South Central Alternative Fuel Corridor Convening

Tuesday, April 9, 2019

North Central Texas Council of Governments, Transportation Council Room, 616 Six Flags Drive, Arlington, TX 76011

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 three rounds of alternative fuel corridor designations, the first in 2016, the second in 2017, and the third in 2018. 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 South Central Alternative Fuel Corridor Convening was the third convening in the series and was held in Arlington, TX on April 9, 2019. The convening facilitated meaningful engagement among stakeholders to identify key barriers and opportunities to expand the network of alternative fuel corridors in the South Central region. To support a regionally-tailored program on South Central 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 South Central Alternative Fuel Corridor Convening was held in Arlington, TX on April 9, 2019. More than 60 stakeholders participated in the convening. The day began with introductions from North Central Texas Council of Governments (NCTCOG) and FHWA leadership, followed by an overview of the goals and objectives for the convening. Next, stakeholders went around the room and introduced themselves and their prior involvement with alternative fuel corridors. To help set the stage and prepare participants for the day's discussion, representatives

[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.

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 South Central region.

Two representatives from the National Renewable Energy Laboratory (NREL) reviewed corridor developments since the first two rounds of designations, discussed round 3 designations, 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. After a panel discussion on existing alternative fuel corridor initiatives in the South Central region, sessions focused on key aspects related to improving the regional network of alternative fuel corridors. The "Building Awareness and Leveraging Partnerships" session focused on strategies, partnerships, and resources that organizations use to build awareness around 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. The next session, "Funding for Corridors," featured agency perspectives on funding opportunities, innovative financing strategies, and challenges and opportunities to fund alternative fuel infrastructure projects to expand corridors and vehicle adoption and build out the market. 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 South Central region that emerged throughout the day's presentations and discussions (Figure 1):

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

- FHWA's national alternative fuel corridor initiative is strengthening collaboration and corridor planning among states, resulting in increased partnerships.
- Alternative fuel infrastructure build-out along corridors designated as "Corridor-Pending" during the first two rounds of designations has allowed those corridors to become "Corridor-Ready."
- Resilience and redundancy should be taken into account when building out infrastructure along corridors. In particular, EV charging infrastructure gaps may be larger than they initially appear once connector types are considered.
- Agencies in the South Central region supporting corridor development with limited resources have found creative ways to make progress, including crowdsourcing suggestions for infrastructure placement. In cases of limited resources, partnerships are especially critical to make sure all available resources and support can be leveraged.
- DOTs can make consumers aware of station availability through signage and begin to normalize the use of alternative fuels. Louisiana is an important local example for states looking for guidance on how to successfully implement signage along corridors. DOTs may also want to explore innovative methods to

promote alternative fuel vehicles and infrastructure, such as through electronic messaging boards and pavement markings.

- A lack of site standardization poses a challenge for consumers. Some solutions to overcome this challenge include increased industry coordination, collocating alternative fuel vehicle infrastructure, and producing public guidance based on successful models.
- Because corridors exist across multiple jurisdictions, they present a unique infrastructure challenge. Thus, more coordination is required between states to ensure corridor and infrastructure development success.
- Likewise, because vehicle adoption barriers are likely experienced by multiple neighboring states, increased regional coordination through forums connecting partners, inter-state meetings, corporate partnerships and initiatives, and information sharing through case studies can empower larger scales of change.
- Encouraging states to submit nominations for alternative fuel corridors where there is demonstrated eligibility for designation is critical for building out the regional network of corridors. Clean Cities coalitions are a valuable partner for states to have when compiling alternative fuel corridor designation applications.

Convening Proceedings

Welcome

Chris Klaus, Senior Program Manager, North Central Texas Council of Governments

- The day kicked off with a warm welcome provided by Chris Klaus. Mr. Klaus provided an overview of the work and mission of the NCTCOG.
- NCTCOG takes a collaborative, multipollutant approach when considering climate and air quality in its work.
- NCTCOG adopted a clean vehicle policy a few years ago as well as a "bundle" policy, which involves requiring local governments to show how they implement environmental initiatives when they apply for funding support.

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

See presentation for more information.

- Next, Diane Turchetta delivered a presentation on the national alternative fuel corridor initiative and FHWA's role (Figure 2).
- The U.S. Department of Transportation has designated national corridors along major highways for:
    - Plug-in EV charging;
    - Hydrogen fueling;
    - Propane (liquefied petroleum gas) fueling; and
    - Natural gas (CNG, LNG) fueling.
- The benefits of having a national system of designated alternative fuel corridors include:

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

    - Allowing for inter-city, regional, and national travel using clean-burning fuels;
    - Alleviating range anxiety;
    - Integrating corridor planning with existing transportation planning processes;
    - Accelerating public interest and awareness of alternative fuel availability; and
    - Consumer-level interest is boosted by signage.
- Today, 100,000 miles are designated when combining all fuel types.
- The criteria for corridor designation were determined in conjunction with the Department of Energy and NREL.
- FHWA led three rounds of designations, in 2016, 2017, and most recently in 2018. 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 took place in the fall of 2018, with the third round of designation results 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.
- FHWA developed the regional alternative fuel corridor convenings to build collaboration and coordination among states and regional areas with common corridors.
- The first convening was held in June 2018 in St. Paul, Minnesota. The second convening was held in September 2018 in Charleston, SC. There will be two additional convenings held around the country following the convening in Arlington, TX.

Setting the Stage: Partnership Goals and Objectives

Oana Leahu-Aluas, Associate, Sustainable Transportation Practice, Cadmus

See presentation for more information.

- Oana conveyed the types of stakeholders that were participating in the convening, reviewed the responses to poll questions attendees were asked prior to the convening, and presented a word cloud showing what attendees indicated they were hoping to get out of the meeting.

The breakdown of attendees at the convening is shown below (Figure 3).

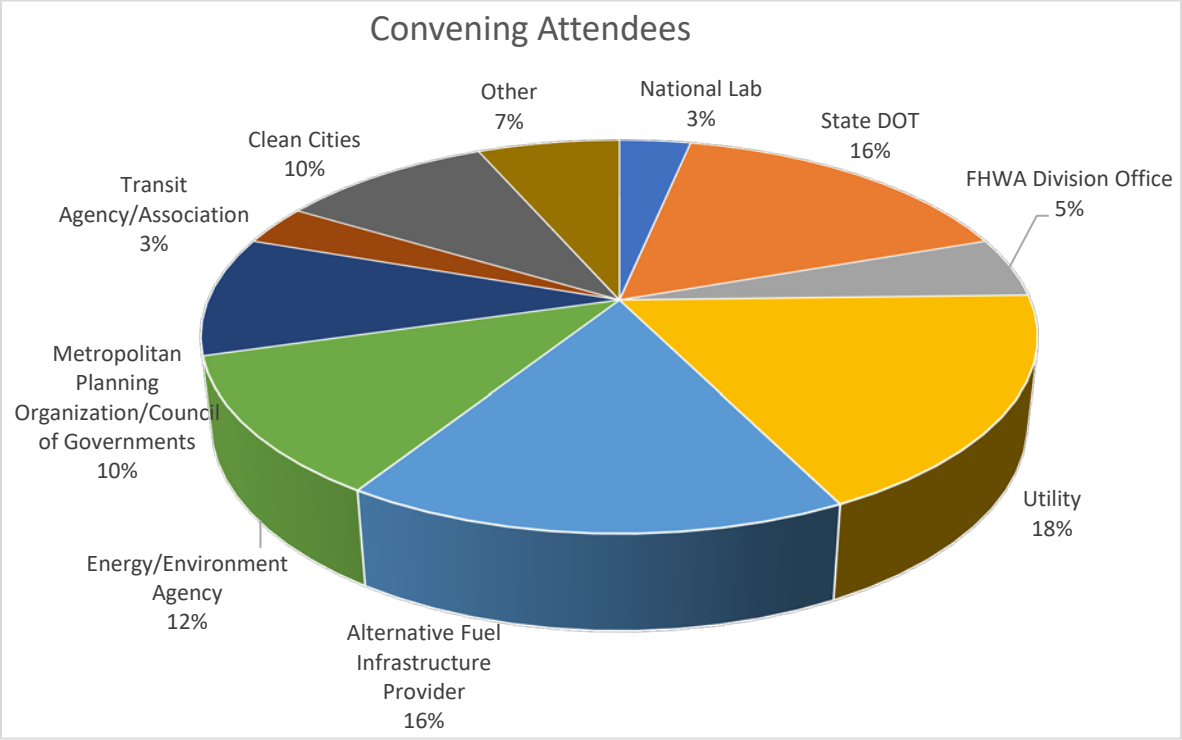

Figure 3. Breakdown of South Central Convening attendees by representative organization.

The results of three questions posed to attendees before the convening are shown below (Figure 4, Figure 5, Figure 6).

