Mid-America Collaborative for Alternative Fuels Implementation

www.metroenergy.org Metropolitan Energy Center 816-531-7283

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Mid America Stakeholder Survey Results Analysis Report

Prepared by ASG Renaissance

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1. BACKGROUND AND SCOPE OF WORK

The Mid-America Collaborative for Alternative Fuel Implementation (the Collaborative) is researching and developing training, tools, and new ideas to accelerate the deployment of alternative fuels across four states: Iowa, Kansas, Missouri, and Nebraska. The Collaborative is led by the Clean Cities Coalitions in Kansas, Iowa, Missouri and Nebraska. (More information on this project can be found here.) As part of this effort, the Collaborative sought input from key stakeholders to identify training needs and key barriers to broad adoption of alternative fuel vehicles (AFVs) and technologies. A survey was developed and conducted in the fourth quarter of 2013.

ASG Renaissance designed and conducted a similar survey of fleet managers and owners regarding their organizations' attitudes, perceptions, and interests regarding alternative fuels. ASG subsequently analyzed and summarized both sets of survey data offering insights on the results. Survey approach, methodology, results, and key findings for the 2013 Stakeholder Survey are documented in this report with some comparisons to the fleet survey.

2. APPROACH / METHODOLOGY

2.1 SURVEY DEVELOPMENT

The Collaborative developed a survey designed to identify important information about the Collaborative's key stakeholders and their fleets. The survey asked respondents to provide a profile of their organization and fleet and asked respondents about their opinions on alternative fuels and AFVs including key barriers to broad adoption of alternative fuels by fleets. Additionally, the survey sought to understand the resources used and the training needed for alternative fuel vehicles. It included 28 questions and was estimated to take approximately 10 minutes to complete. For the purposes of the survey, the following alternative fuels / technologies were considered: 85% Ethanol (E85), 10-15% Ethanol (E10/E15), Biodiesel, Plug-In Electric, Extended Range Electric, Compressed Natural Gas (CNG), Liquefied Natural Gas (LNG), Propane and Hydrogen. A copy of the final survey is included in Appendix 1.

2.2 STAKEHOLDER PROSPECTS LIST

The Collaborative compiled a list of their key stakeholders in the four state (Iowa, Kansas, Missouri, and Nebraska) area. It's estimated that approximately 4500 individuals were sent the survey. Appendix 2 provides a summary of the prospects.

2.3 CONDUCTING THE SURVEY

The survey was loaded into the online survey tool, Survey Monkey utilizing the Collaborative's login. Team members tested the survey prior to launch. The survey was launched in four separate email campaigns, operated by each coalition, which sent invitations to its own coalition members and stakeholders. Reminders were posted in coalition newsletters throughout the campaign, and up to 3 specific email reminders were sent by coalitions. No incentive to participate was offered, except access to the completed analysis. A total of 203 responses were received generating a response rate of approximately __% with a __% confidence level and __% margin of error.

3. STUDY FINDINGS

ASG summarized the aggregate results and compared these results to several sub-sets of the population including:

- Government Entities (79 responses)
- Respondents indicating a high level of AFV knowledge (101 responses)

- Respondents indicating interaction with and/or influence over Fleet Purchase Decision Makers (123 responses)

Additionally, ASG evaluated responses from each of the four states:

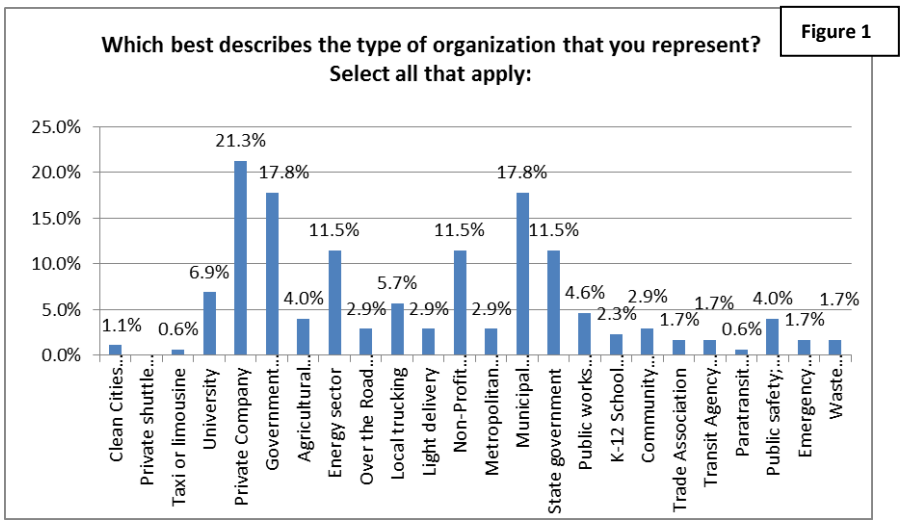
- Kansas (53 responses)
- Iowa (40 responses)
- Missouri (27 responses)
- Nebraska (22 responses)

Given the smaller number of responses for Missouri and Nebraska, this data should be considered to have a lower confidence level and greater margin of error. Complete data/answers to all questions are provided in Appendix 3 to this report. Select state level data is included in Appendix 4. Finally, ASG compared the aggregate results for relevant questions to the 2014 Mid America Collaborative Fleet Survey conducted by ASG Renaissance, provided in Appendix 5.

3.1 BACKGROUND / PROFILE

Of the respondents, 27% indicated they were from Kansas, 20% from Iowa, 14% from Missouri, 11% from Nebraska and 28% from another state. Approximately 81% indicated they lived and worked in an urban area.

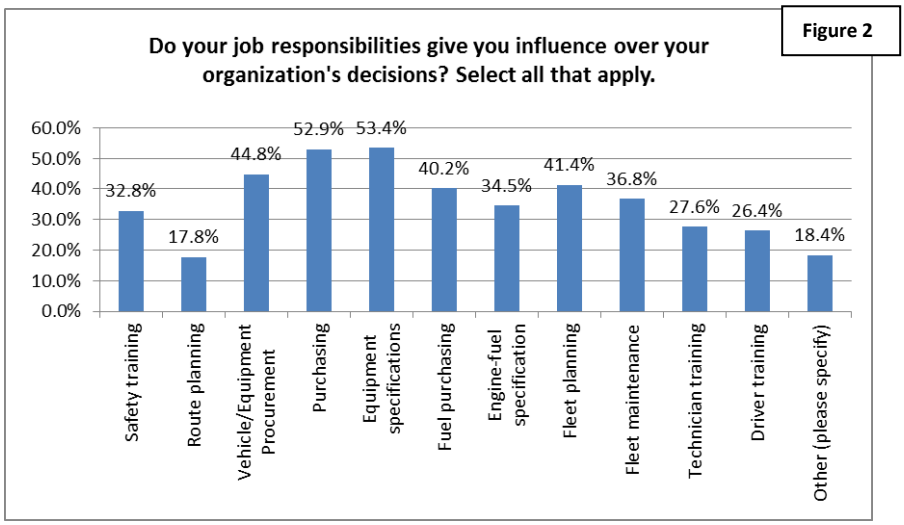
Respondents were asked to describe the organization they represent *(Figure 1).* Municipal and State Governments were 29% (18 + 11%) of the responses. Private companies represented 21%, with Energy Sector and Non-Profit Organizations each representing 12%. When asked to describe their position in their organization top responses included:



Administrator/Manager (46%), Fleet Manager (23%), Planner (11%) and Operations/Logistics (11%). They also indicated influence over the following areas *(Figure 2)*:

- Purchasing (53%)
- Equipment /Specs (53%)
- Vehicle Procurement (44%)
- Fleet Planning (41%)
- Fuel Purchasing (40%)

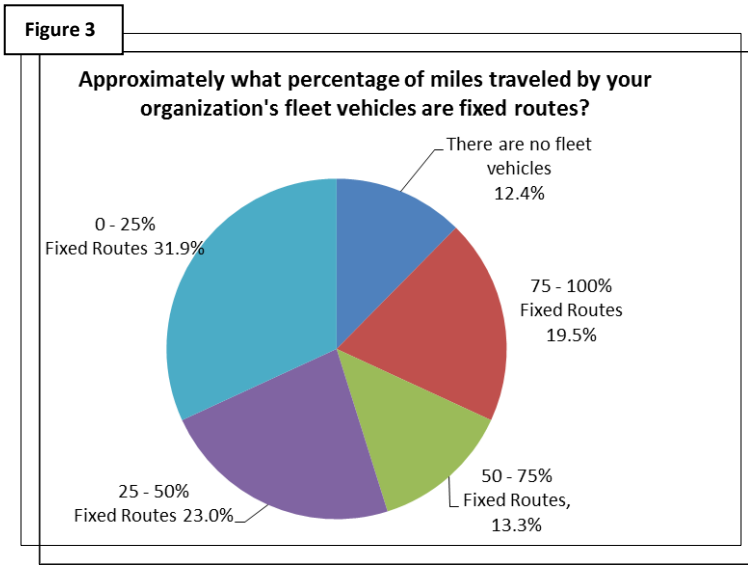
The sub-group, 'Influence over Fleet Purchase 'Decision Makers', had generally higher percentages. Finally more than 70% of respondents indicated they had influence with the fleet decision makers, confirming the survey reached its intended audience.



3.2 FLEETS / ROUTES

The survey asked questions regarding the associated fleets and saw a diversity of responses. Of those who responded, the majority indicated their fleets were comprised of gasoline and diesel vehicles. Smaller percentages included AFVs and even two (of the 112 responses) had hydrogen vehicles. Government respondents had a higher percentage of Biodiesel and Flex Fuel/E85 vehicles.

Routes



The use of fixed routes varied (*Figure 3*) amongst those survey. Those who used fixed routes 75-100% of the time represented 20% of respondents. 50-75% fixed routes totaled 13%; 25-50% fixed routes were 23%; and 0-25% fixed routes equaled 32% of respondents. Twelve percent did not have any fleet vehicles. When asked how many miles fleet vehicles travel on a daily basis, responses varied again as follows:

- Less than 25 miles (12%)
- 25-50 miles (20%)
- 50-100 miles (28%)
- 100-200 miles (16%)
- More than 200 miles (24%)

The survey probed further into the types of routes fleets operate. These included:

Assigned Routes (26%), Return to Base (17%), Highway Corridors within the State (35%), Multi-state Corridors (14%), Local Streets (44%) and Statewide (30%) routes. The stakeholders surveyed represented a wide variety of fleets and routes.

Interstates and Highways

Figure 4

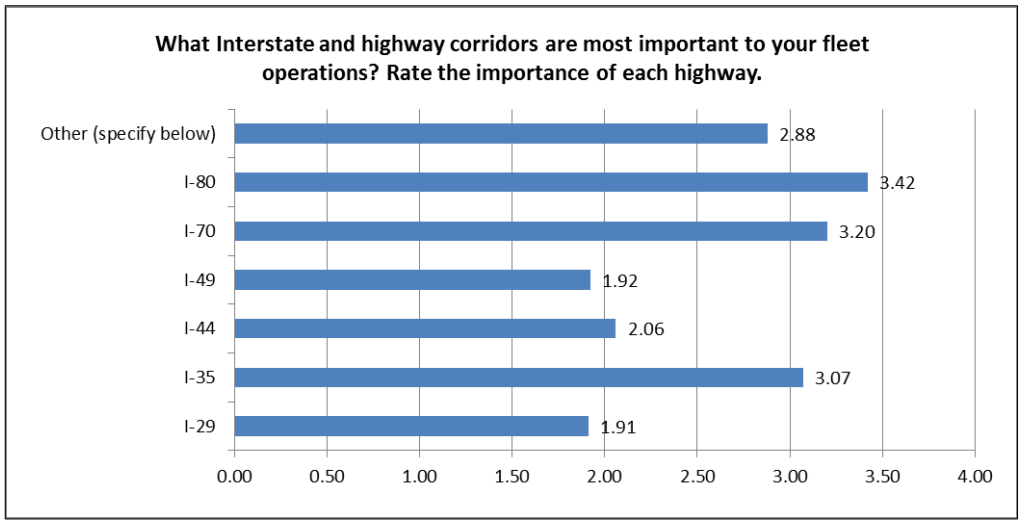


Figure 4 shows the priority of interstate and highway corridors to respondents' fleet operations. These corridors were rated on a scale of 1 (least important) to 4 (most important). I-80 was identified as the most important, followed closely by I-70 and I-35. A variety of other highways were listed in the Other Responses including I-84 and I-90. Appendix 3 includes a complete list of these responses.
Not surprisingly, responses varied by state. I-80 ranked highest for both Iowa and Nebraska, but much lower for Kansas and Missouri who rated its importance as 1.67 and 2.0 respectively. I-70 was rated as most important for Missouri. Kansas ranked I-35 highest with a 3.8 ranking overall. State level responses are included in Appendix 4.

3.3 PERCEPTIONS / BARRIERS

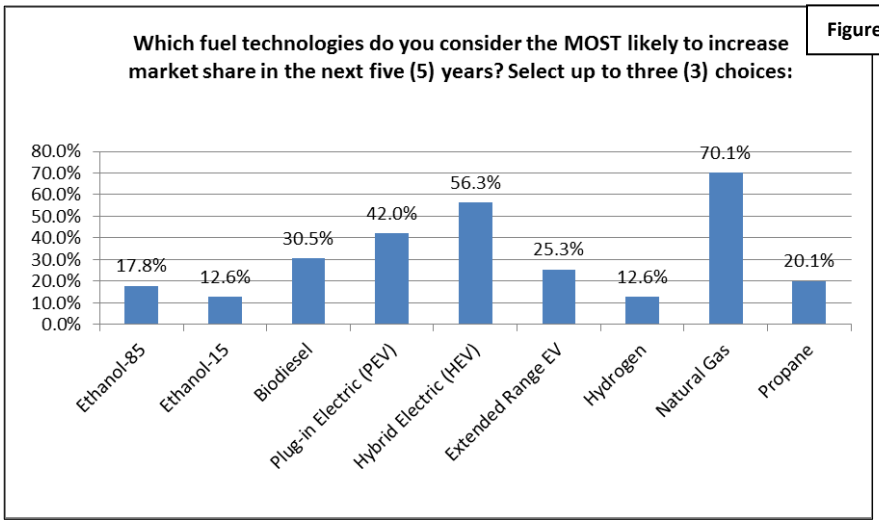
One of the primary purposes of the survey was to obtain an understanding of stakeholder perceptions and the barriers of the various alternative fuel vehicles and technologies.

Perceptions

Initially the survey asked how much the individual knew about each of the alternative fuel technologies. Responses were rated on a scale from Low to Very High. More than half (58%) rated their knowledge High to Very High. Almost 92% of respondents indicated their knowledge was Moderate or higher, leaving 8% suggesting it was Low.

More than 80% of respondents agreed that AFVs had become more commonplace in their industry over the last few years. The survey then asked which alternative fuel technologies (up to three) were most likely

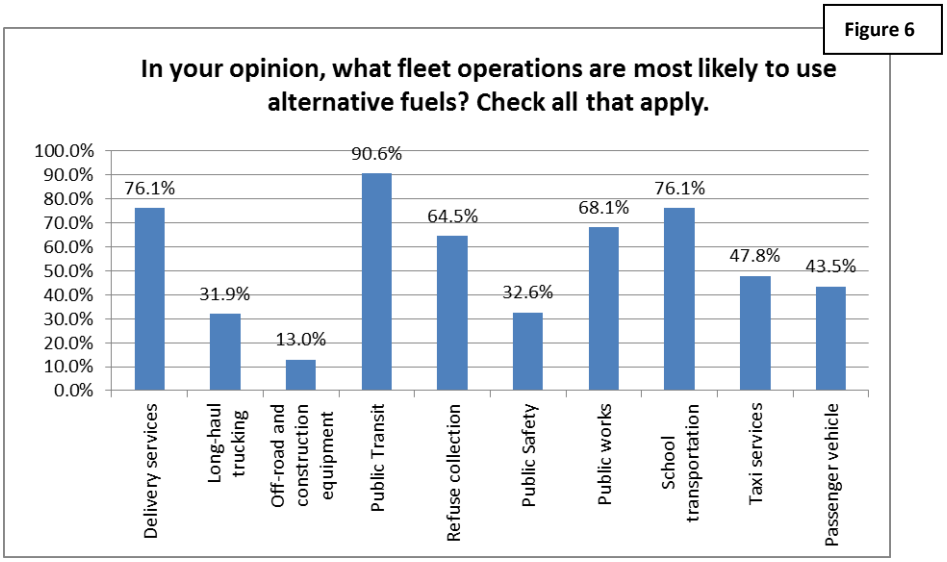
to increase in market share during the next five years. *Figure 5* shows natural gas ranked highest, with 70% of respondents indicating it would increase, followed by Hybrid (56%) and Plug-in Electric Vehicles (42%). Biodiesel was fourth. The Collaborative's 2014 fleet survey asked a similar question. Specifically, fleets were asked to rate which fuel technologies were most



likely to increase in market share over the next 3 years. Ratings were from 'very unlikely' (1) to 'very likely' (4). All technologies were rated as 'likely.' Compressed Natural Gas ranked highest with an average score of 3.29.**The top 3 alternative fuels were consistent between the two surveys. Natural Gas was ranked number 1 by respondents, followed by Plug-In Hybrid Electric Vehicles and then Biodiesel**.

In looking at sub-groups of the stakeholder population, the greatest differences from the total occurred at the state level. Both Kansas and Nebraska respondents ranked Hybrid Electric Vehicles (74% and 73% respectively) as more likely to increase in market share, followed by Natural Gas, Plug-in Electric and Biodiesel. Missouri also ranked Propane third (42%) over Biodiesel in the total population. Rankings by respondents with Influence on Fleet Purchase Decision Makers, High AFV Knowledge, and in Government were consistent with the general population. While Hydrogen ranked last overall in its likelihood to increase in market share, one of the two respondents with Hydrogen vehicles indicated they expected it would increase.

Individuals were then asked how developed the customer base was for each alternative fuel on a scale of 0 to 5. E10/E15 was most developed with a 3.75 rating. Flex fuel, E85 and Biodiesel followed and all received 'Developed' ratings (approximately 3.0). Not surprisingly, Hydrogen received just above a 'Non-Existent' rating.



Taking this one step further, stakeholders were asked to identify which fleets were most likely to use AFVs. *Figure 6* shows that Public Transit was most likely at 91%. Delivery Services and School Transportation both followed with 76% of respondents agreeing they were most likely. Public Works (68%) and Refuse Collection (65%) were the other fleets receiving votes by more than 50% of respondents.

Looking at the sub-groups, respondents with a High Level of AFV Knowledge and Influence Over Fleet Purchase Decision Makers rated Refuse Collection higher (75%) than the overall average (65%). All states rated Public Transit as being most likely to use AFVs. Missouri, however, rated Delivery Services higher than the four state average (at 91% versus 76%), while Iowa and Nebraska ranked Delivery Services fourth overall. Again, detailed responses by state can be found in Appendix 4.

Additionally in this section, the survey asked stakeholders whether they thought that their organizations would require contract service providers (e.g. waste haulers) to use alternative fuels. Feedback was split 51% to 49% with most disagreeing with this statement.

Barriers

The survey sought to understand some of the key barriers to adoption of alternative fuel vehicles. *Figure 7* highlights the top responses to this question. Cost was the main barrier, cited by 68% of the stakeholders. Lack of public infrastructure and cost to retrofit fleet vehicles followed closely behind. Additionally, facility retrofitting and unknown maintenance costs were identified as barriers by 59% and 44% of respondents respectively.

Figure 7

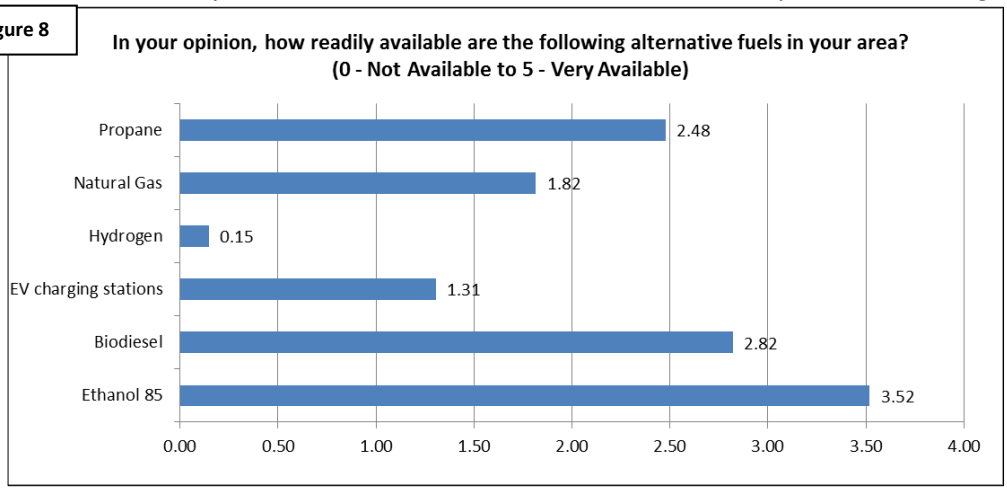
Answer Options	Response Percent
Cost of new alternative fuel vehicle.	68.1%
Lack of public AFV refueling infrastructure	65.9%
Cost of retrofitting current fleet vehicles	63.8%
Cost of facility alternate fuel retrofitting	59.4%
Lack of financial incentives	53.6%
Unknown vehicle maintenance and operations costs	44.2%

Government respondents, as well as those with High AFV knowledge and Influence on Fleet Purchase Decision Makers, ranked the barriers consistent with the total population. At the state level, both Missouri and Nebraska ranked Lack of Public AFV Refueling Infrastructure as the number one barrier to adoption of AFVs followed by cost. Missouri's ranking is supported by their lower ratings on the availability of alternative fuels (see further details below).

The Collaborative's 2014 fleet survey also asked a similar question and results were consistent. Specifically when asked what the BIGGEST barrier to adoption of alternative fuel vehicles is within their organization, incremental cost was cited most (35%) followed very closely by a lack of refueling infrastructure (33%). Unknown maintenance and operating costs were cited by 13% of respondents in the later survey.

To understand whether fuel availability was a barrier for some alternative fuel vehicles, the survey asked on a scale of 5-Very Available to 0-Not Available, to rate availability of each fuel. *Figure 8* shows that only two fuels, E85 and Biodiesel received 'Available' ratings. Propane and Natural Gas were somewhat available. EV Charging Stations had limited availability, and Hydrogen was rated as 'Not Available'.

Figure 8



Fuel availability was rated similarly in the Collaborative's 2014 fleet survey as well.

With the exception of Kansas, E85 was ranked as the most available alternative fuel. In Kansas, Propane ranked higher with a rating of 3.42 versus 3.05 for E85. Kansas respondents ranked Biodiesel lower (2.45) in the 'somewhat' available range. Stakeholders from Iowa ranked availability of Natural Gas much lower with a 1.08 rating vs. 1.82 overall. Clearly fuel availability remains a key barrier to broader adoption of AFVs.

3.4 RESOURCES / TRAINING

This survey also sought to understand the resources used and training requirements of its stakeholders. The data showed that more than 75% of respondents planned to train current employees on alternative fuel vehicles and related equipment. Additionally, one-third of those who responded indicated they would use purchased/contracted services to support adoption of AFVs.

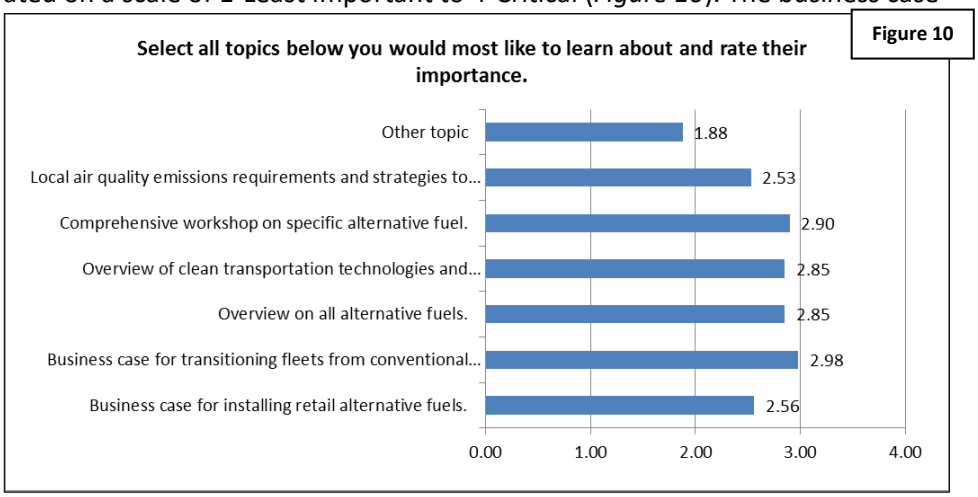
When asked about the resources they use to obtain knowledge about alternative fuels and alternative fuel vehicles, almost 80% cited the internet. Manufacturers, trade journals and Clean Cities Coalitions were also cited by more than 45% of respondents. See *Figure 9* below.

Figure 9

Answer Options	Response Percent
Internet websites	79.3%
Manufacturers	49.4%
Trade journals	46.0%
Clean Cities coalition	45.4%
Printed periodicals	42.0%
E-Periodicals	40.8%

Webinars	39.7%

Stakeholders were asked which topics they would like to learn about relative to alternative fuels. Suggested topics were rated on a scale of 1-Least Important to 4-Critical (*Figure 10*). The business case for transitioning fleets from conventional to alternative fuels was ranked highest (2.98), followed by a comprehensive workshop on specific alternative fuels (2.90). Overviews on alternative fuels and clean transportation technologies ranked as 'More Important' with ratings of 2.85.



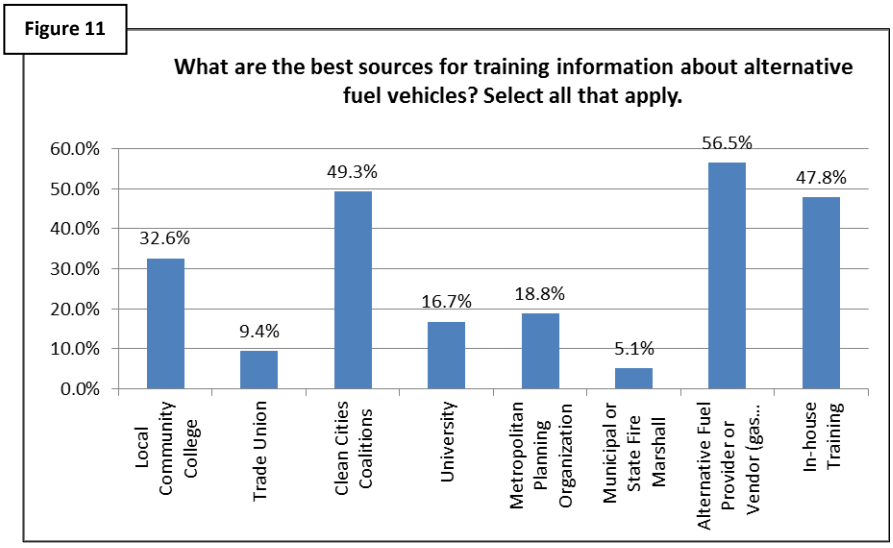
The business case for installing retail alternative fuels and local air quality emissions requirements/strategies also ranked as 'More Important'. Comments provided by stakeholders and other topic write-ins suggest that respondents are most interested in natural gas, though there was also interest in propane and electric vehicle technologies. All feedback is provided in detail in **Appendix 3**.

Sub-group feedback did not differ significantly from responses overall. Iowa and Kansas prioritized Local Air Quality Emissions Requirements lower with ratings of 2.38 and 1.89 respectively. **Appendix 4** provides the detailed responses.

The survey confirmed that stakeholders were interested in a credible fleet planning tool with 75% of respondents agreeing this was a need. **This was also consistent with the 2014 Mid America Collaborative's Fleet Survey feedback; exactly 75% of respondents agreed that their organization would use this type of tool.**

The survey then asked what stakeholders viewed as the best sources for training on alternative fuels (*Figure 11*).

Figure 11



More than 56% of respondents indicated the Alternative Fuel Provider or Vendor was the best resource, followed by the Clean Cities Coalitions (49%). In-house training ranked third at 48%. When asked which month was best for training, October and May ranked highest. In general, all months were favorable except January and December. Government respondents, as well as those with High AFV Knowledge and Influence on Fleet Purchase Decision Makers, ranked the best resources for training consistent with the overall survey. Those with High AFV Knowledge gave the Clean Cities Coalitions and Alternative Fuel Providers/Vendors higher percentages.

Finally, stakeholders were asked for what reasons would they be authorized to travel. Approximately 80% indicated they could travel for a multi-day training conference or one-day training workshop. Approximately 65% could travel for an informational conference.

4. CONCLUSIONS / RECOMMENDATIONS

The Mid America Collaborative's online survey was completed by more than 200 of its key stakeholders, almost three quarters of whom have influence over fleet decision makers. Respondents included a mix of public and private organizations and represented a variety of fleet sizes, routes and miles traveled. Further, most respondents had some familiarity with alternative fuel vehicles / technologies.

The survey provided key insights into the barriers to adoption for, stakeholders' perceptions of, and training needs on alternative fuel vehicles / technologies. Responses were consistent with the Collaborative's fleet survey conducted in 2014. This survey also offered state level insights, not captured in the 2014 fleet survey.

The survey confirmed that the top three barriers to broad adoption of alternative fuel vehicles and technologies (consistent with the 2014 fleet survey) were:

- Cost of new alternative fuel vehicles / retrofitting current fleet vehicles
- Lack of public refueling infrastructure
- Cost of facility alternative fuel retrofitting

One key insight from the survey was that responses from stakeholders with 'High AFV Knowledge' were not significantly different from the total population. This suggests that these barriers (first and foremost cost) are real and should be the focus of Clean Cities efforts. For example, tools, education and outreach that address the fuel / cost savings of AFVs would be beneficial. Similarly, data on actual maintenance costs for AFVs would assist fleet managers in building the business case for AFV adoption.

A lack of public refueling infrastructure was identified by stakeholders in Missouri and Nebraska as the top barrier over cost. Relative to priority highway corridors, I-80, I-70 and I-35 were the top three most important interstates to stakeholders' fleet operations. Iowa and Nebraska respondents identified I-80 as number one. Missouri selected I-70 and Kansas prioritized I-35. This insight should be considered as additional AFV refueling infrastructure is planned.

Relative to perceptions, respondents identified Natural Gas, Hybrid and Plug-In Electric vehicle technologies as the most likely to increase over the next five years. Stakeholders perceived this despite the fact that each fuel was not readily available. Kansas and Nebraska respondents ranked Hybrid Electric Vehicles more likely to increase in market share over Natural Gas. The survey didn't address the rationale for these selections, but may be driven by AFV marketing efforts, education and/or simply the anticipated cost benefits across each state, reflecting a potential opportunity for the Collaborative.

Stakeholders provided insight into the types of fleets which were most likely to use AFVs. The top candidates were identified as follows:

- Public Transit
- Delivery Services
- School Transportation
- Public Works
- Refuse Collection

These may have been selected, at least in part, because of the cost barrier. That is, since they consume a high amount of fuel, the payback period on the incremental AFV cost may be shorter. Clean Cities Coalitions may consider prioritizing these fleets over others given limited resources. At a state level, Missouri rated Delivery Services much higher than the other states. Further discussions with these stakeholders on why they believe this to be the case may identify greater opportunities for conversions.

More than 75% of respondents plan to train current employees on alternative fuel vehicles and related equipment. Although most respondents indicated they could travel for a multi-day training conference / workshop, the most cited resource for information on alternative fuel vehicles / technologies was the internet. This suggests that web-based training material would be well received by key stakeholders. Training topics should include: the business case for transitioning fleets from conventional to alternative fuels (i.e. cost), comprehensive workshop on specific alternative fuels (most asked for Natural Gas), and an overview of all AFV/clean transportation technologies. Further, three quarters of stakeholders agreed there was a need for a credible fleet planning tool.

Consistent with the 2014 survey of fleet managers, the Collaborative should continue to work with fleets to develop their business cases for converting to alternative fuel vehicles. The Collaborative should prioritize those fleets identified by the survey as being most likely to adopt AFVs. Insights on costs (e.g. fuel, maintenance) as well as grants/resources to reduce costs will be valued.

APPENDIX 1 – SURVEY

INTRODUCTION

The Mid-America Collaborative for Alternative Fuels Implementation and the Iowa, Kansas, Missouri and Nebraska Clean Cities Coalitions' mission is to reduce, replace and eliminate petroleum use in the

transportation sector. We have come together in the Mid-America Collaborative to do a variety of activities aimed at reducing barriers to adoption of alternative fuels.

As part of this collaborative, we are conducting the Mid-America Alternative Collaborative Fuels Stakeholder Survey to gauge opinions concerning alternative fuels and alternative fuel vehicles in our 4-state region. The survey results will be used for public and private sector planning, research and other purposes.

Your opinion is valuable to us. Thank you for taking the time to complete the Mid-America Alternative Collaborative Fuels Stakeholder Survey.

This project is funded by a Department of Energy grant: DE-FOA-0000708.

BACKGROUND

1. Please fill out city and state of your company/organization. Further contact information is optional, and will enable us to provide you with information on financial incentives, training and new technologies related to alternative fuels.

   Name: Company:
   City/Town: State: ZIP:
   Email Address: Phone Number:

2. Do you live and work in a rural area or an urban area?
   - ☐ Rural area
   - ☐ Urban area

3. Which best describes the type of organization that you represent? Select all that apply:
   - ☐ Clean Cities coalition
   - ☐ Private shuttle or bus service
   - ☐ Taxi or limousine
   - ☐ University
   - ☐ Private Company
   - ☐ Government agency
   - ☐ Agricultural sector
   - ☐ Energy sector
   - ☐ Over the Road Trucking
   - ☐ Local trucking
   - ☐ Light delivery
   - ☐ Non-Profit Organization Metropolitan Planning Organization or Council of Governments
   - ☐ Municipal government
   - ☐ State government
   - ☐ Public works department
   - ☐ K-12 School district
   - ☐ Community College
   - ☐ Trade Association
   - ☐ Transit Agency (more than 15-passenger vehicles)
   - ☐ Paratransit Agency (less than 15-passenger vehicles)
   - ☐ Public safety; including law, fire and rescue
   - ☐ Emergency management agency
   - ☐ Waste management

4. What generally describes your position in the organization? Select all that apply:

- ☐ Owner
- ☐ Administrator or manager
- ☐ Board member
- ☐ Fleet Manager
- ☐ Procurement
- ☐ Vehicle maintenance and repair
- ☐ Safety officer
- ☐ Engineer
- ☐ Planner
- ☐ Municipal permits and code enforcement/ plans review
- ☐ Fire Prevention/ plans review
- ☐ Operations and Logistics
- ☐ Legal
- ☐ Public information
- ☐ Legislative
- ☐ Training
- ☐ Other (please specify) _____

5. Do your job responsibilities give you influence over your organization's decisions? Select all that apply.

- ☐ Safety training
- ☐ Route planning
- ☐ Vehicle/Equipment Procurement
- ☐ Purchasing
- ☐ Equipment specifications
- ☐ Fuel purchasing
- ☐ Engine-fuel specification
- ☐ Fleet planning
- ☐ Fleet maintenance
- ☐ Technician training
- ☐ Driver training
- ☐ Other (please specify) _____

6. How do you rate your current level of knowledge about alternative fuels and alternative fuel vehicles?

- ☐ Very high
- ☐ High
- ☐ Medium
- ☐ Low

7. What sources would you consult when seeking knowledge about alternative fuels and alternative fuel vehicles?

- ☐ Printed periodicals
- ☐ E-Periodicals
- ☐ Trade journals
- ☐ Internet websites
- ☐ Trade school training
- ☐ Trade union training
- ☐ Metropolitan planning agency
- ☐ Webinars
- ☐ Standards organizations
- ☐ Manufacturers
- ☐ Clean Cities coalition
- ☐ Alternative Fuels Data Center
- ☐ Public Permit and code officials
- ☐ Trade groups and associations
- ☐ State or Federal Environmental Protection Agency
- ☐ State or Federal Transportation Department
- ☐ State or Federal Energy Office
- ☐ Other (please specify) _____

8. Which fuel technologies do you consider the MOST likely to increase market share in the next five (5) years? Select up to three (3) choices:

- ☐ Ethanol-85
- ☐ Ethanol-15
- ☐ Biodiesel
- ☐ Plug-in Electric (PEV)
- ☐ Hybrid Electric (HEV)
- ☐ Extended Range EV
- ☐ Hydrogen
- ☐ Natural Gas
- ☐ Propane

9. Do you agree or disagree with this statement?
Alternative fuel vehicles have become more commonplace in my industry during the past few years.

- ☐ Agree
- ☐ Disagree

10. Do your job responsibilities in any way interact with company fleet operations or give you influence with the fleet decision-maker?

- ☐ Yes
- ☐ No

FLEET QUESTIONS

11. Approximately what percentage of miles traveled by your organization's fleet vehicles is fixed routes?

- ☐ There are no fleet vehicles
- ☐ 75 - 100% fixed routes
- ☐ 50 - 75% fixed routes
- ☐ 25 - 50% fixed routes
- ☐ 0 - 25% fixed routes

12. How many miles do your vehicles travel on a daily basis?

- ☐ There are no fleet vehicles
- ☐ Less than 25 miles
- ☐ 25-50 miles
- ☐ 50-100 miles
- ☐ 100-200 miles
- ☐ More than 200 miles

13. What Interstate and highway corridors are most important to your fleet operations? Rate the importance of each highway.

	1-Least Important	2	3	4-Most Important	N/A
☐ I-29					
☐ I-35					
☐ I-44					
☐ I-49					
☐ I-70					
☐ I-80					
☐ Other (specify below) _____					

14. What best describes the routes your fleet operates on? Select all that apply:
- ☐ Not applicable
- ☐ Assigned routes
- ☐ Return to base
- ☐ Highway corridors within state
- ☐ Multi-state corridors
- ☐ Local streets
- ☐ Statewide

15. How many vehicles of the following fuel types are in your fleet?
- ☐ Gasoline
- ☐ Diesel
- ☐ Biodiesel
- ☐ Plug-in EV
- ☐ Extended Range EV
- ☐ Flex Fuel / E85
- ☐ Hydrogen
- ☐ Natural Gas
- ☐ Propane

GENERAL OPINION AND TRAVEL

16. For what reasons would you travel (and be authorized to travel) out of town?
- ☐ Training Conference (multi-day)
- ☐ Training Workshop (one-day)
- ☐ Informational Conference
- ☐ Technology Exposition
- ☐ As a Best-Practices Presenter/Trainer
- ☐ Other (please specify) _____

17. Select all topics below you would most like to learn about and rate their importance.

	Least Important	Less Important	More Important	Critical	N/A
☐ Business case for installing retail alternative fuels					
☐ Business case for transitioning fleets from conventional to alternative fuels					
☐ Overview on all alternative fuels					
☐ Overview of clean transportation technologies and policies (such as idle reduction)					
☐ Comprehensive workshop on specific alternative fuel					
☐ Local air quality emissions requirements and strategies to mitigate local emissions					
☐ Other topic (please specify) _____					

18. What months would be most convenient to participate in an out-of-town workshop?
- ☐ Sept
- ☐ Oct
- ☐ Nov
- ☐ Dec
- ☐ Jan
- ☐ Feb
- ☐ March
- ☐ April
- ☐ May
- ☐ June
- ☐ July
- ☐ Aug

19. In your opinion, how will organizations obtain the necessary skills and/ or certifications related to alternative fuel vehicles and/ or equipment? Select all that apply.
- ☐ They will train current employees
- ☐ They will hire new employees
- ☐ They will extend staff using purchased or contracted services
- ☐ I don't know

20. What are the best sources for training information about alternative fuel vehicles? Select all that apply.

- ☐ Local Community College
- ☐ Trade Union
- ☐ Clean Cities Coalitions
- ☐ University
- ☐ Metropolitan Planning Organization
- ☐ Municipal or State Fire Marshall
- ☐ Alternative Fuel Provider or Vendor (gas utility, propane supplier, equipment installer, etc.)
- ☐ In-house Training

21. Do you agree or disagree with this statement?
Organizations like mine would use a credible alternative fuel fleet planning tool.

- ☐ Agree
- ☐ Disagree

22. In my opinion, many organizations will require contracted service providers such as waste haulers to use alternative fuel vehicles.

- ☐ Agree
- ☐ Disagree
- ☐ Comment (optional) _____

23. In your opinion, what fleet operations are most likely to use alternative fuels? Check all that apply.

- ☐ Delivery services
- ☐ Long-haul trucking
- ☐ Off-road and construction equipment
- ☐ Public Transit
- ☐ Refuse collection
- ☐ Public Safety
- ☐ Public works
- ☐ School transportation
- ☐ Taxi services
- ☐ Passenger vehicle

24. In your opinion, how readily available are the following alternative fuels in your area? (0 - Not Available to 5 - Very Available)

	0	1	2	3	4	5
☐ E85						
☐ Biodiesel						
☐ EV Charging Stations						
☐ Hydrogen						
☐ Natural Gas						
☐ Propane						

25. In your opinion, what items below best describe the barriers limiting the adoption of alternate fuels and vehicles? Select all that apply.

- ☐ Cost of new alternative fuel vehicle.
- ☐ Lack of public AFV refueling infrastructure
- ☐ Lack of financial incentives
- ☐ Unknown vehicle resale market
- ☐ Cost of retrofitting current fleet vehicles
- ☐ Cost of facility alternate fuel retrofitting
- ☐ Local government regulations
- ☐ Local permitting process
- ☐ Unknown vehicle maintenance and operations costs
- ☐ Lack of alternative fuels fleet planning guidelines and resources
- ☐ Alternative fuels are not in state or metropolitan planning agency transportation plan
- ☐ Lack of market ready alternative fuel vehicles

- ☐ Outdated utility statutes
- ☐ Cost of training current staff
- ☐ Lack of staff training resources
- ☐ There is good petroleum supply and availability

26. How large do you think the customer base for each of the following alternative fuel types to be? (0- Non-Existent to 5- Very Developed including column for "Don't Know")

	0	1	2	3	4	5
☐ E15						
☐ Biodiesel						
☐ Plug-in EV						
☐ Extended Range EV						
☐ Flex Fuel E85						
☐ Hydrogen						
☐ Natural Gas						
☐ Propane						
☐ E85						

27. Select the Clean Cities Coalitions below where you consider yourself a member or stakeholder.
- ☐ Central Kansas Clean Cities Coalition
- ☐ Iowa Clean Cities Coalition
- ☐ Kansas City Regional Clean Cities Coalition
- ☐ Nebraska Clean Cities Coalition
- ☐ St. Louis Regional Clean Cities Coalition
- ☐ I don't work closely with Clean Cities

28. I am interested in learning more about Clean Cities, Alternative Fuel, Idle Reduction Technology and Policies, or other topics in this survey (please specify in comment box).

APPENDIX 2 – STAKEHOLDER PROSPECTS / STATISTICS

Source	State(s)	No. of Prospects
Iowa Clean Cities Coalition	Iowa	
Kansas City Regional Clean Cities	Kansas / Missouri	2200
St. Louis Regional Clean Cities	Missouri	
Nebraska Clean Cities	Nebraska	
	Total Surveyed	

Note: The numbers of prospects are rough estimates only.

APPENDIX 3 – SURVEY RESPONSES

1. **Please fill out city and state of your company/organization. Further contact information is optional, and will enable us to provide you with information on financial incentives, training and new technologies related to alternative fuels.**

Answer Options	Response Percent	Response Count
Name:	84.6%	143
Company:	82.2%	139
City/Town:	100.0%	169
State:	100.0%	169
ZIP:	83.4%	141
Email Address:	76.9%	130
Phone Number:	74.0%	125
	answered question	169
	skipped question	34

Note: Contact information where provided has been included in separate Excel file.

2. **Do you live and work in a rural area or an urban area?**

Answer Options	Response Percent	Response Count
Rural area	18.8%	36
Urban area	81.3%	156
	answered question	192
	skipped question	11

3. **Which best describes the type of organization that you represent? Select all that apply:**

Answer Options	Response Percent	Response Count
Clean Cities coalition	1.1%	2
Private shuttle or bus service	0.0%	0
Taxi or limousine	0.6%	1
University	6.9%	12
Private Company	21.3%	37
Government agency	17.8%	31
Agricultural sector	4.0%	7
Energy sector	11.5%	20
Over the Road Trucking	2.9%	5
Local trucking	5.7%	10
Light delivery	2.9%	5
Non-Profit Organization	11.5%	20
Metropolitan Planning Organization or Council of Governments	2.9%	5
Municipal government	17.8%	31
State government	11.5%	20

Public works department	4.6%	8
K-12 School district	2.3%	4
Community College	2.9%	5
Trade Association	1.7%	3
Transit Agency (more than 15-passenger vehicles)	1.7%	3
Paratransit Agency (less than 15-passenger vehicles)	0.6%	1
Public safety; including law, fire and rescue	4.0%	7
Emergency management agency	1.7%	3
Waste management	1.7%	3
	answered question	174
	skipped question	29

4. What generally describes your position in the organization? Select all that apply:

Answer Options	Response Percent	Response Count
Owner	5.7%	10
Administrator or manager	46.0%	80
Board member	4.6%	8
Fleet Manager	23.0%	40
Procurement	7.5%	13
Vehicle maintenance and repair	9.2%	16
Safety officer	2.9%	5
Engineer	6.9%	12
Planner	10.9%	19
Municipal permits and code enforcement/ plans review	2.3%	4
Fire Prevention/ plans review	0.6%	1
Operations and Logistics	10.9%	19
Legal	2.3%	4
Public information	6.9%	12
Legislative	2.3%	4
Training	8.6%	15
Other (please specify)		28
	answered question	174
	skipped question	29

Other Responses:

- Marketing
- Mayor
- Marketing/ NGV Specialist
- Energy Specialist Project Manager
- Volunteer
- Economic Development
- Natural gas utility
- Economic Development
- Consultant
- Graduate Assistant
- Equipment specifications
- Sustainability Specialist
- Fuel Director
- Professor
- Instructor
- Instructor
- Sales
- General Manager

- Env. Health Specialist
- Environmental scientist
- Truck Equipment Sales/Quoting
- Marketing
- Energy Manager
- GM
- Gas Operations
- Writer for electric vehicle charging station products
- VP of Sales & Marketing Sustainability (Statewide Network of Community Colleges)

5. Do your job responsibilities give you influence over your organization's decisions? Select all that apply.

Answer Options	Response Percent	Response Count
Safety training	32.8%	57
Route planning	17.8%	31
Vehicle/Equipment Procurement	44.8%	78
Purchasing	52.9%	92
Equipment specifications	53.4%	93
Fuel purchasing	40.2%	70
Engine-fuel specification	34.5%	60
Fleet planning	41.4%	72
Fleet maintenance	36.8%	64
Technician training	27.6%	48
Driver training	26.4%	46
Other (please specify)	18.4%	32
	answered question	174
	skipped question	29

Other Responses:

- None
- No
- Doesn't apply
- Mayor
- Strategy, Compliance
- Alternative Fuels Coordinator
- None if the above
- Development and Planning
- None
- Marketing
- Total organizational decision making responsibility
- N/A
- None
- Public relations
- Planning
- I write State implementation plans and regulations
- Blah
- All organizational decisions
- Utility bills /develop strategies for energy efficiency
- No, it does not
- N/A
- Safety operations curriculum
- No influence over organizational decisions beyond teaching
- Not applicable
- Student advising and planning with faculty
- Sales
- None
- Help the client set up a program when it comes to fueling of their vehicles
- Only on use of product
- I have opportunity to share information, not necessarily influence decisions
- Management
- Research

6. **How do you rate your current level of knowledge about alternative fuels and alternative fuel vehicles?**

Answer Options	Response Percent	Response Count
Very high	19.5%	34
High	38.5%	67
Medium	33.9%	59
Low	8.6%	15
	answered question	174
	skipped question	29

7. **What sources would you consult when seeking knowledge about alternative fuels and alternative fuel vehicles?**

Answer Options	Response Percent	Response Count
Printed periodicals	42.0%	73
E-Periodicals	40.8%	71
Trade journals	46.0%	80
Internet websites	79.3%	138
Trade school training	6.3%	11
Trade union training	0.6%	1
Metropolitan planning agency	22.4%	39
Webinars	39.7%	69
Standards organizations	21.8%	38
Manufacturers	49.4%	86
Clean Cities coalition	45.4%	79
Alternative Fuels Data Center	25.3%	44
Public Permit and code officials	5.7%	10
Trade groups and associations	34.5%	60
State or Federal Environmental Protection Agency	36.8%	64
State or Federal Transportation Department	35.6%	62
State or Federal Energy Office	29.9%	52
Other (please specify)	5.2%	9
	answered question	174
	skipped question	29

Other responses:

- Staff
- Associates from that industry
- Expos
- Sierra Club and other environmental not-for-profits
- Experience
- Other agencies who have experience using the technology
- Current users
- Internal division that specializes in propane as an alternative fuel
- Those with personal experience

8. **Which fuel technologies do you consider the MOST likely to increase market share in the next five (5) years? Select up to three (3) choices:**

Answer Options	Response Percent	Response Count
Ethanol-85	17.8%	31
Ethanol-15	12.6%	22
Biodiesel	30.5%	53
Plug-in Electric (PEV)	42.0%	73
Hybrid Electric (HEV)	56.3%	98
Extended Range EV	25.3%	44
Hydrogen	12.6%	22
Natural Gas	70.1%	122
Propane	20.1%	35
	answered question	174
	skipped question	29

9. **Do you agree or disagree with this statement? Alternative fuel vehicles have become more commonplace in my industry during the past few years.**

Answer Options	Response Percent	Response Count
Agree	84.5%	147
Disagree	15.5%	27
	answered question	174
	skipped question	29

10. **Do your job responsibilities in any way interact with company fleet operations or give you influence with the fleet decision-maker?**

Answer Options	Response Percent	Response Count
Yes	70.7%	123
No	29.3%	51
	answered question	174
	skipped question	29

11. **Approximately what percentage of miles traveled by your organization's fleet vehicles is fixed routes?**

Answer Options	Response Percent	Response Count
There are no fleet vehicles	12.4%	14
75 - 100% fixed routes	19.5%	22
50 - 75% fixed routes	13.3%	15
25 - 50% fixed routes	23.0%	26
0 - 25% fixed routes	31.9%	36
	answered question	113
	skipped question	90

12. How many miles do your vehicles travel on a daily basis?

Answer Options	Response Percent	Response Count
There are no fleet vehicles	8.0%	9
Less than 25 miles	11.5%	13
25-50 miles	19.5%	22
50-100 miles	26.5%	30
100-200 miles	15.0%	17
More than 200 miles	23.0%	26
	answered question	113
	skipped question	90

13. What Interstate and highway corridors are most important to your fleet operations? Rate the importance of each highway.

Answer Options	Least Important	2	3	Most Important	N/A	Rating Average	Response Count
I-29	14	9	7	2	9	1.91	41
I-35	4	6	14	17	0	3.07	41
I-44	5	7	4	1	5	2.06	22
I-49	7	2	2	2	6	1.92	19
I-70	2	5	12	16	4	3.20	39
I-80	2	3	7	21	7	3.42	40
Other (specify below)	4	1	5	7	6	2.88	23
Other (please specify)							35
						answered question	85
						skipped question	118

Other Responses:

- I-74
- I-270
- 270
- Local transit
- Highway 40 between Denver and Salt Lake City
- Kansas Turnpike
- US-54/400
- I-135/ US 81
- Metropolitan area highways
- Survey flawed, can only pick one option here
- I'm identifying 71 as 49 here.
- I-84; I-86; I-90; I-15; SH55
- I-15, I-84, I-86, I-90, US-95, US-93
- I-90
- I-76, I-25 all very important
- I-55 and I-57
- I-94
- I-90 and I-15
- I70 and I 35 are the only routes in KS
- I-40 is a $ also
- Very rough prioritization
- HWY-34, 92, 71
- I-90 I-94
- Do not use these roadways
- Hwy 69
- x56
- I-270, I-255, I-64
- Hwy 30
- Highway 20
- I-235
- 40/64
- Rte. 3 and 255 between campuses

- I-5, I-90, I84,
- We don't have any of these corridors in our state
- Our travel is usually limited to inside our city limits

14. What best describes the routes your fleet operates on? Select all that apply:

Answer Options	Response Percent	Response Count
Not applicable	11.5%	13
Assigned routes	25.7%	29
Return to base	16.8%	19
Highway corridors within state	35.4%	40
Multi-state corridors	14.2%	16
Local streets	44.2%	50
Statewide	30.1%	34
	answered question	113
	skipped question	90

15. How many vehicles of the following fuel types are in your fleet?

Answer Options	Response Percent	Response Count
Gasoline	85.7%	96
Diesel	68.8%	77
Biodiesel	47.3%	53
Plug-in EV	40.2%	45
Extended Range EV	37.5%	42
Flex Fuel / E85	52.7%	59
Hydrogen	33.0%	37
Natural Gas	47.3%	53
Propane	42.0%	47
	answered question	112
	skipped question	91

16. For what reasons would you travel (and be authorized to travel) out of town?

Answer Options	Response Percent	Response Count
Training Conference (multi-day)	84.4%	92
Training Workshop (one-day)	79.8%	87
Informational Conference	65.1%	71
Technology Exposition	44.0%	48
As a Best-Practices Presenter/Trainer	43.1%	47
Other (please specify)	11.9%	13
	answered question	109

skipped question 94

Other Responses:

- Promote military & civilian EV vehicles on renewable energy
- Vacation
- Professional Organization Meetings
- Customer visits
- Sales opportunity or training
- Business Development
- Financing
- Out-of-state travel has to be budgeted for 2 yrs. in advance
- General Work Responsibilities
- Inmate transportation
- Customer visits
- Research
- Enforcement and inspections

17. Select all topics below you would most like to learn about and rate their importance.

Answer Options	Least Important	Less Important	More Important	Critical	N/A	Rating Avg	Response Count
a. Business case for installing retail alternative fuels.	18	30	37	20	5	2.56	110
b. Business case for transitioning fleets from conventional to alternative fuels.	7	18	51	30	3	2.98	109
c. Overview on all alternative fuels.	4	29	52	21	1	2.85	107
d. Overview of clean transportation technologies and policies (such as idle reduction).	5	29	47	23	3	2.85	107
e. Comprehensive workshop on specific alternative fuel.	3	30	47	25	2	2.90	107
f. Local air quality emissions requirements and strategies to mitigate local emissions.	16	35	35	18	3	2.53	107
g. Other topic	5	1	0	2	20	1.88	28
Optional (Please specify)							6

answered question 111
skipped question 92

a. Business case for installing retail alternative fuels - Additional Details:

- CNG or LPG
- cng
- CNG
- CNG
- CNG or LNG
- Propane
- LPG
- have investigated it is not worth the cost
- Electric and natural gas vehicles
- Propane

b. Business case for transitioning fleets from conventional to alternative fuels - Additional Details:
   - CNG or LPG
   - cng
   - CNG
   - EV and Natural Gas
   - CNG
   - CNG or LNG
   - Propane
   - LPG

   Propane

c. Overview on all alternative fuels - Additional Details:
   - EV and Natural Gas
   - Propane
d. Overview of clean transportation technologies and policies (such as idle reduction) - Additional Details:
   - EV and Natural Gas
   - LPG
   - Propane
e. Comprehensive workshop on specific alternative fuel.- Additional Details:
   - CNG
   - CNG
   - CNG or LNG
   - Propane
   - Natural gas
   - LPG
   - CNG
   - CNG
   - CNG
   - Electric and natural gas vehicles
   - Electric Vehicles and PEV
   - CNG
   - PROPANE
   - electric vehicles
f. Local air quality emissions requirements and strategies to mitigate local emissions – Additional Details
   - EV and Natural Gas
   - electric EV charged by renewable wind & solar
   - Propane
g. Optional Topics:
   - Use of Nitrogen as an inflation medium for managed fleets
   - Completing CNG Corridors throughout the USA
   - Financing
   - Projections for CNG supply, legislation, OEM build-out
   - Funding opportunities for CNG infrastructure
   - What governments can do to incentivize businesses and individuals to use alternative fuels

18. What months would be most convenient to participate in an out-of-town workshop?

Answer Options	Response Percent	Response Count
Sept	25.5%	27
Oct	36.8%	39
Nov	24.5%	26
Dec	11.3%	12
Jan	20.8%	22

Feb	34.0%	36
Mar	34.9%	37
Apr	35.8%	38
May	36.8%	39
Jun	34.0%	36
Jul	35.8%	38
Aug	31.1%	33
	answered question	106
	skipped question	97

19. In your opinion, how will organizations obtain the necessary skills and/ or certifications related to alternative fuel vehicles and/ or equipment? Select all that apply.

Answer Options	Response Percent	Response Count
They will train current employees	76.1%	105
They will hire new employees	16.7%	23
They will extend staff using purchased or contracted services	32.6%	45
I don't know.	10.1%	14
	answered question	138
	skipped question	65

20. What are the best sources for training information about alternative fuel vehicles? Select all that apply.

Answer Options	Response Percent	Response Count
Local Community College	32.6%	45
Trade Union	9.4%	13
Clean Cities Coalitions	49.3%	68
University	16.7%	23
Metropolitan Planning Organization	18.8%	26
Municipal or State Fire Marshall	5.1%	7
Alternative Fuel Provider or Vendor (gas utility, propane supplier, equipment installer, etc.)	56.5%	78
In-house Training	47.8%	66
	answered question	138
	skipped question	65

21. Do you agree or disagree with this statement? Organizations like mine would use a credible alternative fuel fleet planning tool.

Answer Options	Response Percent	Response Count
Agree	75.4%	104
Disagree	25.4%	35
	answered question	138

skipped question	65

22. In my opinion, many organizations will require contracted service providers such as waste haulers to use alternative fuel vehicles.

Answer Options	Response Percent	Response Count
Agree	49.3%	68
Disagree	50.7%	70
Comment (optional)		6
answered question		138
skipped question		65

Comments:

- I think a combination of mandates and incentives is likely for government related contracts.
- I agree, but I don't know that it's "many". Some will require.
- This is most likely through procurement requirements or incentives for public institutions; private adoption will lag behind considerably.
- Futuristically, it's started but not in immediate future
- Many Transportation RFPs are requesting natural gas solutions (specifically CNG)
- Only if economical or mandated by government

23. In your opinion, what fleet operations are most likely to use alternative fuels? Check all that apply.

Answer Options	Response Percent	Response Count
Delivery services	76.1%	105
Long-haul trucking	31.9%	44
Off-road and construction equipment	13.0%	18
Public Transit	90.6%	125
Refuse collection	64.5%	89
Public Safety	32.6%	45
Public works	68.1%	94
School transportation	76.1%	105
Taxi services	47.8%	66
Passenger vehicle	43.5%	60
answered question		138
skipped question		65

24. In your opinion, how readily available are the following alternative fuels in your area? (0 - Not Available to 5 - Very Available)

Answer Options	0	1	2	3	4	5	Don't Know	Rating Average	Response Count
Ethanol 85	4	11	16	24	31	43	9	3.52	138
Biodiesel	7	20	17	27	24	17	26	2.82	138

EV charging stations	37	43	16	13	5	4	20	1.31	138
Hydrogen	87	6	1	2	0	0	42	0.15	138
Natural Gas	23	40	25	19	10	8	13	1.82	138
Propane	19	17	17	23	15	18	29	2.48	138
							answered question		138
							skipped question		65

25. In your opinion, what items below best describe the barriers limiting the adoption of alternate fuels and vehicles? Select all that apply.

Answer Options	Response Percent	Response Count
Cost of new alternative fuel vehicle.	68.1%	94
Lack of public AFV refueling infrastructure	65.9%	91
Lack of financial incentives	53.6%	74
Unknown vehicle resale market	24.6%	34
Cost of retrofitting current fleet vehicles	63.8%	88
Cost of facility alternate fuel retrofitting	59.4%	82
Local government regulations	8.7%	12
Local permitting process	7.2%	10
Outdated utility statutes	8.0%	11
Cost of training current staff	11.6%	16
Lack of staff training resources	12.3%	17
Unknown vehicle maintenance and operations costs	44.2%	61
Lack of alternative fuels fleet planning guidelines and resources	22.5%	31
Alternative fuels are not in state or metropolitan planning agency transportation plan	11.6%	16
Lack of market ready alternative fuel vehicles	29.7%	41
There is good petroleum supply and availability	31.2%	43
	answered question	138
	skipped question	65

26. How large do you think the customer base for each of the following alternative fuel types to be? (0- Non-Existent to 5- Very Developed including column for "Don't Know")

Answer Options	0	1	2	3	4	5	Don't Know	Rating Average	Response Count
Ethanol 10-15	4	7	13	16	17	52	29	3.75	138
Biodiesel	3	19	23	44	22	10	17	2.77	138
Plug-in EV	10	53	26	14	8	6	21	1.79	138
Extended Range EV	14	38	29	12	9	9	27	1.92	138
Flex Fuel E-85	1	13	17	42	27	22	16	3.20	138
Hydrogen	68	23	6	3	0	3	35	0.57	138
Natural Gas	11	32	32	23	17	11	12	2.29	138
Propane	12	34	26	24	15	6	21	2.12	138
Ethanol 85	4	16	24	31	24	20	19	2.97	138

answered question	138
skipped question	65

27. