure gap."

Gilbert Nunez, Manager, Customer Solutions and Business Development, Alliant Energy
See presentation for more information.

- Alliant Energy is an investor-owned utility that offers rebates for new and used EVs, charging stations, electric-powered forklifts, and electric-standby truck refrigeration units.
- There is a lack of DC fast charging stations in southern Minnesota and northern Iowa, leaving an infrastructure gap along the corridors there.
- Alliant Energy acquired data to learn more about their residential customers, including how many customers are planning to buy a vehicle in the next 12 months and how many have a propensity toward green practices.

Joel Fasnacht, Business Development, Alternative and Commercial Fuels, Kwik Trip
See presentation for more information.

- There are over 600 Kwik Trip or Kwik Star locations throughout Minnesota, Wisconsin, and Iowa.
- In addition to conventional petroleum products, the locations offer E-85, biodiesel, LPG, CNG, LNG, and renewable natural gas.
- Products are distributed with Kwik Trip's own fleet, 83% of which runs on natural gas.

Kevin Miller, Director, Public Policy, ChargePoint
See presentation for more information.

- ChargePoint EV charging stations are locally owned and operated; site hosts make the decision to invest in the infrastructure. ChargePoint provides software solutions and has data on 38 million charging sessions.
- ChargePoint provides an app for drivers showing them where stations are and giving them access to information about their charging activity. For workplaces, fleets, municipalities, and state agencies, ChargePoint provides solutions that allow them to tailor pricing and provide an amenity to attract customers, employees, or tenants.
- Key considerations for developing EV charging networks along corridors and in urban hubs include spacing between stations, number of ports per station, overlap with residential and fleet charging needs, and redundancy to support emergency evacuation routes.
- Key regulatory and policy considerations for EV charging networks include coordinating with utilities to streamline interconnection, understanding how rates are shaped to create value, and determining whether or not charging site hosts are regulated as utilities.
- Having consistency in the rules that regulate EV charging stations is critical. If the owner is a utility, they cannot set a price per kilowatt for charging.

Ryan Erickson, General Manager of Strategic Development, Trillium
See presentation for more information.

- Trillium was historically focused on heavy duty CNG fueling infrastructure. Trillium is owned by Love's Travel Stops, which has 80 locations in the Midwest.
- Trillium designs, builds, operates, and maintains alternative fuel infrastructure. In addition to CNG, Trillium provides products and services including heavy and light duty commercial EV charging and heavy duty commercial hydrogen refueling.

- When building out alternative fuel infrastructure, it is crucial to clearly identify the goals to be accomplished and then prioritize projects based on the goals.
- Trillium seeks to identify fleets with a sizeable number of vehicles that will be using their truck stops. Identifying these anchor fleets provides a path to profit and market acceptance of alternative fuels.

Jeff Hove, Fuels Specialist, National Association of Truck Stop Operators (NATSO)

See presentation for more information.

- NATSO represents truck stops and travel plazas across the U.S.
- The organization is interested in the adoption of new technologies. The trucking industry has been through the cycle of new technology adoption in the past with some pitfalls along the way, which is important for stakeholders to keep in mind when promoting the adoption of alternative fuels.
- Jeff announced NATSO's new Alternative Fuels Council initiative. The initiative is focused on providing fuel retailers with resources to learn about and incorporate alternative fuels into their supply offerings. Since NATSO also represents individual travel center owners that may not have bandwidth to do their own analyses, the Alternative Fuels Council can provide them with support.
- The Alternative Fuels Council will help its members understand alternative fuel quality and navigate the alternative fuel policy landscape.

After the panelist presentations, attendees broke up into three breakout groups to discuss barriers to filling in the alternative fuel infrastructure gap in the Midwest and the corresponding actions private sector organizations and local, state, or federal government can take to overcome them. Key takeaways that emerged from those discussions included:

Figure 9. Discussion leaders report out from the breakout group discussions.

- Developing sustainable funding to support alternative fuel vehicles is a key challenge. Possible ways to address this challenge are allocating funding for the alternative fuel corridor program, charging consumers per vehicle miles traveled, leveraging public-private partnerships, and combining as many funding sources as possible.
- Direct engagement with dealerships and original equipment manufacturers (OEMs) is critical for effective education on alternative fuel vehicles. Dealers must be educated not only on available alternative fuel vehicles, but also the options for fueling the vehicles.
- Parameters in building codes such as requirements for conduit and wiring help streamline alternative fuel readiness.

- To overcome political challenges, the value proposition for alternative fuels must be made and the benefits must be clearly defined, without showing preference to one fuel over another.
- Engaging maps and other effective visuals should continue to be included in education campaigns about alternative fuels.
- To build the business case for alternative fuels, there must be regulatory certainty around key questions such as the definition of a utility.
- Although its impact may be overstated, the reduction in gas tax revenue caused by the transition to alternative fuel vehicles must be eventually addressed.
- State leaders can influence the adoption of alternative fuel vehicles in several ways.
    - Through signage, DOTs can make consumers aware of station availability and begin to normalize the use of alternative fuels. However, signage must be strategically incorporated in such a way that drivers are not overwhelmed.
    - States can also show leadership by streamlining permitting processes related to alternative fuel infrastructure and incentivizing the use of alternative fuels in procurements that the state has the ability to control.
    - State leaders can also initiate collaboration among different states in a region and present a shared commitment to alternative fuel vehicles.
- Finding customers with fleets that are willing to convert to alternative fuel vehicles invites infrastructure development and helps make the case for earning a return on investment.
- Forming partnerships is critical for successfully building out alternative fuel corridors, including partnerships among utilities along a corridor and partnerships among public and private sector parties to leverage funding.

Sneak Preview: Alternative Fuels Data Center (AFDC) Station Locator Redesign and Corridor Tool

NREL shared upcoming changes to the AFDC alternative fueling station locator and introduced a corridor tool under development, allowing attendees to provide their input and feedback.

Matt Rahill, Alternative Fuels Data Center Lead, National Renewable Energy Laboratory

See presentation for more information.

- The AFDC was created in 1991. It is an online resource on alternative fuel vehicles and provides calculators and other tools.
- The Station Locator Redesign and Corridor Tool is used to map routes.
    - The Corridor Tool is being developed as an outcome of FHWA's alternative fuel corridors program, and will assist state and local stakeholders in analyzing corridors.
    - AFDC's Station Locator is funded by the U.S. Department of Energy and uses data collected by industries.
    - NREL works with many networks to import station data nightly for electric vehicles. Other stations are validated on a nightly basis.

    - Charging stations such as outlets in campgrounds may not be shown on the map because they are not necessarily designated for fueling. If a user notices a station that is not recorded, there is a link at the bottom of the webpage to recommend adding it.
- NREL has helped with analysis for corridor designations, geospatial analysis, and EV resilience analysis based on charger type.
- The goals for the tool are to:
    - Assist transformation planners in decisions about where to extend their corridors;
    - Allow users to filter by fuel, highway, or state;
    - Allow users to capture a snapshot for a presentation for stakeholders or executives;
    - Allow users to download a shapefile once they have selected a state;
    - Allow users to find the number of miles away from a highway a station is, and show stations along specified corridors;
    - Allow users to drop a pin for analysis on whether a potential site for a station would complete a corridor and if not, how many miles it would take to do so; and
    - Allow users to click on individual corridors to find how many miles have been designated.
- During Phase 1, the tool will be located on the AFDC website but can be embedded onto other sites. The Phase 2 tool will be more interactive, giving users the ability to draw on the map, circle areas, and insert text labels. During Phase 2, the tool will also show additional layers like EV density.