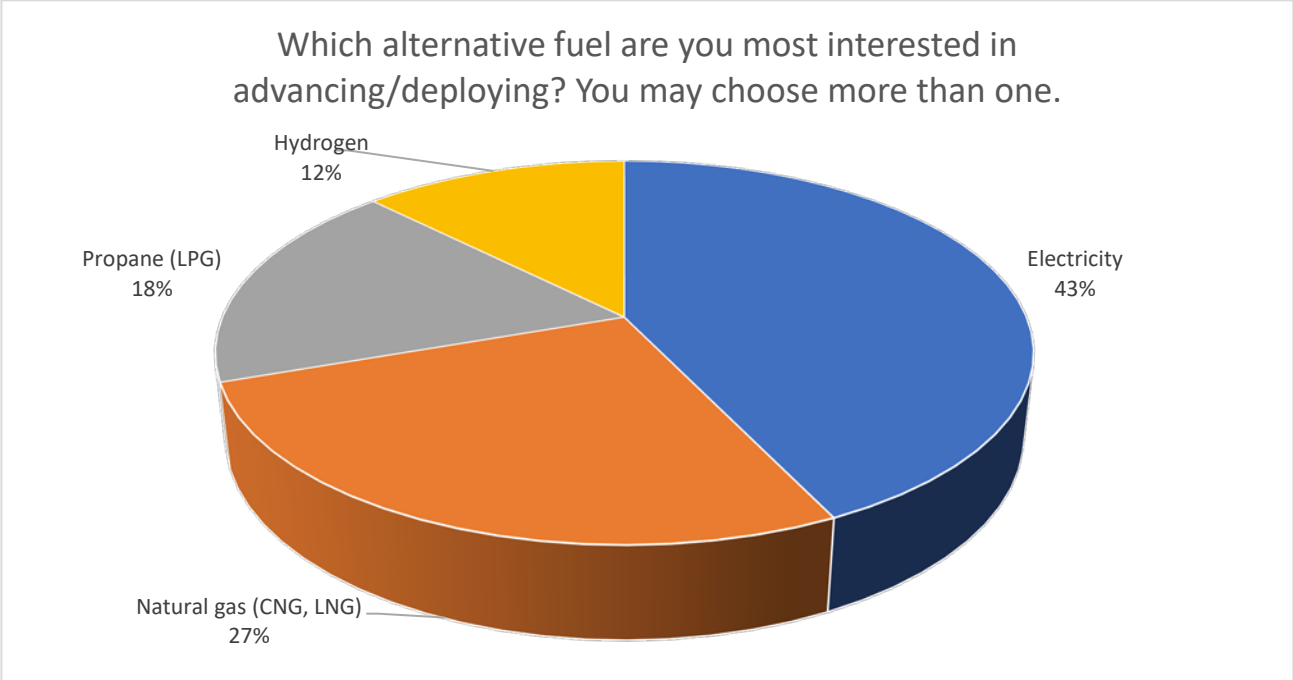

Figure 4. Pie chart showing which alternative fuels attendees were most interested in advancing or deploying.

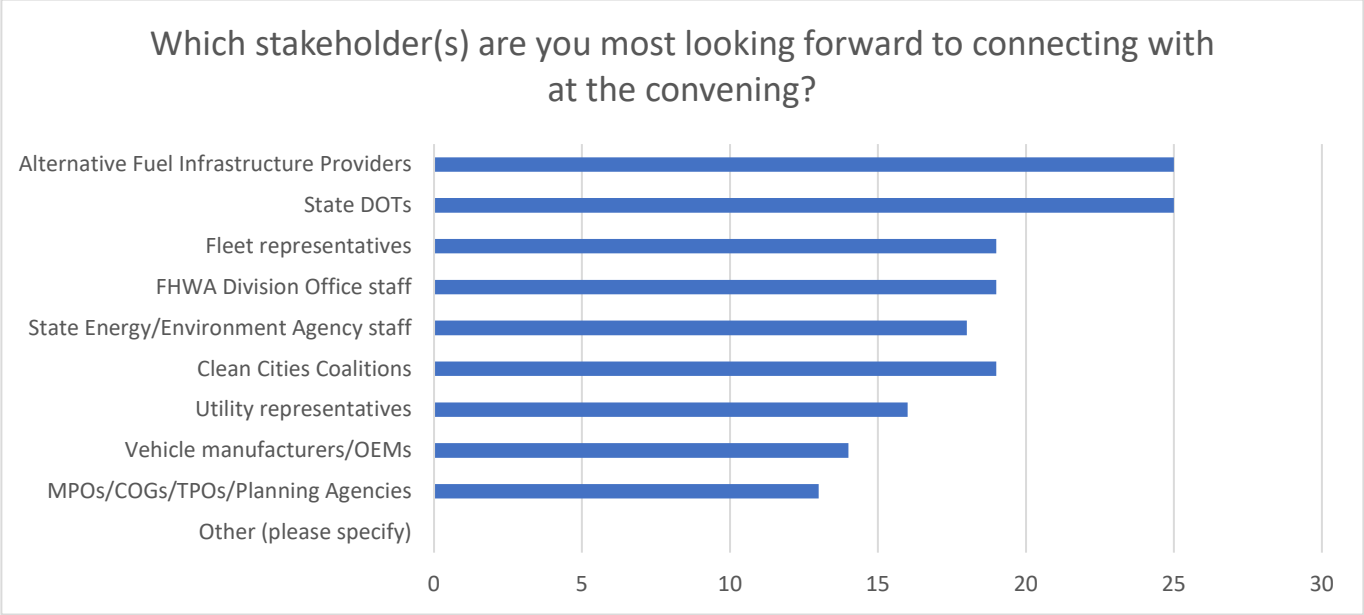

Figure 5. Bar graph showing the stakeholders whom convening attendees were most interested in connecting with.

Figure 6. Word cloud showing what attendees hoped to achieve during the convening, using one word.

Alycia Gilde, Director, CALSTART

See presentation for more information.

- Alycia established 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 attendee engagement and participation throughout the day.

South Central Corridor Analysis and Planning Tools

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

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

Johanna Levene, Manager, Transportation Data and Tools, National Renewable Energy Laboratory

Steve Lommele, Clean Cities Project Leader, Transportation & Hydrogen Systems Center, National Renewable Energy Laboratory

See presentation for more information.

- Mike and Stephen began their portion of the session by presenting maps showing existing rounds 1 and 2 designations for EV, CNG, propane, hydrogen, and LNG corridors.
- 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.
- Next, Johanna reviewed corridors designated as pending in rounds 1 and 2 to showcase those that now meet the criteria for ready status.
    - New Corridor-Ready designations for EVs in Oklahoma are located near Oklahoma City along Routes 40, 44, and 35.
    - New Corridor-Ready designations for EVs in Texas are located near Houston along sections of Route 69 and Route 10. There are 55 miles of new EV infrastructure corridors along five highways. There are also several new DCFC stations in Louisiana, Oklahoma, Texas, and three in Arkansas.
- Because round 1 designations included Level 2 EV charging stations but the later designations required that chargers be DCFC, there are still Level 2 charging stations along designated highways. Johanna suggested that transportation planners consider replacing those Level 2 charging stations with DCFC based on the maps of corridor designations available on the NREL website. Level 2 chargers are particularly abundant near San Antonio, Texas.
- Some key new Corridor-Ready highway segments for CNG are a stretch of Route 75 in Texas and Route 69 in Oklahoma. Additionally, a new Corridor-Ready stretch is along the southern section of Route 45 near Houston, Texas. In total, 183 miles of new corridors on three highways were designated as Corridor-Ready with the refresh of round 1 and 2 designations.
- There are several new highway segments designated as Corridor-Ready for LNG in Texas in the Houston and Dallas/Fort Worth metropolitan regions. Significantly, 580 miles of new corridors have been designated on nine highways as Corridor-Ready.
- Texas has three new highway segments designated as Corridor-Ready for propane. These are located along I-10, I-30, and I-45 in Texas. With the propane corridor refresh, 168 miles of new corridors were designated.
- Johanna presented a round 1 electric corridor resiliency analysis evaluation and determined that in round 1, three highway regions, including Dallas/Fort Worth, Houston, and San Antonio, were awarded

corridor status with Level 2 chargers, but these require additional DCFC installations for continued designation.

- Because EVs charge using specific connectors, a CCS connector vehicle would have 328 miles of gaps without chargers along EV designated corridors. The longest gap for CCS connector vehicles is between Austin and Dallas-Fort Worth. Similarly, a CHAdeMO connector vehicle would experience 290 miles of gaps in charging along designated corridors. CHAdeMO gaps notably coincide with where Level 2 gaps are located, indicating that a CHAdeMO connector should be considered when transportation planners consider Level 2 chargers.
- For designation nominations, FHWA recommends using existing infrastructure data provided by NREL through the Alternative Fueling Station Locator. Data from other sources are incorporated into the Alternative Fueling Station Locator. Tesla charging stations are not considered public charging stations because 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.
- Next, Steve presented on the AFDC, which was created in 1991. It is an online resource on alternative fuel vehicles and provides calculators and other tools, including the Station Locator. The AFDC is primarily focused on alternative fuels and is "fuel agnostic."
- AFDC's Station Locator is funded by the U.S. Department of Energy and uses data collected by industries to display federal and state laws and incentives, replicable case studies, and more. It allows users to filter by location and fuel type. This tool also enables users to map driving routes. A new feature of the Station Locator includes stations in Canada, and AFDC is looking at including stations in Mexico so that users can look up routes from Canada to Mexico.
- The AFDC's mapping tools ease the nomination process of alternative fuel corridors for agencies and help them plan to develop fueling infrastructure.
- Fueling stations have long been depicted as dots on a map. It is exciting to establish lines on these maps that connect the dots to create corridors.
- A new page on AFDC (www.afdc.gov/corridors) provides better access to data that is required for corridor nominations and indicates the requirements of stations for nomination. Stations are sub-selected by fuel type and state, so users can see exactly what requirements are needed.
- EV data is updated to the AFDC nightly.
- Shapefiles for each state and fuel type are also available. These are a standard way to represent data visually, with 25-mile boundaries around each state to include more data.
- Basic interactive maps show existing corridors and station locations that meet FHWA corridor nomination process requirements for Corridor-Ready or Corridor-Pending status. These maps allow

users to look at where there are enough stations within five miles to consider designating a new corridor. They will also show users where adding one more station will increase eligibility. There are five map options, one for each fuel type. These maps are very user-friendly, even to those unfamiliar with geographic information systems (GIS).

- NREL created an interactive mapping tool called the EVI-Pro Lite, which is a tool to provide a simple way to estimate how much EV charging a user might need at a city- and state-level.
    - Features include a state map that will allow users to zoom into states and adjust settings beyond the previously set distance of five miles. This allows users to analyze corridor resilience and retrieve other summary information on each corridor.
    - Phase 1 of EVI-Pro Lite includes drop pins to experiment with proposed stations to see if the additional station would complete a corridor. This enables users to visualize potential siting options.
    - In June 2019, the EVI-Pro Lite tool will also estimate load profiles for EV charging. Users will be able to modify parameters such as types of vehicles or types of chargers to estimate anticipated load additions.

South Central 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. Attendees heard first-hand about the partners, technologies, and funding that are making the initiatives possible.

Moderator: Oana Leahu-Aluas, Associate, Cadmus

Walter B. Council, Transportation Planner III, Imperial Calcasieu Regional Planning & Development Commission (Lake Charles MPO)

See presentation for more information.

- The City of Westlake, Louisiana began an initiative to install a CNG station nearby to fill an infrastructure gap. The City of Westlake recognized that the distance between cities required that more CNG infrastructure be built. Other factors driving the decision to build a CNG station included:
    - A high quantity of long haul freight and local trucks and traffic on local roadways;
    - An industry demand of converting to alternative fuel vehicles to stabilize fuel costs;
    - An interest in becoming more environmentally-friendly; and
    - An interest in reducing particulate matter.
    - The City of Westlake also gained public approval for the station by citing it as a potential for increased revenue stream.
- The process for establishing the station has thus far included hosting a project competition, with the winner receiving funding priority through the Capital Outlay Bill. Funds for the project became available until the bonds for that project are sold or an advanced cash line of credit is approved.
- The mayor of Westlake facilitated a public meeting to present the idea of building out CNG infrastructure. This initiative would enable new public fleets to use the CNG station too.

- Challenges for the project have included obtaining the full amount of capital outlay funding, making sure the station has a mix of energy and fuel types, and constructing the future I-10 Calcasieu River Bridge.
- The City of Westlake has leveraged partnerships with local industry and public agencies, the State of Louisiana, Louisiana Clean Fuels, and the Imperial Calcasieu Regional Planning & Development Commission/Lake Charles metropolitan planning organization (MPO).

Michael Conklin, Manager of External Engagement, CenterPoint Energy
See presentation for more information.

- EVolve Houston is a coalition intended to accelerate clean transportation and zero emissions goods movement through electrification. The coalition collaborates with local governments, regulators, businesses, and others to improve air quality and reduce greenhouse gases in the greater Houston area.
- Goals for EVolve Houston include getting more vehicle miles traveled (VMT) by EVs and replacing vehicles relying on conventional fuels, improving regional air quality, and converting fleets. Additional goals include installing EV infrastructure, increasing public awareness, advocating for policies, supporting more employee programs, and supporting the development of additional grants and funding sources.
- EVolve Houston found a champion in the mayor of Houston, who wanted more electrification to improve air quality. The mayor saw that 67% of nitrogen oxide (NOx) and VMT came from the same on-road sources, which galvanized city action and collaboration with the utilities. The mayor developed a proposal and presented it at a breakfast for members of the community to hear about EV opportunities.
- EVolve distributed a poll at the breakfast event to attendees and found significant public interest in an electrification transportation strategy. Organizers of the event were initially worried about resistance from oil companies but instead found some like Shell very supportive.
- EVolve urges the importance of engaging stakeholders early on in a project so that everyone feels that they are moving forward together.

Curtis J. Donaldson, General Manager, Propane Business Development, Agility Fuel Solutions
See presentation for more information.

- Agility Fuel Solutions is involved with numerous alternative fuels, but they only develop infrastructure for propane. Agility Fuel Solutions worked with Texas DOT to deploy 225 fueling stations to fill 5,000 propane vehicles.
- A partnership developed between Pilot Flying J, who could provide locations along corridors with propane storage and sales; Northwest Propane, who had propane expertise and distribution capabilities; and Agility Fuels, who had equipment and regulatory expertise. Area fleets needed expanded public access to help grow their propane vehicle population.
- Some difficulties for Pilot Flying J have included a decline in propane sales, pricing all over the map for propane autogas, and a lack of self-service autogas sites. This project would help address all of these difficulties around Dallas-Fort Worth and could hopefully expand to other areas using the same model.
- Unfortunately, after significant progress of parties agreeing to work together, identifying Pilot Flying J locations, obtaining necessary equipment, and targeting fleets in the market and applicable grants, gasoline prices dropped to below $2 per gallon and fleets struggled with the economics to grow. During the delay due to the rise in gas prices, grants expired and the lead person at Pilot Flying J resigned.

Mark Nestlen, Executive Director, Oklahoma Transit Association

Figure 7. South Central regional alternative fuel initiatives are presented by the first panel.

- Mark described (Figure 7) that there are 35 agencies that provide transit in Oklahoma, varying widely in size and region but with the majority serving rural areas. Each agency does well providing transit services with the resources they have, but in general none have enough funding support.
- The Oklahoma legislature is currently in the process of passing a bill to create a long-term transit plan. Knowing that the agency would require $61 million if it fulfilled its goals in services but realistically only having $5 million per year from the state, the agency decided to turn to other alternatives to raise funds.
- This led the agency to turn towards federal grants as a way to fundraise, and several grants aim to promote alternative fuels. The Oklahoma Transit Association turned to an EV and CNG solution that involved working with Trillium. Trillium can supply both types of fuels at its Love's stations. When the Transit Association arranged a meeting for electric bus partners and CNG partners to collaborate, attendees grew enthusiastic about the initiative and wanted to recruit more partners.
- Oklahoma Transit Association conducted a survey to determine information about system needs so that private partners could share their interests, and poll results were mostly very positive.
- Progress has already included transitioning the largest transit agency into a CNG and EV system hybrid and incorporating these plans into a Tribal community's transit plans as well.
- Oklahoma Transit Association is currently looking into Low or No Emission Vehicle Program (Low-No) and Better Utilizing Investments to Leverage Development (BUILD) grant opportunities for funding and infrastructure support.

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

- CenterPoint Energy supports electrification of vehicles because there is substantial research that suggests emissions reductions result from lessened tailpipe emissions as long as the electricity fuel stack is not all coal.
- There is interest in research produced by NREL or other agencies or labs to look into the connection between energy generated by solar and EV charging. One attendee suggested searching for more available data on peak charging times and how many emissions are being gained or lost with increases in EVs on the grid, particularly looking at synergies between solar and EV charging.
- Texas is increasingly being supplied by wind and solar power and those forms of electricity are also becoming cheaper as a result. With that in mind, it is reasonable to rely on various assessments that demonstrate cleaner electricity over time, especially if utilities begin to implement time-of-use rates that incentivize EV charging at low-peak times of day.

Building Awareness & Leveraging Partnerships: Communicating Availability and Benefits of Alternative Fuels to Enhance Corridors

During this session, partners discussed the strategies, partnerships, and resources required to build awareness on the availability and benefits of alternative fuel corridors. Panelists shared experiences securing stakeholder support for alternative fuel infrastructure along corridors and discussed additional needs such as signage.

Shawn Wilson, Secretary, Louisiana Department of Transportation and Development

See presentation for more information.

- Louisiana Department of Transportation and Development (DOTD) gained FHWA approval in March 2019 to designate alternative fuel corridors in its state. Interstates designated as Corridor-Ready include I-10 for CNG, LNG, and propane; I-20 for CNG and propane; and I-49 for CNG.
- The state's corridor signage is being fabricated at the DOTD manufacturing facility. The Department of Environmental Quality and the Louisiana Clean Fuels are helping DOTD to implement signage along corridors.
- Louisiana only has one public DCFC, so it is not as close as it would like to be to having state routes become designated as EV corridors.
- From a mobility and economic standpoint, DOTD would like to move forward on alternative fuels but has faced political realities that certain types of alternative fuels might be less popular in the state.
- The state predicts that alternative fuel vehicle adoption will occur most frequently in high population corners of the state.
- DOTD has designated one-time funding for alternative fuels; it is restricted from doing capital investments, and that is why partnerships have been so important.
- The next step for DOTD is to develop an operational plan, which will include collaboration with 511 resources and a plan for signage maintenance.

Ann Vail, Executive Director and Clean Cities Coordinator, Louisiana Clean Fuels

See presentation for more information.

- Louisiana Clean Fuels is working to refine its planning processes. The organization looked at projections of vehicles and infrastructure and realized there was a lot of work to do. Louisiana Clean Fuels looked at maps of existing chargers and asked: where could EV adoption imply station location needs?
- This led Louisiana Clean Fuels to develop a crowdsourcing website, launched in December 2018, to solicit input from EV owners about where they need to charge their cars. The site has had 640 unique visitors and 51 contributors already. This platform allows drivers to upload data such as the type of car they drive and good commercial locations for potential chargers, such as local grocery stores.
- Eventually, Louisiana Clean Fuels will give this data to the state to help them inform where infrastructure should go.
- Louisiana Clean Fuels is developing a DC Fast Charging Master Plan in two phases. Phase 1 involved identifying potential sites, presenting the business case, assessing the feasibility of each site, creating a crowdsourcing website, and raising money. Phase 2 will involve an outreach meeting in each MPO district, creating toolkits for local governments and potential site hosts, and seeking funding.
- The Louisiana Department of Environmental Quality is getting chargers in their garages and also purchasing EVs for its state fleet.

Seth Christ, VP Operations, Francis Solar

See presentation for more information.

- Francis Solar operates an initiative in Oklahoma and Texas to charge EVs using solar power. The company's first EV project was two years ago with the Cherokee Nation in which the company helped the Nation to acquire buses.
- Francis Solar is working to develop interactive reader kiosks with battery storage capabilities to improve cost savings. Francis Solar is also looking for wind power solutions and hoping to increase nighttime energy demand.
- Recently, Francis Solar received a ChargeOK Grant, which has provided funding for 24 sites. This enables the company to put 60 megawatts of new load onto the Oklahoma grid, and Francis Solar's energy providers have not had any problems supplying that load. Francis Solar is servicing EV charging assets as well.
- Educational programs offered by Francis Solar include:
    - Regular ride and drives;
    - Installing public chargers at stakeholders' offices;
    - Driving/owning EVs;
    - Lunch and learns;
    - Working with government agencies; and
    - Hosting events.

Lori Pampell Clark, Program Manager and DFW Clean Cities Coordinator, North Central Texas Council of Governments

See presentation for more information.

- Lori began her presentation (Figure 8) by sharing a map of FHWA-designated CNG corridors and new stations that have been opened in Texas. One successful tactic for encouraging individual adoption of alternative fuels is to present a map and show that it is possible to get from one location to the next completely on an alternative fuel. NCTCOG works to present alternative fuels in this way to the public in their broader region, working in partnership with MPOs on the designation process and future goals, Clean Cities, and other COGs.

Figure 8. Panelists share their experiences building awareness and leveraging partnerships in their work.

- Recently, the Dallas-Fort Worth Clean Cities started using the Alternative Fuel Life-cycle Environmental and Economic Transportation (AFLEET) Tool which shows the economic benefits of all alternative fuels. NCTCOG works to be fuel-neutral and values the AFLEET tool because it is highly customizable with several options for providing

individualized input data, and can present data including environmental, health, and price impacts in an effective way.

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

- Signage presents an opportunity for states to be creative about communicating to commuters about alternative fuel infrastructure and vehicles. Some insights include:
    - When rebuilding roadways or infrastructure, there are more opportunities to reinvent existing signs;
    - Optimal signage locations are along ramps and along smaller roads;
    - Phone applications can be designed that would speak to drivers about alternative fueling stations, similar to the way Google Maps indicates locations of speed cameras;
    - Public service announcements on electronic boards can serve as a model to direct drivers to alternative fueling stations;
    - Pavement markings can be a creative and innovative method to capture drivers' attention; and
    - Congestion Mitigation and Air Quality Improvement (CMAQ) funding can also be used for alternative fuel corridor signage.
- Crowdsourcing platforms can ensure more equitable representation for individuals across regions to share preferences for alternative fueling locations by allowing anyone to place pins on the map and share a "like" on the pins that already exist, distributing the crowdsourcing platforms on social media or user groups, and circulating it on listservs.
- Some best practices when communicating about the benefits of alternative fuels are researching organizational websites before meeting with them to discuss topics of interest, sharing information at public events such as for Earth Day or National Drive Electric events, visiting planning commissions and food and fuel expos, and paying close attention to the goals and intended outcomes of the audiences you are trying to communicate with.

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."

Ashley Duplechien, Manager of Business Development, South Central Region, Trillium/Love's

See presentation for more information.

- Trillium is a clean fuel supplier and partners with stations to supply alternative fuels at any stage of station development. Trillium is also fuel-neutral and works to match stations with the fuel that works best for them.
- Trillium has co-located EV charging infrastructure at truck stops in California.
- Trillium approaches fueling from a customer-oriented perspective, helping customers with strategic development, adaptation and growth, and station maintenance and optimization.

Thomas Ashley, Vice President of Policy, Greenlots

See presentation for more information.

- Greenlots is focused on transportation electrification. It is a technology company and makes software designed to manage EV charging, provide grid services, and identify solutions.
- The role of Greenlots is to deploy EV charging stations but not to own and operate them.
- Greenlots is also beginning to look into supporting heavy-duty vehicles with delivery and freight. The company is working on communications technologies through software and integrated systems, storage/distributed energy resources, and physical infrastructure to support communications.

Rob Del Core, Managing Director, Hydrogenics USA, Inc.

See presentation for more information.

- Hydrogenics is a hydrogen technology company which creates fuel cell technology to generate hydrogen to achieve zero emissions throughout the entire chain. Hydrogenics works on projects around the globe and is over 20 years old.
- The company has onsite hydrogen generators and can compress hydrogen as a fuel or for other applications. Hydrogenics can also transport hydrogen.
- Hydrogenics uses lower temperature fuel cell technology for power systems and also creates renewable hydrogen along with refueling stations and grid balancing services. Additionally, the company can take surplus wind energies and insert hydrogen into natural gas pipes using an electrolyzer, which enables the use of natural gas infrastructure to bottle hydrogen for seasonal variations.

Randy Boys, Strategy and Technology Manager, Oncor

See presentation for more information.

- Oncor delivers electricity to consumers and does not own or sell energy or EV charging stations. The electricity delivery rate is driven predominantly by peak load. The impact to transportation is currently minimal.
- Oncor is a privately-held Public Utility Commission of Texas-regulated Electric Reliability Council of Texas transmission and distribution service provider.
- Randy suggested that corridors should encourage fueling stations that integrate fuels and include separate capacity for freight haulers and for personal vehicles.
- Grid size can be impacted by electric energy increases and the widespread distribution of grid-connected power sources (many of these intermittent). Smart load introduces new market possibilities.

Emily Conway, Fleet Sustainability Manager, PepsiCo

See presentation for more information.

- PepsiCo's food and beverages fleet is one of the largest private fleets in North America, with more than 70,000 assets. The product portfolio for the fleet is also very diverse.
- The alternative fuel fleet at PepsiCo includes hybrid tractors and service vans, tractors running on CNG, route trucks and material handling equipment that run on propane, and straight trucks and material handling equipment that run on electricity. At one point, PepsiCo had the largest electric fleet in the United States.

- PepsiCo's food and beverages fleet would like to reduce its carbon emissions by 20% by 2030. By 2020, all CNG sites for the fleet will be running on renewable natural gas.
- PepsiCo also has a zero and near-zero emissions freight facility project in Modesto, California which includes:
    - A solar panel array;
    - A battery storage system;
    - Electric yard tractors, box trucks, and tractors;
    - Low NOx renewable CNG tractors and fueling;
    - Lithium-ion powered forklifts; and
    - Employee charging.

Figure 9. Discussion leaders reporting out during the "Filling the Gap" session.

After the panelist presentations, attendees broke up into three groups to discuss barriers to filling in the alternative fuel infrastructure gap in the South Central region and the corresponding actions private sector organizations and local, state, or federal government can take to overcome them. Attendees then presented discussion results (Figure 9 and Figure 10). Key takeaways that emerged from those discussions included:

- Policies that could galvanize an increase in alternative fuel vehicle adoption include having a national energy policy and zero-emissions vehicle legislation. Policy solutions not just nationally but also at the local and corporate levels can have a ripple effect on other policies and improve the alternative fuel vehicle market.
- A lack of site standardization poses a challenge for consumers. Some solutions to overcome this challenge include increased industry coordination, collocating alternative fuel vehicle infrastructure, and producing public guidance based on successful models.
- Truck and rest stops are good locations for siting infrastructure. To limit the distances between infrastructure locations, organizations can partner with economic development associations to identify viable locations. Alternative fuel organizations may also follow the FHWA corridor model with a focus on rural areas.

- To counter the impact of low conventional fuel prices, governments may enact a carbon fee on those fuels or use taxes and financial incentives to promote alternative fuels. Alternative fuel advocates can also share simple informational cost comparisons of conventional versus alternative fuel vehicles over time to show the lifecycle cost benefits.
- Providing simple information such as air quality and health benefits of alternative fuels to consumers is an easy way to increase public awareness of benefits.
- Educational outreach targeted at schools and students will be an important mechanism to ensure the next generation of vehicle adopters consider alternative fuel vehicles. Additionally, some states have found that targeting school buses for the conversion of fuels has been a successful approach.
- Signage is an effective way to spread awareness about the presence of alternative fueling stations.

Figure 10. Discussion leaders report out from the breakout group discussions.

- Entities may look to private sources of investment support or matching programs to incentivize vehicle adoption.
- For increased public and legislative support, trade associations and consumer groups are effective ways to access larger numbers of drivers.
- Ride and drives or other mechanisms to "get people in seats" can have a large impact on the public's improved opinion of driving alternative fuel vehicles.
- Because vehicle adoption barriers are likely experienced by multiple neighboring states, increased regional coordination through forums connecting partners, inter-state meetings, corporate partnerships and initiatives, and information sharing through case studies can empower larger scales of change.

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 and vehicle adoption to build out the market. Topics included federal grant programs such as the 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.

Barbara Maley, Air Quality Specialist & Transportation Planner, FHWA Texas Division

See presentation for more information.

- Barbara began her presentation with the Congestion Mitigation and Air Quality Improvement (CMAQ) Program (Figure 11). The CMAQ Program provides funding under the FAST Act and has averaged about $2.4 billion per year. It is only offered until 2020 and there is no guarantee that it will be renewed.
- Projects that are eligible need to demonstrate how they would benefit air quality, and meet the following requirements:
    - General conditions (i.e., a transportation project or program; generates an emissions reduction; and located in or benefits a non-attainment area or maintenance area);
    - Benefits capital and/or operating needs;
    - Use CMAQ Reporting Tool; and
    - Adhere to performance plan.
- CMAQ support for alternative fuel vehicle projects is generally categorized by infrastructure, non-transit vehicles, and hybrids.

Figure 11. Panelists discuss funding opportunities in the South Central region.

Patti Springs, Clean Cities Coordinator, Arkansas Clean Cities/Arkansas Department of Environmental Quality

See presentation for more information.

- Arkansas did not nominate any corridors for the first round of designations but submitted several nominations for the second round, with two designated as Corridor-Ready: I-40 and US 67/167 for CNG and several designated as Corridor-Pending for CNG and EV. For the third round of nominations, Arkansas has one Corridor-Pending route for EV and CNG.
- Arkansas is using VW Settlement funds for five different programs:
    - Advanced Bus and Clean (ABC) Transportation Program;
    - Arkansas Clean Fuels Program;
    - Light-Duty EV Infrastructure Program:
        - Level 2 Rebate Program;
        - DC Fast Charge Request for Proposals;
    - State Agency Fleet Emission Reduction Program (SAFER); and
    - Diesel Emissions Reduction Act (DERA).
- The Arkansas Department of Environmental Quality has established a webpage to provide information to the public on plan development and implementation, available here: https://www.adeq.state.ar.us/air/planning/vw.aspx.

Daphne McMurrer, Technical Specialist, Texas Commission on Environmental Quality

- The Texas Emission Reduction Program (TERP) Clean Texas Corridors will inform the model that Texas will use to execute its VW Settlement projects. A high-level infrastructure plan has already been designed and

includes a 15% ZEV infrastructure component, and plans are available on the Texas Commission on Environmental Quality's website.

- Soon the agency will release a request for grant applications for the infrastructure components of the plan. The plan is likely to support 50% of the cost of EV chargers and possibly 30% of hydrogen fuel cell technology.
- The agency has determined that funding for TERP will be allocated for certain budget categories such as equipment and supplies, and not for salaries, land costs, maintenance, and administrative costs.

Ann Vail, Executive Director and Clean Cities Coordinator, Louisiana Clean Fuels

See presentation for more information.

- Louisiana Department of Environmental Quality (DEQ) has $2.8 million available in VW funds and is designating 15% for EV infrastructure. Priorities for this pool are for chargers, particularly Level 2 chargers that are highly visible in public places, close to alternative fuel corridors, and for residents in target areas and on the state's Master Plan.
- Louisiana DEQ and Louisiana Clean Fuel partners are working to engage stakeholders to join in the Master Plan Process. The Master Plan will facilitate local acceptance and demand for EV charging infrastructure along critical corridors.

Faye Swift, DERA Grants & Policy Team Leader, U.S. Environmental Protection Agency

See presentation for more information.

- The Diesel Emissions Reduction Act (DERA) was first authorized in the Energy Policy Act of 2005, and was reauthorized in the Senate in 2010. DERA grants are intended to achieve significant reductions in diesel emissions in terms of pollution produced and diesel emissions exposure, particularly from fleets operating in areas designated by the U.S. Environmental Protection Agency (EPA) Administrator as poor air quality areas.
- DERA funding is designated for local and state governments, tribal groups or port agencies, and some non-profit organizations. Funds are for engines certified by EPA or California Air Resources Board (CARB), or aftermath technologies verified by EPA or CARB. 30% of DERA funding goes to state programs, including formula grants, and 70% goes to national programs, including competitive grants and rebates.
- Eligible vehicles, engines, and equipment may include but are not limited to:
    - Buses;
    - Class 5 – Class 8 heavy-duty highway vehicles;
    - Marine engines;
    - Locomotives engines; and
    - Non-road engines, equipment or vehicles.
- EPA will fund certified clean alternative fuel conversion, vehicle/equipment replacement, engine replacement, and idle reduction technologies. EPA will not fund fueling infrastructure or stand-alone charging infrastructure.

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

- A national discussion which is also taking place in the South Central region is that State DOTs receive funding from motor fuel taxes and when more vehicles are converted to alternative fuels, there is a smaller pool of funding for highways and bridges. This puts agencies in a conflicting position. Some states like Louisiana have implemented excise taxes for alternative fuels other than EVs, but soon there will be a fee even for EVs. California has passed a fee for EV road use.

- There was some debate about whether it would be helpful to have funding set aside for infrastructure. NCTCOG, for example, has several categories of funding opportunities including infrastructure, as does the VW Settlement roll out for Texas. Arkansas has a minimum number of vehicles required to incentivize funding for infrastructure.
- Timelines for funding opportunities include:
    - Friday, April 12, 2019 for Louisiana Clean Fuels DC Fast Chargers;
    - December 2019 for the next request for proposal for DERA grants;
    - Texas Commission on Environmental Quality is pushing for funding opportunities to become available this spring and then sequentially after that with the first round of funding scheduled to be completed by the end of 2019;
    - CMAQ is ongoing and does not have a deadline; and
    - Arkansas DEQ is working to complete its first round of EV rebates by the 3rd or 4th quarter of 2019.

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 South Central region.

During this session, participants were asked several questions about advancing alternative fuel corridors in the South Central region into the future. Participants were asked to share their immediate next steps to continue progress on alternative fuel corridors in the South Central region (Figure 12). The responses included the following:

Figure 12. Convening attendees indicate their next steps for advancing alternative fuel corridors in the South Central region.

- Coordinate with Clean Cities and Clean Fuels organizations to increase collaboration on projects.
- Build on the new partnerships that emerged during the South Central Convening by following up with new partners and staying in touch.
- Use lessons learned during the South Central Convening to inform future alternative fuel corridor implementation strategies.
- Integrate some of the initiatives taking place at other agencies into their own agencies, such as developing long-range transportation plans that incorporate alternative fuels.
- Think beyond the scope of statewide work to be more inclusive of neighboring states and build projects for a greater regional focus.
- Highlight successful case studies (i.e., PepsiCo, EVolve) when promoting new project ideas.
- Connect with other departments within the same agency to better unify efforts for initiatives such as alternative fuel corridor signage.

- Internalize broader goals such as electrification of fleets into personal goals such as considering the purchase of an EV for oneself.
- Educate groups such as American Association of State Highway and Transportation Officials about the importance of alternative fuels.
- Use crowdsourcing platforms as a method to solicit public opinion.

Summary of Convening Evaluations

An online survey was distributed to attendees on April 15, 2019. The survey was intended to assess the effectiveness of the convening, as well as inform the development of future convenings. A total of 18 attendees responded to the survey. Their answers are summarized below.

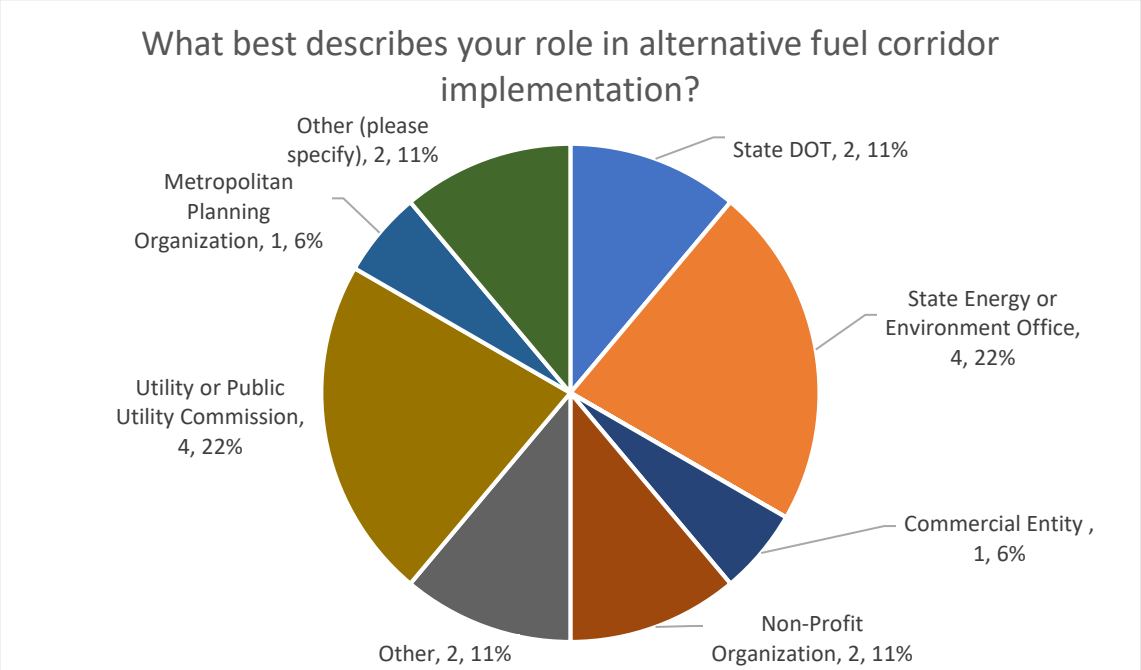

Figure 13. Breakdown of survey respondents by role in alternative fuel corridor implementation.

Out of those that responded to the survey, most were state energy or environmental office and utility or public utility commission representatives. The respondents who selected “Other” specified that they are representing a national lab and a regional partner.

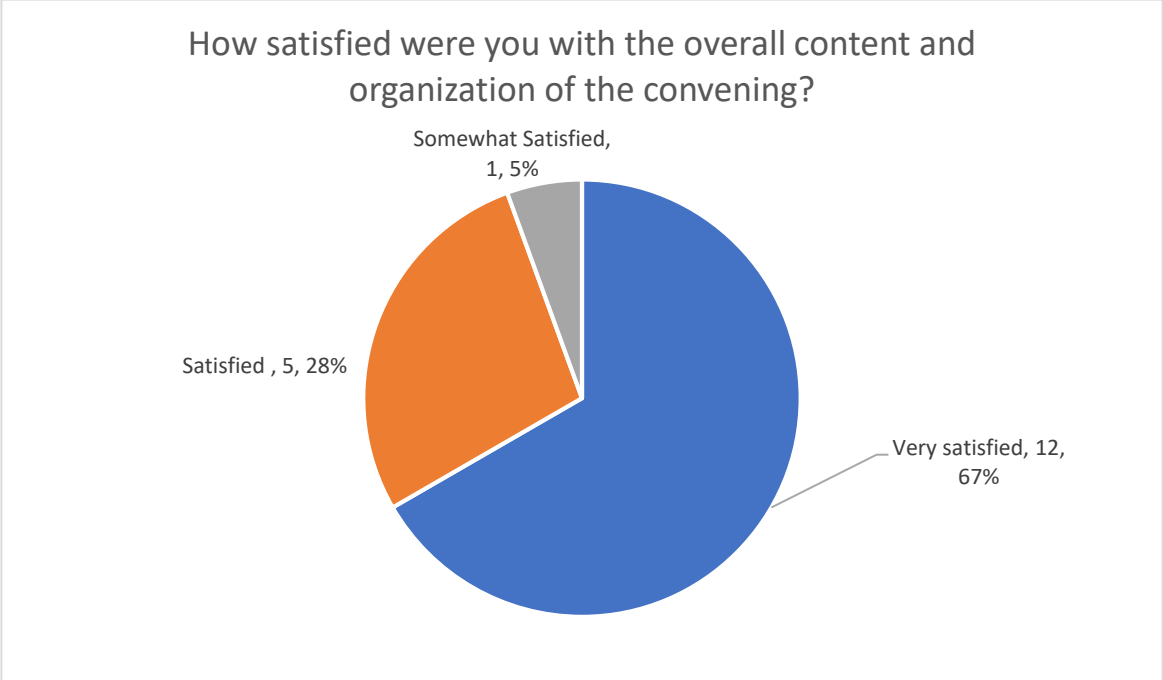

Figure 14. Pie chart showing respondents' satisfaction with the overall content and organization of the convening.

Most respondents (95%) were either satisfied or very satisfied with the overall content and organization of the convening. One respondent indicated that he/she was "somewhat satisfied," and no one responded that they were "not satisfied," which would have required further explanation.

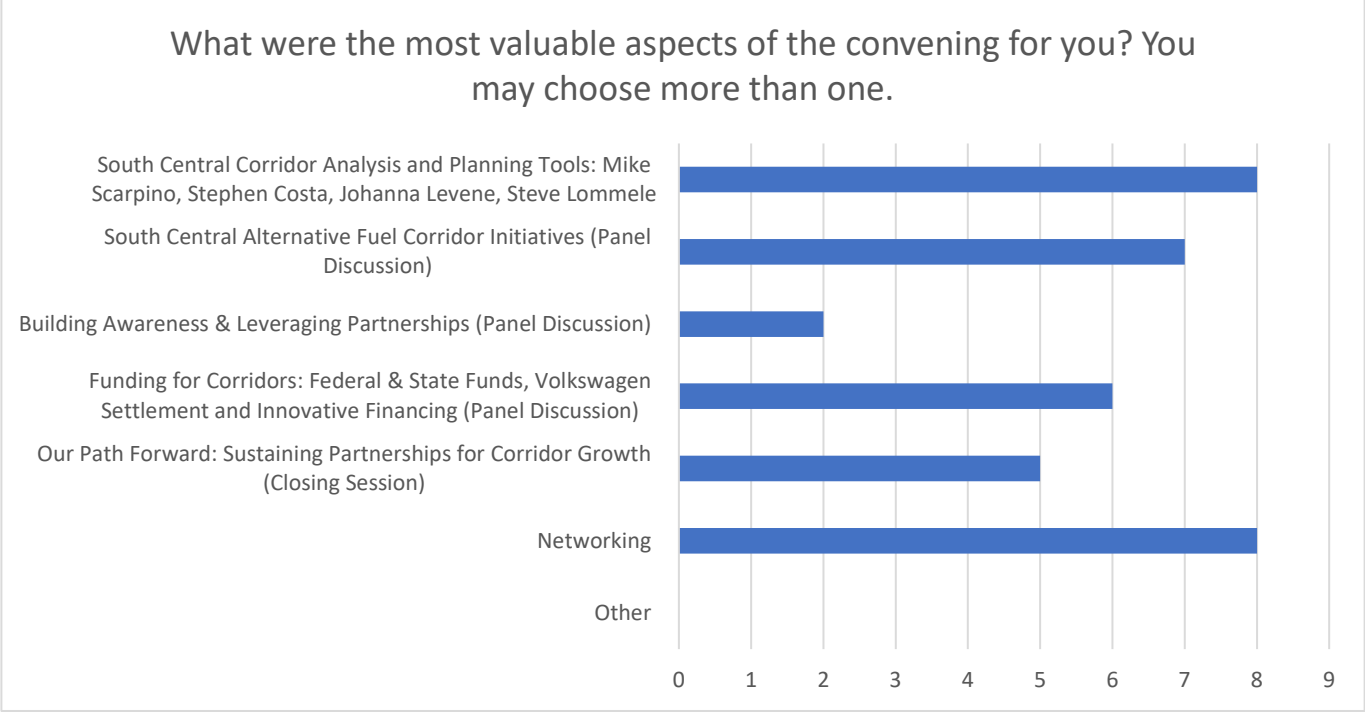

Figure 15. Bar graph showing the most valuable aspects of the convening, according to attendees (each attendee received multiple votes).

Survey respondents noted that networking opportunities and the South Central Corridor Analysis and Planning Tools session were the most valuable portions of the convening. No respondents selected "Other." Respondents could select more than one answer to this question.

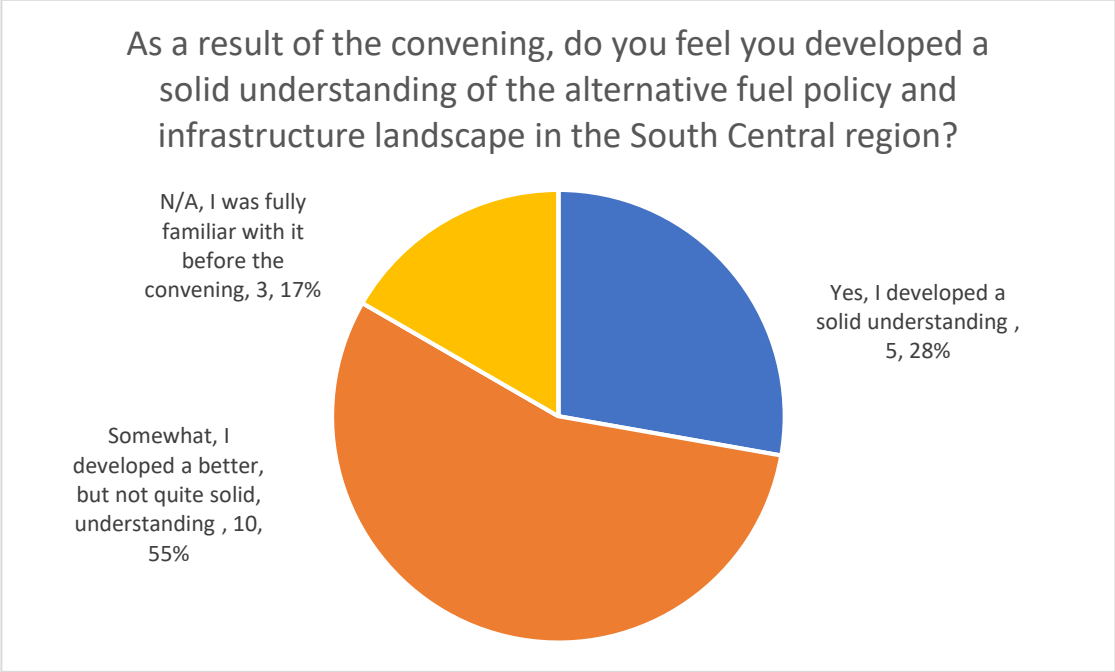

Figure 16. Pie chart of respondents' understanding of the alternative fuel policy and infrastructure landscape in the South Central region, as a result of the convening.

More than half of the respondents (55%) felt they developed a better, but not quite solid, understanding of the alternative fuel policy and infrastructure landscape in the South Central region, as a result of the convening. No respondents selected "No, I do not feel familiar with the policy and infrastructure landscape," and three people responded "N/A, I was fully familiar with it before the convening." Some of the respondents (28%) said they developed a solid understanding. No respondents selected "Other."

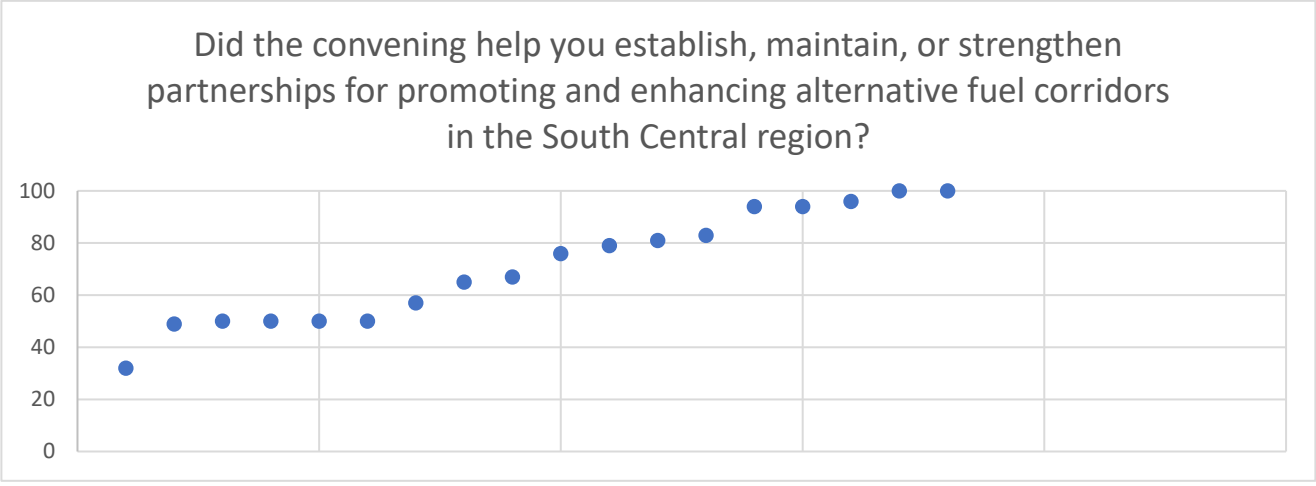

Figure 17. Scatter plot showing the degree to which the convening helped establish, maintain, or strengthen partnerships, rated from 0 to 100.

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." All respondents indicated a 32 or higher for the degree to which the convening helped establish, maintain, or strengthen partnerships for promoting and enhancing alternative fuel corridors in the South Central region. The average rating among all 18 respondents was 71.

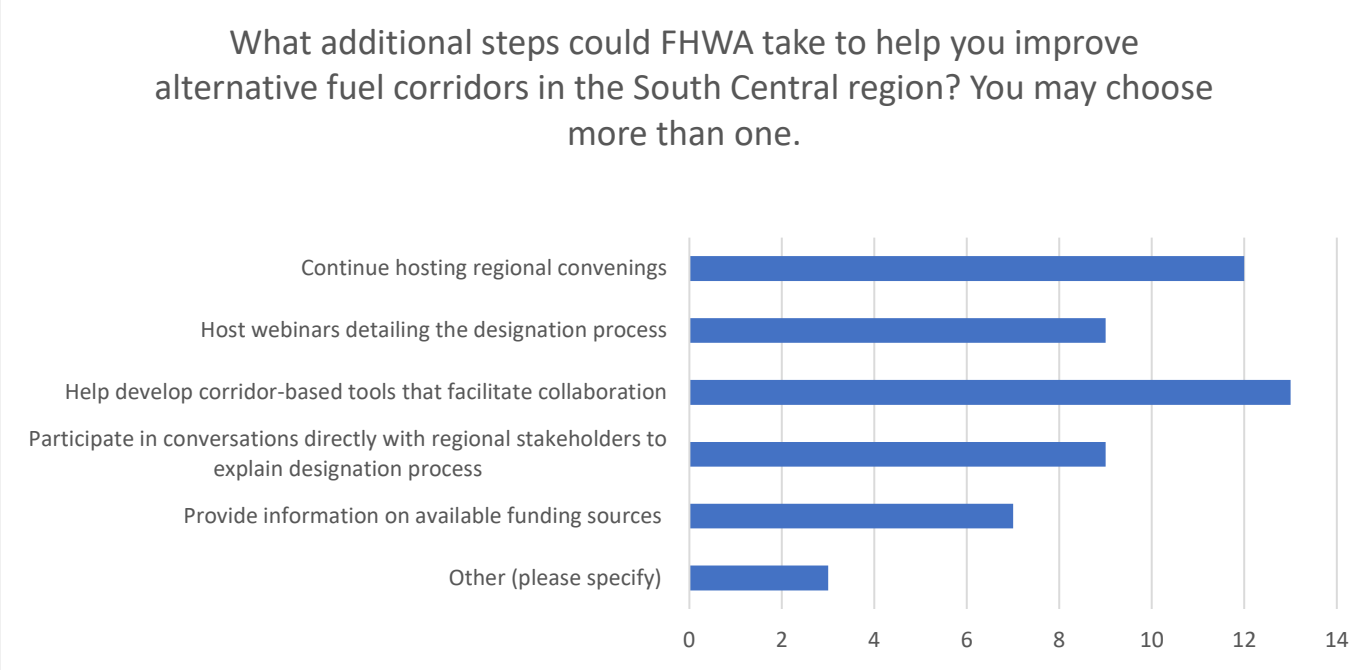

Figure 18. Bar graph showing FHWA steps to improve alternative fuel corridors in the South Central region (each respondent received multiple votes).

Survey respondents most commonly selected "Help develop corridor-based tools that facilitate collaboration" as an additional step that the FHWA could take to help improve alternative fuel corridors in the South Central region. Three respondents selected "Other," with responses including "bring EPA Office of Transportation and Air Quality (OTAQ) to the table as mobile sources will be EPA's next emission reduction strategy for U.S. National Ambient Air Quality Standards (NAAQS) purposes," "promote alternative revenue stream for highways," and "none of this will matter if we don't get vehicles on the road." Respondents could 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 (8) referenced strengthening regional partnerships as their biggest takeaway. Some responses are captured below:

- Education and outreach.
- On sustaining partnerships for corridor growth, that there needs to be more stakeholders involved.
- Review the Alternative Fuels Data Center website and resources.
- Connect with one of our statewide EV nonprofits for the crowdsourcing EV infrastructure tool!

- Collaboration with various partners is essential.
- Invite our FHWA regional admin to our EV Coalition meetings, communicate with our MPO transportation office about the corridors.
- Would be good if there were periodic gatherings of the interested parties to share information.
- Making sure the efforts in our state are well communicated with the surrounding states.
- Broadening partnership.
- Communication/education/outreach.
- Corridor completion is a worthy endeavor on which numerous sophisticated parties can and do collaborate.
- Awareness and public knowledge of alternative fuels and alternative fuel corridors are the biggest barriers to expansion.
- Working together as an alternative fuels Industry.
- Louisiana Corridor needs work.

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

- I think more Commission staff would have helped to get a holistic approach with the utility, third parties, energy office and department of transportation.
- Needed more end-user fleet reps.
- We were pretty well represented from our state. Two utilities were not represented who should have been. They were invited but unable to attend.
- CenterPoint Energy Atmos Energy Texas Gas Services (OneOK).

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:

- I think each topic could have been a half day panel because there is so much especially in states that are just beginning like Arkansas.
- I would have liked a bit of a deeper dive/step-by-step of a project that was challenging to get implemented but then was able to overcome the obstacles.
- No.
- Specific initiatives and their outcomes. I would have liked a deeper dive on EVolve Houston and the other programs.
- Highway funding.
- The DERA and VW funding panel seemed very rushed for time and that was the one section I was most looking forward to.

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

- I thought the meeting was great and hope there are more.
- Good workshop!
- I think more workshops/interactive sessions would be helpful. Something in the form of a "mini-challenge" for teams to come up with a proposal and gather the stakeholders and such. It would also be good to hear from the DOTs about what they need to get a program going.
- Majority of the highway revenue is from motor fuel tax. How alternative fuel will impact the revenue for highways/bridges should be discussed.
- Be careful about who you select for a panel discussion. Some of those who spoke just about their past experiences were very negative and shady towards those whom they are supposed to be working with. A panel discussion is not helpful if you are just there to complain.
- Very well done meeting.

Appendix I: Convening Agenda

8:00 AM **Registration and Networking**

Sign in, introduce yourself to new partners, and participate in a short interactive poll.

8:30 AM **Host Welcome**

Chris Klaus, Senior Program Manager, North Central Texas Council of Governments
Diane Turchetta, Transportation Specialist, U.S. Federal Highway Administration

North Central Texas Metropolitan Planning Organization (MPO) 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**

Oana Leahu-Aluas, Associate, Cadmus
Alycia Gilde, Director, Fuels and Infrastructure, 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 South Central U.S.

9:00 AM **Around the Room Partner Introductions**

Each attendee briefly introduces themselves with three facts: (1) name, (2) organization, and (3) role in alternative fuel corridor development.

9:20 AM **South Central Corridor Analysis and Planning Tools**

Mike Scarpino, Transportation Project Engineer, U.S. Department of Transportation Volpe Center
Stephen Costa, Technical Analyst, U.S. Department of Transportation Volpe Center
Johanna Levene, Manager, Transportation Data and Tools, National Renewable Energy Laboratory
Steve Lommele, Clean Cities Project Leader, Transportation & Hydrogen Systems Center, National Renewable Energy Laboratory

Learn the story behind the maps through a presentation on regional alternative fuel corridors, including changes over time since the initial designations. Representatives from Volpe and the National Renewable Energy Laboratory (NREL) will walk through the types of analyses necessary to identify and fill infrastructure gaps along the corridors. The presentation will include a demonstration of NREL's Alternative Fuels Data Center (AFDC) alternative fueling station locator and corresponding corridor tool.

10:05 AM **South Central Alternative Fuel Corridor Initiatives**

Walter B. Council, Transportation Planner III, Imperial Calcasieu Regional Planning & Development Commission (Lake Charles MPO)
Michael Conklin, Manager of External Engagement, CenterPoint Energy

Curtis J. Donaldson, General Manager, Propane Business Development, Agility Fuel Solutions
Mark Nestlen, Executive Director, Oklahoma Transit Association

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

11:05 AM **Break**

11:20 AM **Building Awareness & Leveraging Partnerships: Communicating Availability and Benefits of Alternative Fuels to Enhance Corridors**
Shawn Wilson, Secretary, Louisiana Department of Transportation and Development
Ann Vail, Executive Director and Clean Cities Coordinator, Louisiana Clean Fuels
Seth Christ, VP Operations, Francis Solar
Lori Pampell Clark, Program Manager and DFW Clean Cities Coordinator, North Central Texas Council of Governments

During this session, partners discuss the strategies, partnerships, and resources required to build awareness on the availability and benefits of alternative fuel corridors. Panelists will share experiences securing stakeholder support for alternative fuel infrastructure along corridors and discuss additional needs such as signage.

12:00 PM **Lunch**

1:00 PM **Filling the Gap: Strategy, Technology, and Partnership for Infrastructure Development**
Ashley Duplechien, Manager of Business Development, South Central Region, Trillium/Love's
Thomas Ashley, Vice President of Policy, Greenlots
Rob Del Core, Managing Director, Hydrogenics USA, Inc.
Randy Boys, Strategy and Technology Manager, Oncor
Emily Conway, Fleet Sustainability Manager, PepsiCo

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.

2:45 PM **Break**

3:00 PM **Funding for Corridors: Federal & State Funds, Volkswagen Settlement and Innovative Financing**
Barbara Maley, Air Quality Specialist & Transportation Planner, FHWA Texas Division
Patti Springs, Clean Cities Coordinator, Arkansas Clean Cities/Arkansas Department of Environmental Quality
Daphne McMurrer, Technical Specialist, Texas Commission on Environmental Quality
Vivian Aucoin, Environmental Scientist Manager, Louisiana DEQ

Faye Swift, DERA Grants & Policy Team Leader, U.S. Environmental Protection Agency

Partners evaluate the challenges and opportunities to fund alternative fuel infrastructure projects to expand corridors and vehicles to build out the market. 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.

3:50 PM **Our Path Forward: 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 South Central U.S.

4:30 PM **Adjourn**

Appendix II: Convening Participant List

State	Contact Name	Title	Organization	Contact Email
Contacts				
AR	Jessie Jones	Division Engineer, Transportation Planning and Policy Division	Arkansas Department of Transportation	Jessie.jones@ardot.gov
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AR	Katie Pritchett	Rate Case Analyst	Arkansas Public Service Commission	kpritchett@psc.state.ar.us
AR	Marshall Moody	Senior Account Manager	Black Hills Energy	marshall.moody@blackhillscorp.com
AR	Patti Springs	Clean Cities Coordinator	Arkansas Clean Cities/Arkansas DEQ	springs@adeq.state.ar.us
CA	Rob Del Core	Managing Director	Hydrogenics USA, Inc.	RDelCore@hydrogenics.com
CA	Thomas Ashley	Vice President, Policy	Greenlots	tom@greenlots.com
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DC	David Schatz	Director, Public Policy	ChargePoint	david.schatz@chargepoint.com
DC	Faye Swift	DERA Grants & Policy Team Leader	U.S. Environmental Protection Agency	Swift.Faye@epa.gov
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LA	Barry Keeling	Undersecretary	Louisiana DOTD	Barry.Keeling@la.gov
LA	Carlos McCloud	Transportation Planner	Louisiana FHWA Division Office	carlos.mccloud@dot.gov
LA	Courtney Young	Director	Southeast Louisiana Clean Fuel Partnership	cyoung@norpc.org
LA	Jason Lanclos	Director, State Energy Office	Louisiana Dept. Of Natural Resources	jason.lanclos@la.gov
LA	Jeff Cantin	President	Solar Alternatives	jdcantin@solalt.com
LA	Joshua Hollins	Deputy Secretary	Louisiana DOTD	Joshua.Hollins@la.gov
LA	Paul Pratt	EE & Consumer Programs Manager	Southwestern Electric Power Company	pepratt@aep.com
LA	Shawn Wilson	Secretary	Louisiana DOTD	Shawn.Wilson@la.gov
LA	Sherry McCormack	Manager, Energy Efficiency & Consumer Programs	Southwestern Electric Power Company	slmccormack@aep.com
LA	Vince Latino	Assistant Secretary	Louisiana DOTD	Vince.Latino@la.gov
LA	Vivian Aucoin	Environmental Scientist Manager	Louisiana DEQ	vivian.aucoin@la.gov
LA	Walter Council	Transportation Planner	Imperial Calcasieu Reg. Planning & Dev. Commission	walter@imcal.la
OK	Adriane Jaynes	Alternative Fuels Planner	Tulsa Clean Cities/Indian Nations COG	ajaynes@incog.org

State	Contact Name	Title	Organization	Contact Email
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OK	Emily Smith	Alternative Fuels Planner	Tulsa Clean Cities/ Indian Nations COG	esmith@incog.org
OK	Isaac Akem	Community Planner	Oklahoma FHWA Division Office	isaac.akem@dot.gov
OK	Jared Schwennesen	Assistant to the Director of Capital Programs	ODOT	JSCHWENNESEN@ODOT.ORG
OK	Katie Lippoldt	Policy Advisor and Legislative Affairs	Oklahoma Sec. of Energy and Environment	katie.lippoldt@ee.ok.gov
OK	Lauren Meek	Product Innovation Manager	Oklahoma Gas & Electric	meekle@oge.com
OK	Madison Miller	Supervising Attorney	Oklahoma DEQ	madison.miller@deq.ok.gov
OK	Mark Nestlen	Executive Director	Oklahoma Transit Association	barnonemark@gmail.com
OK	Michael Conklin	Manager of External Engagement	Centerpoint Energy	Michael.Conklin@centerpointenergy.com
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TX	Andrew DeCandis	Acting Coordinator	Houston-Galveston Area Council/Clean Cities	andrew.decandis@h-gac.com
TX	Ashley Duplechien	Regional Sales Representative, Manager of Marketing and Development	Trillium, a Love's Company	ashley.duplechien@trilliumcng.com
TX	Barbara Maley	Air Quality Specialist & Transportation Planner	Texas FHWA Division Office	barbara.maley@dot.gov
TX	Cecilia Howard	Senior Administrative Assistant	North Central Texas COG	CHoward@nctcog.org
TX	Chris Klaus	Senior Program Manager	North Central Texas COG	cklaus@nctcog.org
TX	Curtis Donaldson	General Manager, Propane Business Development	Agility Fuel Solutions	curtis.donaldson@agilityfs.com
TX	Daphne McMurrer	Senior Technical Specialist	Texas CEQ	Daphne.mcmurrer@tceq.texas.gov
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TX	Darryl Spencer	Senior Assistant Vice President, Engineering	Dallas Area Rapid Transit	DSPENCER@dart.org
TX	Dave Aasheim	Sales Director, South Central U.S.	ChargePoint	dave.aasheim@chargepoint.com
TX	David Garcia	DER Product Solutions Manager	Entergy	dgarcia@entergy.com
TX	David Garcia	Transportation Planner	North Central Texas COG	DGarcia@nctcog.org
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