Improving Visibility: Posting Signage and Promoting Benefits of Alternative Fuel Corridors

Partners discussed the strategies, partnerships, and resources required to build awareness on the availability and benefits of alternative fuel corridors, as well as experiences developing corridor signage and how strategic outreach can drive demand and market growth for advanced vehicles.

Ryan Erickson, General Manager of Strategic Development, Trillium [Perspective shared for Love's Travel Stops]

See presentation for more information.

- To increase visibility, Trillium has been advertising on billboards and using marquee signs to make them big enough for the road. The signs highlight the price difference between conventional and alternative fuels.
- Another mechanism for increasing visibility has been utilizing printing and online advertisements, especially trucking magazines.
- Trillium has a "Love's App" which allows users with unique vehicles to search for tools. Truck users are able to pay on the app using their mobile device.
- Trillium also offers a Rewards Program that allows customers to upgrade to a higher status level if they use alternative fuels, which gives them extra points that can be used towards Love's amenities.

Chris Schmidt, Air Quality Manager, Illinois Department of Transportation

- Illinois DOT (IDOT) has significant mileage that is corridor ready (48,000 miles) and corridor pending (37,000 miles).

    - IDOT partnered with Argonne National Lab on I-94 and I-80 corridors as well as other interstates that are not on the FWHA corridor maps.
- IDOT uses the MUTCD memorandum that FHWA published on signage. They have an in-house signage shop to handle materials, labor, and installation.
- The cost of signs is relatively cheap, but labor costs associated with each installation vary by site.
- Lessons learned:
    - There is important work being done, even if DOTs are not always aware of it. There are many advocacy groups outside of state governments. Agencies should try to bring them into the fold. This can help maintain community buy-in.
    - It is relatively easy and inexpensive to invest in signage, and will be noticed by the public. This can also contribute to community buy-in.
    - Forming groups can be an effective strategy. IDOT has successfully partnered with Argonne, Chicago DOT, and the Illinois FHWA Division Office.
    - Communicate that having a signage program is not necessarily a lot of work; it could be the installation of just a few signs.

Lorrie Lisek, Executive Director, Wisconsin Clean Cities [Wisconsin Smart Fleet]

Carl Lisek, Executive Director, South Shore Clean Cities [Green Fleet Indiana]

See presentation for more information.

- Both Wisconsin and Northern Indiana have green fleet programs. Both are sponsored by CMAQ grants.
- Indiana Clean Cities Coalition has a goal to educate community members and help them reduce diesel emissions. They team with Purdue's Local Technical Assistance Program (LTAP) program.
- Wisconsin's Smart Fleet Program has over 31 fleets around the state, and they want to make the smart grant program available to fleets of all different sizes and types.
    - It is a recognition program intended to help fleets identify where they have low-hanging fruit.
    - Gives participants the opportunity to rise to different levels and be recognized at an annual meeting, which can promote competition.
- Indiana Clean Cities Coalition utilizes the Alternative Fuel Life-Cycle Environmental and Economic Transportation (AFLEET) tool, which allows them to network and assist their fleets in becoming grant-ready.
- Indiana Clean Cities Coalition works with their local National Public Radio station on a "Green Fleet Radio" segment to highlight and recognize alternative fuel projects and corridors and solar initiatives. Several mayors have utilized this in their State of the City addresses.
- Clean Cities University is a learning program that helps users understand information related to alternative fuels, such as relevant tools and acronyms. Clean Cities University offers 10- to 15-minute online courses with a test at the end.

Samantha Bingham, Clean Transportation Program Director, Chicago Department of Transportation & Chicago Area Clean Cities [Midwest EVOLVE]

See presentation for more information.

- The Chicago Area Clean Cities Coalition is a partner in an awareness-raising program called Midwest EVOLVE, which stands for Electric Vehicle Opportunities: Learning, eVents, Experience.
    - EV awareness is low, with studies showing that only 40% of U.S. drivers are aware of the existence of EVs. Low awareness is Chicago Area Clean Cities' top barrier to EV deployment. Lack of infrastructure and incremental costs are the next two top barriers.
    - The Upper Midwest states have an additional challenge of not being ZEV states. There is a lack of diverse vehicle availability or manufacturing of alternative fuel vehicles.
- Partnerships with seven upper Midwest Clean Cities are intended to increase awareness.
- Chicago DOT has partnered with the Chicago Area Clean Cities Coalition to help reduce barriers to awareness.
    - For one event, they put a Chevy Volt in the middle of a jazz festival with thousands of people present. That introduced the public to EVs and got them into cars.
    - They have hosted events reaching 50,000 people and have gotten 3,000 participants to test drive an EV.
    - They have hosted booths at large-scale events, including auto shows and state fairs. Electric utilities have helped to fund initiatives like these.
    - Partnering with local events, like farmers markets, at malls, and in communities can reach people that may never have thought of EVs. At events like these, coalitions or organizations can explain that there are variety of affordability levels for alternative fuel vehicles. Chicago's aim is to educate a variety of consumers.
    - One of the most important initiatives is the peer exchange. Chicago is developing a way to help other not-for-profits around the country to duplicate this model.
    - Chicago also has a program for ride-sharing services.
        - A single ride-sharing vehicle can have 10,000 riders per year. Give EV drivers the tools to educate their riders about the benefits of EVs.
- Other actions to reduce barriers to greater EV adoption include:
    - Hosting dealership trainings events, which are brand-neutral and are not intended to generate sales.
        - One challenge raised is the lack of incentives to sell EVs at the dealership level.
    - Promoting workplace charging, because many residents do not have public parking in Chicago.
    - Installing EV charging stations in more multifamily units.
        - 70% of Chicago residences are multifamily units.
    - Hosting EV forums that can empower EV owners to educate their friends and colleagues on the benefits of these cars.
    - Working with fleets to allow members to test drive a car over a period of a week.

During the discussion that followed, the following emerged as key takeaways:

- Dealership involvement and liability issues have been a challenge for Chicago for test-drive events.

    - One issue has been putting miles on showroom electric vehicles. Dealerships are not responsible for providing vehicles, and only one manufacturer has provided them for use. Owners are occasionally willing to lend their cars.
    - Wisconsin requires signed waivers and for users to pass a breathalyzer test before ride and drive events. This helps minimize any liability issues that might otherwise come up.
- For information on the waste stream developed by EVs, Lisa Thurstin, Minnesota Clean Cities, is developing a concept paper. Tesla, Argonne National Lab, and NREL are all working on this issue. Additionally, the U.S. Department of Energy will likely be funding more research on the recycling of EV batteries.
    - 80% of an automotive battery's life can be used for stationary storage.
    - Only one facility in Ohio reclaims batteries for vehicles.
- Increasing signage is critical for a number of reasons:
    - For those with range anxiety, signage is extremely important;
    - For fleets making financial decisions, signage can be a subliminal message; and
    - Signage can convince more people to adopt alternative fuel vehicles.
- At a planning level, environmental justice communities are often not included in conversations about alternative fuels. Communities can be displaced when EV charging stations are installed. Many members of those communities might not even be using those charging stations. It is important to consider the potential impacts of charging station installations on communities, including gentrification and increasing traffic in low-income areas, and consider focusing installations in multi-unit dwellings. It is also important to think beyond personal vehicles and more towards the electrification of transit systems. Focusing efforts on communities where diesel emissions are highest can have higher positive impacts to air quality.
- It is important to consider opportunities to advance heavy-duty vehicles and clean vehicle technologies along major freight hubs (i.e., inter-modal connectivity, heavy-duty operations, ways to inform and educate goods-oriented companies, etc.). Stakeholders may want to consider effective ways to communicate with the goods industry around freight hubs.

Funding for Corridors: Federal & State Funds, Volkswagen Settlement and Innovative Financing

Partners evaluated the challenges and opportunities to fund alternative fuel infrastructure projects to expand corridors. Topics included federal grant programs such as the Congestion Mitigation and Air Quality Improvement (CMAQ) program, state status on Volkswagen (VW) Settlement funds and potential use for infrastructure, the role of utilities in infrastructure costs and

Figure 10. Panelists discuss funding opportunities for alternative fuel corridors.

development, and approaches to innovative financing.

Samantha Bingham, Clean Transportation Program Director, Chicago Department of Transportation & Chicago Area Clean Cities [Drive Clean Chicago]

See presentation for more information.

- Chicago has leveraged technical resources and the Clean Cities network to help educate the city on what they can do to advance alternative fuel vehicles.
    - Leveraged about $70,000,000 for federal and local funding for incentive programs. The city's fleet is fuel-neutral, using E85, CNG, electric vehicles, and more.
    - Most recently, CMAQ funding has helped them deploy clean trucks and buses.
- Drive Clean Chicago received $15,000,000 in 2011. This was focused in three different segments: a taxi voucher fund, a truck voucher fund, and a station rebate fund.
    - Taxis are high in mileage, so the city established vehicle voucher incentives of up to $10,000 to vehicle operators to support the purchase of PEV and CNG vehicle technologies.
        - The city decided not to invest in EVs for personal passenger vehicles but rather for fleets.
        - Argonne National Laboratory and the AFLEET tool have helped confirm that EVs ultimately produce fewer greenhouse gas emissions than other alternative vehicles, even though the grid is mostly coal.
    - Drive Clean Truck Program is a point of sale/voucher program.
        - Transparency is important; all paperwork and incentives related to the program are online in a user-friendly capacity. Any fleet or dealership can see how much funding is available, check eligible vendors, etc.
        - The program covers 80% of the incremental cost of electric and hybrid trucks and buses.
        - The mayor supported Drive Clean Truck, which was launched during a very cold winter and lessened interest significantly. The city launched a case study on the effects of lower temperatures on electric batteries and found that there is a 60% reduction in range at 14 degrees Fahrenheit and below. By including hybrids into the mix and partnering with industry, the city funded 50 EVs and 200 hybrids, with extended range only needed in the winter.
    - Station Rebate Fund**:** Designated for funding public DC Fast Charging Stations.

Leigh Oesterling, Planning and Environment Team Leader, Ohio FHWA Division Office [Alternative Fuel Infrastructure/Transit]

See presentation for more information.

- Ohio FHWA Division Office has used CMAQ funding for infrastructure and alternative fuel vehicle fueling stations. Most of the funds are allocated to MPOs, who make the majority of funding decisions. The state does retain some of the funding.
- The Ohio legislature has a Diesel Emission Reduction Grant (DERG) program which offers approximately $10 million in funding biannually. It is a joint effort between Ohio DOT and Ohio Environmental Protection Agency (EPA).

- Ohio has done several transit/fueling stations.
    - The City of Hamilton applied for CNG fueling station through CMAQ.
    - One private CNG fueling station had a public-private partnership agreement, with Ohio EPA as the public partner. These projects were chosen by community members, so FHWA's role was to ensure they were eligible.
- DERG grants are available for funding alternative fuel replacements of diesel trucks. Frito-Lay and UPS have also contributed to grant opportunities or other funding sources.

Joyce Newland, Planning and Environmental Specialist, Indiana FHWA Division Office [Public Private Partnerships and Electric Vehicles]

- Indiana has biannual funding cycles for CMAQ. In 2016, they received two applications for public private partnerships to further electrification.
- DOT had one potential project with the Truck Stop Operator - Flying J for Truck Stop Electrification (TSE), which due to procurement requirements did not proceed. The project would have required a bidding process of a least three potential contractors which caused significant delays and the project did not proceed.

Angie Poole, Transportation Planner, Iowa Department of Transportation [Iowa Volkswagen Settlement Plan]

See presentation for more information.

- To develop its Volkswagen Settlement Beneficiary Mitigation Plan, Iowa DOT assembled a working group of representatives from the Departments of Administrative Services, Education, Justice, Natural Resources, and Public Health, as well as the Iowa Economic Development Authority. The partnership took the following actions:
    - Created a website and sent out a survey, with over 500 public comments on ways to use VW Settlement funds.
    - Scored projects using a competitive grant. Funding priorities included achieving nitrogen oxide (NO_x) reductions and increasing cost-effectiveness on projects.
    - Set three application cycles to obligate all funds over the course of ten years. Created a pool to use left-over funds, and set funding brackets.

During the discussion that followed, the following emerged as key takeaways:

- Utilities are important partners and are necessary for success. Utilities have helped reduce barriers on infrastructure. They have been creative in interpreting certain tariffs, which would have made chargers cost prohibitive. Customers often are not aware of existing programs, so utilities can get the word out about funding opportunities and encourage participation.
    - Benefits to utilities include bringing in new customers, who increase revenue and are an incentive for fuel providers. Building EV infrastructure at larger store locations (i.e., box stores) provides a new source of ancillary revenue for industries.

- CMAQ funds support air quality improvements and can include initiatives such as public education and green fleet programs. MPOs have different requirements, depending on region. Federal funds are allocated to states that ultimately decide how they choose to spend it. States can consult with MPOs on this. Language in the FAST Act suggests an added "priority" for electric vehicle and natural gas vehicle infrastructure along certain corridors.
- The VW Settlement and the Diesel Emissions Reduction Act both have a scrappage requirement, which can be a challenge for municipal fleets because there isn't an easy mechanism to factor in the time and labor required for the process. Chicago decided not to establish a scrappage requirement because they wanted to expedite EV deployment and market growth.
    - There may or may not be a scrappage requirement for CMAQ funding, depending on the state. CMAQ funding can take a long time.
- Esri and Edison Electric Institute are two organizations that produce helpful technological research. Utilities also participate in influential research and can prove to be a useful resource.

Our Path Forward: Sustaining Partnerships for Corridor Growth

Partners summarized convening outcomes, evaluated opportunities to improve regional coordination, committed to partnership, and put forth actions to expand alternative fuel corridors and the marketplace for advanced vehicle technologies in the Midwest.

Figure 11. Convening attendees indicate their next steps for advancing alternative fuel corridors in the Midwest.

During this session, participants were asked several questions about advancing alternative fuel corridors in the Midwest into the future. In response to a question on next steps for FHWA, the following actions items were raised:

- Continue being available to Clean Cities and other organizations for questions;
- Indicate which corridors could be designated as corridor-ready based on existing infrastructure (the NREL corridor tool under development will help with this);
- Foster collaboration beyond the annual alternative fuel corridor designation application cycle;
- Evaluate the MUTCD memorandum to see if the signage guidance facilitates the desired signage objectives;
- Use the New York Metropolitan Transportation Council inclusion of alternative fuel corridors within the regional freight plan as a template for replication;
- Provide examples of public-private partnerships that were successfully executed for alternative fuel infrastructure;
- Provide guidance documents that include funding options; and
- Provide links to existing interstate alternative fuel corridor initiatives.

In response to a question about the vision for the network of alternative fuel corridors in the Midwest in 10 years, participants indicated the following:

- The system of alternative fuel infrastructure should be invisible, in the sense that drivers should have confidence to know where fuels are available and assume they are available, as they currently do with conventional fuels.
- It is important for interim steps to be developed now to accommodate a variety of ways future alternative fuel corridor development can unfold.
- If the alternative fuel corridor program is amended, perhaps biofuels could be reconsidered and included as one of the alternative fuels.

In response to a question about how promoting alternative fuel technologies relates to the economy and job creation, participants noted the following:

- States without alternative fuel infrastructure are not able to attract a certain portion of tourists, such as affluent EV owners.
- Local industrial parks could provide manufacturing jobs and source the raw materials needed for alternative fuel technologies.
- Additional data and case studies to show the economic argument in support of alternative fuel technologies would be helpful. Particularly in states with high reliance on the petroleum industry, highlighting the advantages of having a diversified portfolio could help the economic argument.
- It is important to find areas of collaboration among entities that may typically compete against each other.

Lastly, participants were asked to share their immediate next steps to further movement on alternative fuel corridors in the Midwest. The responses included the following:

- Enhance collaboration between FHWA Division offices and state DOTs to help identify corridors for designation.
- Reengage existing alternative fuel corridor working groups, such as the I-80 working group.
- Prepare for Round 3 of the alternative fuel corridor nominations.
- Support the launch of the Alternative Fuels Council and develop corresponding guidance documents.
- Continue education of DOT colleagues about corridors and available resources.
- Integrate corridor designations into existing planning processes and networks such as freight.
- Develop a Midwest MOU similar to the Regional Electric Vehicle (REV) West Plan.
- Engage traffic engineers on corridor designations and the role of signage.
- Work with state fleets to lead by example on alternative fuel usage.
- Utilize VW Settlement funds to develop alternative fuel infrastructure.
- Continue educating state legislatures on alternative fuels so they can develop informed policy.

Summary of Convening Evaluations

An online survey was distributed to attendees on June 15, 2018. The survey was intended to assess the effectiveness of the convening, as well as inform the development of future convenings. A total of 20 attendees responded to the survey. Their answers are summarized below.

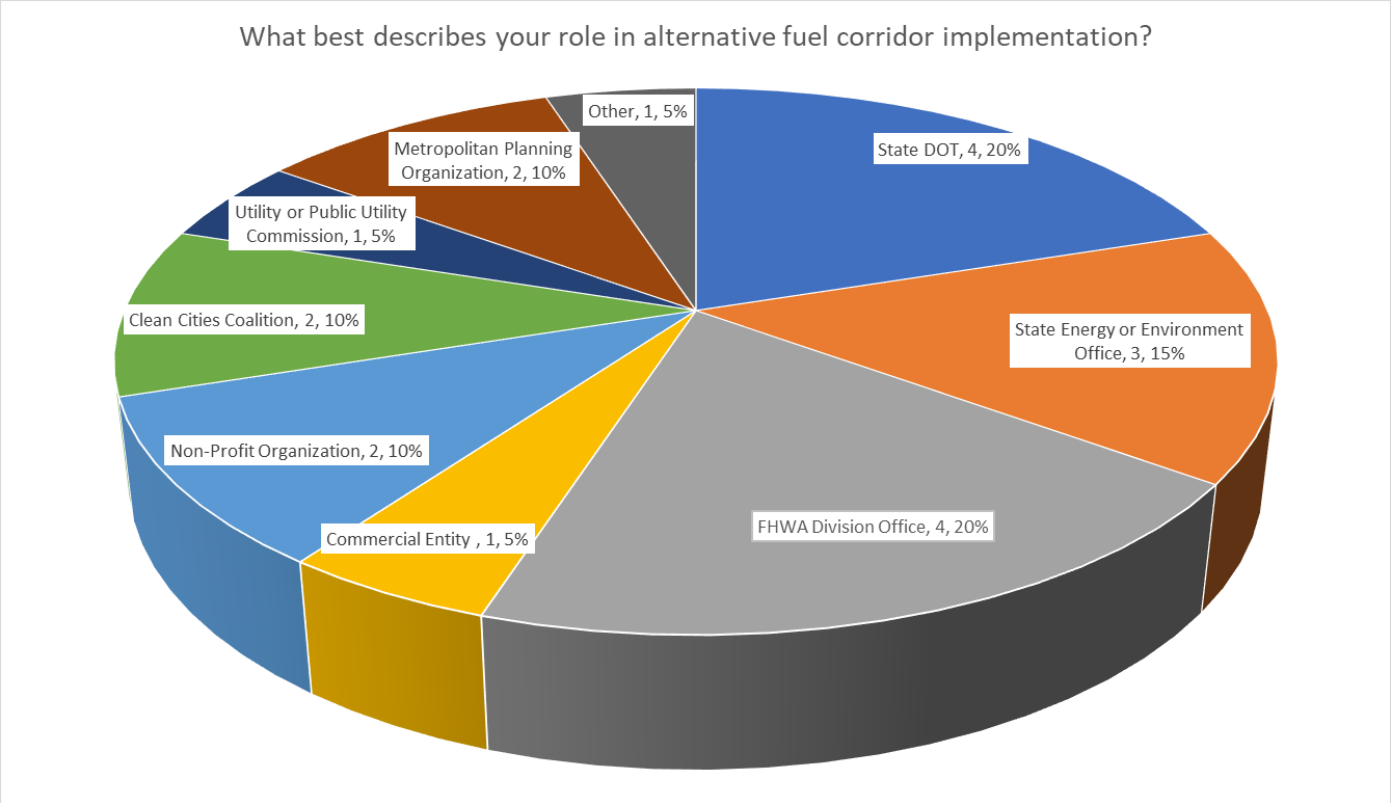

Figure 12. Breakdown of survey respondents by role in alternative fuel corridor implementation.

Out of those that responded to the survey, most were state DOT or FHWA representatives. The respondent who selected "Other" specified that he/she is from the public transit sector.

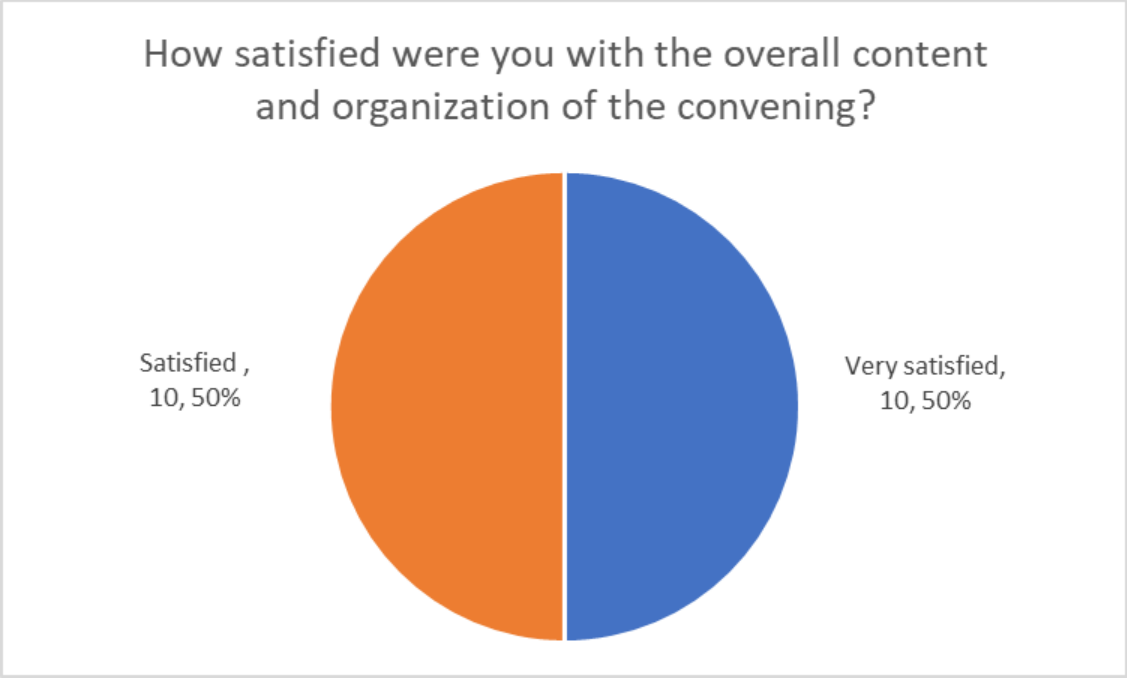

Figure 13. Pie chart showing respondents' satisfaction with the overall content and organization of the convening.

All respondents (100%) were either satisfied or very satisfied with the overall content and organization of the convening. No respondents indicated that they were "somewhat satisfied" or "not satisfied," which would have required further explanation.

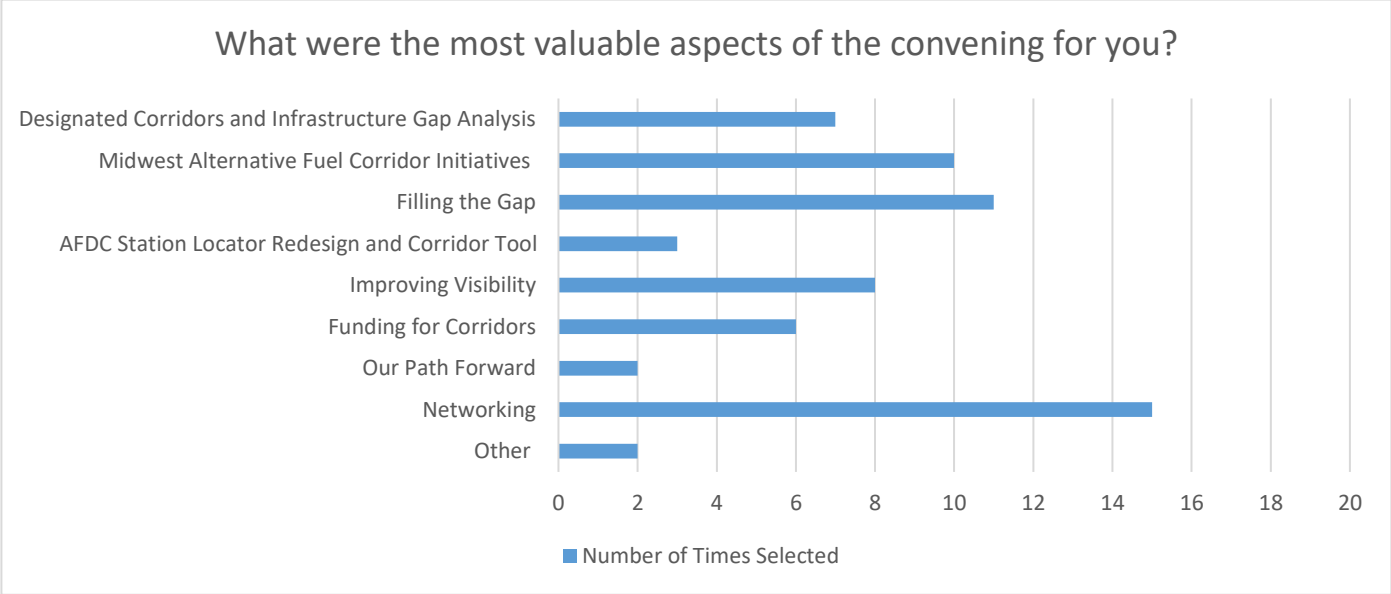

Figure 14. Bar graph showing the most valuable aspects of the convening, according to attendees (each attendee received multiple votes).

Survey respondents found that networking was the most valuable portion of the convening. Two respondents selected "Other," with one writing that all the aspects listed were crucial and another writing that the convening allowed him/her to "see the energy and effort in these corridors," which was needed to "continue the synergy." Respondents were allowed to select more than one answer to this question.

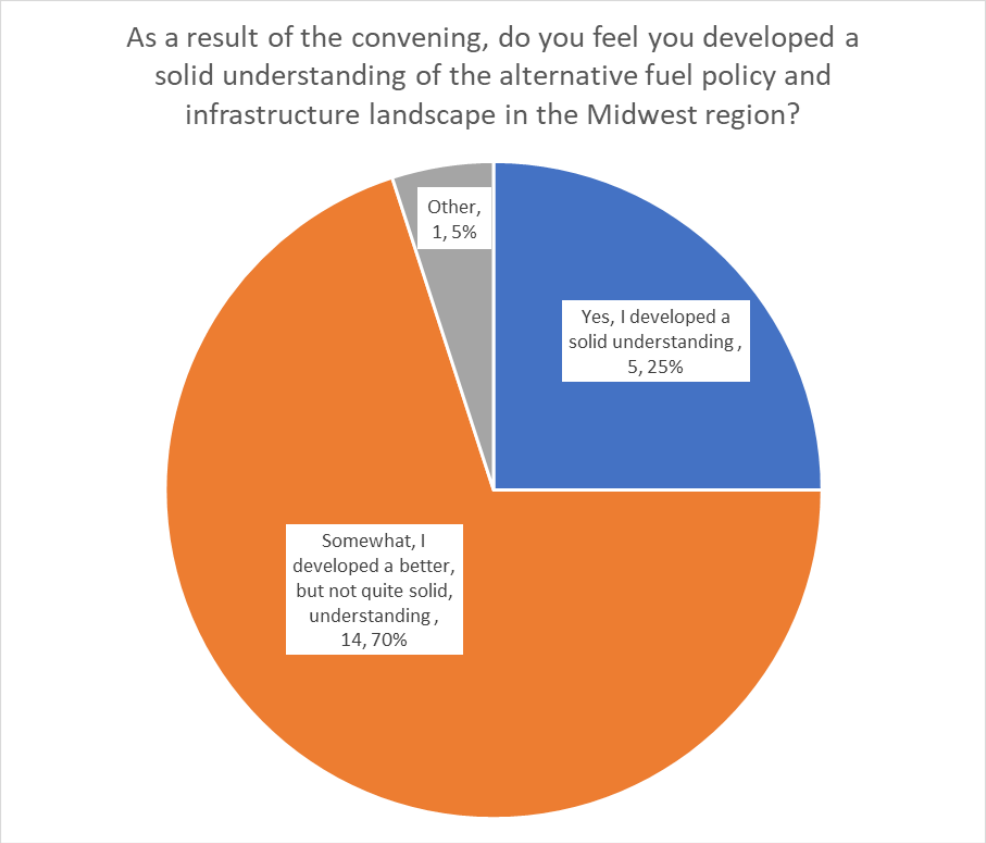

Figure 15. Pie chart of respondents' understanding of the alternative fuel policy and infrastructure landscape in the Midwest region, as a result of the convening.

Most respondents (70%) felt they developed a better, but not quite solid, understanding of the alternative fuel policy and infrastructure landscape in the Midwest region, as a result of the convening. No respondents selected "No, I do not feel familiar with the policy and infrastructure landscape" or "N/A, I was fully familiar with it before the convening." Some of the respondents (25%) said they developed a solid understanding. One respondent selected "Other," saying that he/she just needs to do more reading but left with a better understanding of the initiative and stakeholders.

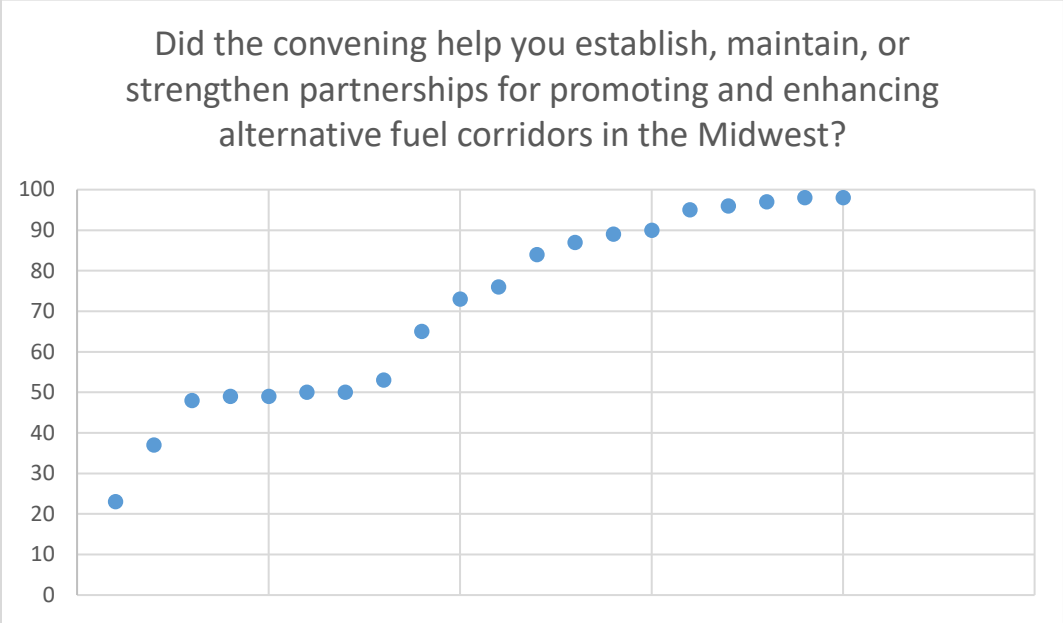

Figure 16. Scatter plot showing the degree to which the convening helped establish, maintain, or strengthen partnerships, rated from 0 to 100.

This question presented respondents with a slider that they could shift along a numbered spectrum, with 100 indicating a response of "very much so," 50 indicating a response of "somewhat," and zero indicating a response of "not so much." 15 of the 20 respondents indicated a 50 or higher for the degree to which the convening helped establish, maintain, or strengthen partnerships for promoting and enhancing alternative fuel corridors in the Midwest. The average rating among all 20 respondents was 70.35.

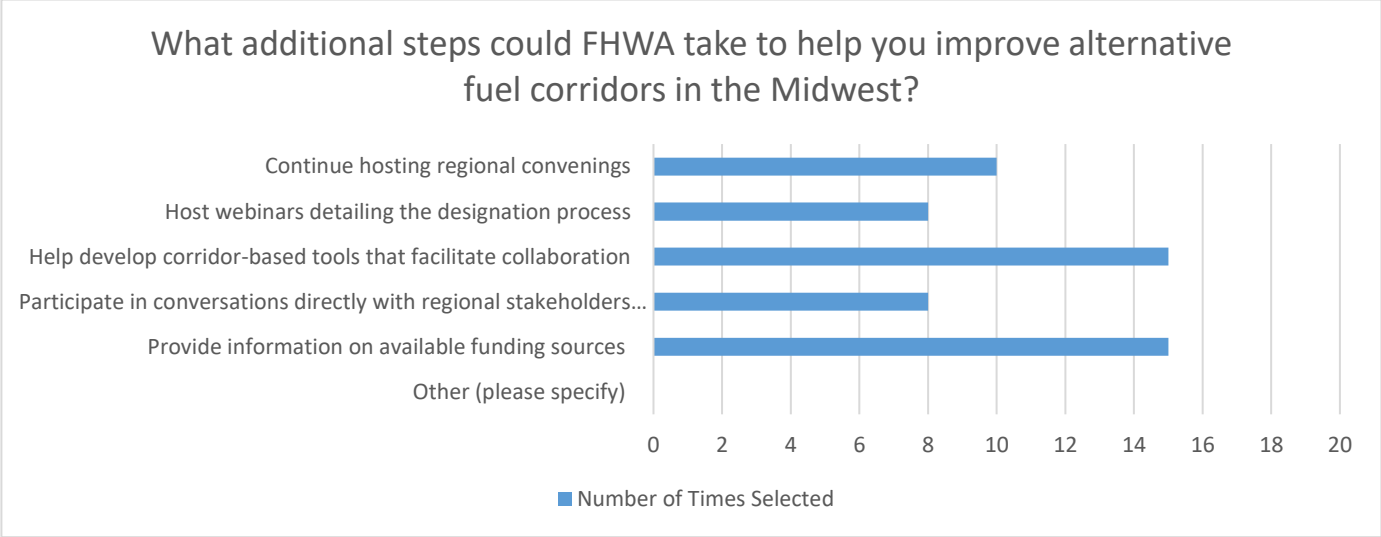

Figure 17. Bar graph showing FHWA steps to improve alternative fuel corridors in the Midwest (each respondent received multiple votes).

Survey respondents equally and most commonly selected "help develop corridor-based tools that facilitate collaboration" and "provide information on available funding sources" as an additional step that the FHWA could take to help improve alternative fuel corridors in the Midwest. No respondents selected "Other." Respondents were allowed to select more than one answer to this question.

The last four questions in the survey were open-ended. The first of these asked "What was your key takeaway or action item from the discussion at the end of the day on Sustaining Partnerships for Corridor Growth?" Several responses (11) referenced communication and collaboration among stakeholders as their biggest takeaway. The other responses were unique and are captured below:

- Corridor designation in my state is in the distant future.
- Interest in learning about the concept of an anchor tenant at alternative fuel stations.
- Follow up with Ohio DOT to understand how they are planning to implement signage and future designations.
- Enormous room for growth; industry needs more education to do so.
- Action item follow up on funding.
- To continue educating legislators in Minnesota about electric vehicles to ensure we have effective policy that helps meet goals and to help stakeholders in Minnesota and the Midwest collaborate on shared goals in building out alternative fuel corridors.
- This meeting allowed me to see the energy and effort going on in these corridors. Needed this to continue the synergy.
- Understanding of the role and goals of the AFC. Recognition of the affected interests and parties to this discussion.

The second open-ended question asked, "Were there any stakeholders who were missing from the discussion?" Respondents replied with the following:

- At times I think it wasn't clear if we were supposed to really focus on corridors specifically or alt fuels more generally. Certainly there is overlap, but if we're talking alt fuels more generally, there are probably other groups that should be involved. For instance, community/environmental justice groups.
- Municipalities, Coops
- State Office of Environmental Management, the Indiana Office of Energy, MPOs who supply funding for CMAQ projects in Indiana.
- Maybe a few more MPOs in the corridors, and maybe EPA for the engines specs.
- Ohio DOT and Clean Fuels Ohio (they were on the phone, at least at the start, but it was unfortunate they were not present).

The third open-ended question asked, "Were there any topic areas that were not covered or that should have received more focus?" Respondents replied with the following:

- National signage, what is the time frame to see consistency. Group buy to get best pricing for all states.
- I think many of the participants were focused far too much on Electric and Electric Infrastructure. Bridge Fuels are very important to the Midwest.
- An inclusion of biofuels and the possible role they can play in building out corridors would have been helpful.
- Environmental impacts, both positive and negative, of alternative fuel vehicles and use.

- I worry that Electrify America investments and VW Settlement funds are going to get concentrated in the same places (at least in Ohio). There may be nothing a meeting can do about that; there may be nothing anyone can do about that. It's a different kind of funding discussion: avoiding duplicating investments.

The final question allowed respondents to provide additional open-ended feedback or suggestions for future convenings. Respondents replied with the following comments:

- I enjoyed the convening and was able to put a face to the name and establish new connections.
- It was very interesting and useful!
- Public Private Partnerships, I also think that besides Alt Fuel Corridors are there other opportunities between these groups to include, i.e. training, smart cities, road maintenance, more of the station providers along corridors, standards (Making the corridors as standardized as possible) Lighting, ADA compliance etc.; Opportunities for multiple RFQs be leveraging purchasing power's etc.
- I know FHWA wanted to be fuel-neutral, but 75% of the room was most interested in DCFC. Might just need to accept that reality in the future meetings. Getting Electrify America in the room would be beneficial for that DCFC conversation.

Appendix I: Convening Agenda

7:45 AM **Registration and Continental Breakfast**
Sign in, introduce yourself to new partners, and enjoy morning refreshments.

8:30 AM **Host Welcome**
Charles Zelle, Commissioner, Minnesota Department of Transportation
Diane Turchetta, Transportation Specialist, U.S. Federal Highway Administration

Minnesota leadership and the Federal Highway Administration's (FHWA's) lead on alternative fuel corridors provide welcome and introductory remarks on the importance of regional coordination and partnerships to support the development of alternative fuel corridors and a sustainable transportation network.

8:50 AM **Setting the Stage: Partnership Goals and Objectives**
Geoff Morrison, Senior Associate, Sustainable Transportation Practice, Cadmus
Alycia Gilde, Director, CALSTART

Get ready to "roll up your sleeves" for day-long, results-driven discussions as meeting hosts present convening objectives to enhance multi-state collaboration, evaluate key barriers, and find solutions to advance alternative fuel corridors in the Midwest.

9:00 AM **Designated Corridors and Infrastructure Gap Analysis**
Mike Scarpino, Transportation Project Engineer, U.S. Department of Transportation Volpe Center
Stephen Costa, Technical Analyst, U.S. Department of Transportation Volpe Center

Before diving into a discussion on the barriers and opportunities to infrastructure development, FHWA provides an update on regional alternative fuel corridors analysis highlighting potential target areas for continued corridor development.

9:20 AM **Midwest Alternative Fuel Corridor Initiatives**
Moderator: **Marcy Rood**, Principal Transportation Analyst, Argonne National Lab

Carl Lisek, Executive Director, South Shore Clean Cities [I-80 Corridor]
Lisa Thurstin, Senior Manager, Clean Fuel & Vehicle Technologies, American Lung Association and Minnesota Clean Cities [Michigan to Montana "M2M" Alternative Fuels Corridor]
Tim Sexton, Director, Transit and Active Transportation, Minnesota Department of Transportation [I-94 Corridor]
Mark Finnicum, Chief Operations Officer, Stark Area Regional Transit Authority (SARTA) [Hydrogen Roadmap for the Midwest]

Partners throughout the region present on innovative programs currently advancing alternative fuel corridors for electric, hydrogen, propane, and compressed natural gas vehicles. Hear first-hand about the partners, technologies, and funding that are making it possible.

10:20 AM **Quick Break**

10:35 AM **Filling the Gap: Strategy, Technology, and Partnership for Infrastructure Development**
Gilbert Nunez, Manager, Customer Solutions and Business Development, Alliant Energy
Joel Fasnacht, Business Development, Alternative and Commercial Fuels, Kwik Trip
Kevin Miller, Director, Public Policy, ChargePoint
Ryan Erickson, General Manager of Strategic Development, Trillium
Jeff Hove, Fuels Specialist, National Association of Truck Stop Operators (NATSO)

Public and private partners discuss the challenges and best practices for the planning and implementation of alternative fuel corridors. Technology and fuel suppliers, utilities, government and fleets share perspectives on how to "fill the infrastructure gap." During this session, FHWA seeks feedback on how the Agency can help states meet their corridor goals.

12:05 PM **Lunch Box and Tools**
- *EVI-Pro Lite Tool*
- *AFDC Locator*
- *FHWA Alternative Fuel Toolkit*
- *Collablocation*
- *EV Explorer*
- *EV Emissions Tool*

Enjoy lunch while learning about the helpful tools available to support with alternative fuel corridor development.

12:50 PM **Sneak Preview: Alternative Fuels Data Center Station Locator Redesign and Corridor Tool**
Johanna Levene, Manager - Transportation Data and Tools, National Renewable Energy Laboratory
Matt Rahill, Alternative Fuels Data Center Lead, National Renewable Energy Laboratory

The National Renewable Energy Laboratory (NREL) is working closely with FHWA to make it easier to plan for alternative fuel infrastructure along highway corridors. During this session, representatives from NREL will share upcoming changes to the Alternative Fuels Data Center (AFDC) alternative fueling station locator and introduce a corridor tool under development, allowing attendees to provide their input and feedback.

1:20 PM **Improving Visibility: Posting Signage and Promoting Benefits of Alternative Fuel Corridors**
Ryan Erickson, General Manager of Strategic Development, Trillium [Perspective shared for Love's Travel Stops]
Chris Schmidt, Air Quality Manager, Illinois Department of Transportation
Lorrie Lisek, Executive Director, Wisconsin Clean Cities [Wisconsin Smart Fleet]
Carl Lisek, Executive Director, South Shore Clean Cities [Green Fleet Indiana]
Samantha Bingham, Clean Transportation Program Director, Chicago Department of Transportation & Chicago Area Clean Cities [Midwest EVOLVE]

During this session, partners discuss the strategies, partnerships, and resources required to build awareness on the availability and benefits of alternative fuel corridors, as well as experiences developing corridor signage and how strategic outreach can drive demand and market growth for advanced vehicles.

2:05 PM **<u>Funding for Corridors</u>: Federal & State Funds, Volkswagen Settlement and Innovative Financing**

Samantha Bingham, Clean Transportation Program Director, Chicago Department of Transportation & Chicago Area Clean Cities [Drive Clean Chicago]

Leigh Oesterling, Planning and Environment Team Leader, Ohio FHWA Division Office [Alternative Fuel Infrastructure/Transit]

Joyce Newland, Planning and Environmental Specialist, Indiana FHWA Division Office [Public Private Partnerships and Electric Vehicles]

Angie Poole, Transportation Planner, Iowa Department of Transportation [Iowa Volkswagen Settlement Plan]

Partners evaluate the challenges and opportunities to fund alternative fuel infrastructure projects to expand corridors. Topics include federal grant programs such as the Congestion Mitigation and Air Quality Improvement (CMAQ) program, state status on Volkswagen (VW) Settlement funds and potential use for infrastructure, the role of utilities in infrastructure costs and development, and approaches to innovative financing.

3:15 PM **Quick Break**

3:30 PM **<u>Our Path Forward</u>: Sustaining Partnerships for Corridor Growth**

Partners summarize convening outcomes, evaluate opportunities to improve regional coordination, commit to partnership, and put forth actions to expand alternative fuel corridors and the marketplace for advanced vehicle technologies in the Midwest.

4:30 PM **Adjourn**

Appendix II: Convening Participant List

State	Contact Name	Title	Organization	Contact Email
Attendees				
IA	Angie Poole	Office of Program Management	Iowa DOT	Angela.Poole@iowadot.us
IA	Gilbert Nunez	Manager, Customer Solutions and Business Development	Alliant Energy	GilbertNunez@alliantenergy.com
IA	Jeff Hove	Fuels Specialist	NATSO	jhove@natso.com
IA	Mike LaPietra	Environment and Realty Manager	FHWA Div. Office	Mike.LaPietra@dot.gov
IA	Nick Nation	Manager, Electric Distribution Engineering	MidAmerican Energy	NJNation@midamerican.com
IA	Ron Burmeister	Vice President	Iowa 80 Group	ron.burmeister@iowa80group.com
IA	Sam Herro*	Manager - Retail Fuel	Kum and Go	sam.herro@kumandgo.com
IA	Stephanie Weisenback	Project Manager	Iowa Economic Development Authority	Stephanie.weisenbach@iowaeda.com
IL	Betsy Tracy	Transportation Planning Specialist	FHWA Div. Office	Betsy.Tracy@dot.gov
IL	Chris Schmidt	Air Quality Manager	IL DOT	Christopher.Schmidt@Illinois.gov
IL	Doug Ferguson	Senior Analyst	Chicago Metropolitan Agency for Planning	DFerguson@cmap.illinois.gov
IL	Marcy Rood	Principal Environmental Analyst	Argonne National Lab	mrood@anl.gov
IL	Samantha Bingham	Clean Transportation Program Director	Chicago Department of Transportation	samantha.bingham@cityofchicago.org
IN	Carl Lisek	Executive Director	South Shore Clean Cities	clisek@southshorecleancities.org
IN	Jim Sturdevant	Division Director, Traffic Management Division	IN DOT	jsturdevant@indot.IN.gov
IN	Joyce Newland	Planning and Environmental Specialist	FHWA Div. Office	Joyce.Newland@dot.gov
MN	Amanda Jarrett Smith	Air Policy Planner	MN Pollution Control Agency	amanda.smith@state.mn.us
MN	Katelyn Bocklund	Program Assistant	Great Plains Institute	kbocklund@gpisd.net
MN	Lisa Thurstin	Senior Manager: Clean Fuel & Vehicle Technologies	MN Clean Cities	Lisa.Thurstin@lung.org
MN	Nick Martin	Environmental Manager	Xcel Energy	Nicholas.F.Martin@xcelenergy.com
MN	Peter Buchen	Assistant State Traffic Engineer	MnDOT	peter.buchen@state.mn.us
MN	Rebecca Place	State Program Administrator	MN Pollution Control Agency	rebecca.place@state.mn.us
MN	Tim Sexton	Construction and Operations Section Director	MnDOT	timothy.sexton@state.mn.us
MN	Marcus Grubbs	Enterprise Sustainability Planner	State of MN, Department of Administration	marcus.grubbs@state.mn.us
MN	Ryan Erickson	General Manager of Strategic Development	Trillium	Ryan.Erickson@trilliumcng.com
ND	Richard Duran	Environmental & Planning Specialist	FHWA Div. Office	richard.duran@dot.gov
ND	Robert Moffitt	Clean Cities Coordinator	North Dakota Clean Cities	robert.moffitt@lung.org
OH	Alauddin	Assistant Chief	Ohio EPA	alauddin.alauddin@epa.ohio.gov

State	Contact Name	Title	Organization	Contact Email
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OH	Tim Kovach*	Air Quality Planner	Northeast Ohio Areawide Coordinating Agency	tkovach@mpo.noaca.org
OH	Jon-Paul d'Aversa*	Energy Planner	Mid-Ohio Regional Planning Commission	jpdaversa@morpc.org
OH	Joe MacDonald*	Manager of Environmental Planning	Northeast Ohio Areawide Coordinating Agency	JMacDonald@mpo.noaca.org
OH	Mark Finnicum	Chief Operations Officer	SARTA	MFinnicum@sartaonline.com
OH/IN	Matt Lindsay	Manager, Environmental Planning	Miami Valley RPC	mlindsay@mvrpc.org
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SD	Jerry Ortbahn	Transportation Programs Administrator	SDDOT	Jerry.Ortbahn@state.sd.us
SD	Mark Hoines	Planning Specialist	FHWA Div. Office	Mark.Hoines@dot.gov
WI	Charles Wade	Planning Section Chief	WI DOT	Charles.wade@dot.wi.gov
WI	Lorrie Lisek	Executive Director	Wisconsin Clean Cities	lorrie.lisek@wicleancities.org
WI	Matthew Spiel	Community Planner	FHWA Div. Office	matthew.spiel@dot.gov
WI	Joel Fasnacht	Business Dev., Alternative and Commercial Fuels	Kwik Trip	JFasnacht@kwiktrip.com
WI	Tom Nowakowski	Energy Innovations Manager	Wisconsin Office of Energy Innovation	Tom.Nowakowski@wisconsin.gov
CO	Johanna Levene	Manager - Transportation Data and Tools	National Renewable Energy Laboratory	johanna.levene@nrel.gov
CO	Matt Rahill	Software Developer	National Renewable Energy Laboratory	matt.rahill@nrel.gov
NY	Kevin Miller	Director, Public Policy	ChargePoint	kevin.miller@chargepoint.com
Organizers				
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MA	Mike Scarpino	Transportation Project Engineer	Volpe	Michael.Scarpino@dot.gov
MA	Stephen Costa	Technical Analyst	Volpe	Stephen.Costa@dot.gov
MD	Geoff Morrison	Senior Associate	Cadmus	Geoffrey.Morrison@cadmusgroup.com
CA	Alycia Gilde	Director	CALSTART	agilde@calstart.org
MD	Oana Leahu-Aluas	Associate	Cadmus	Oana.Leahu-Aluas@cadmusgroup.com
MD	Elise Emil	Research Analyst	Cadmus	elise.emil@cadmusgroup.com

*Joined via teleconference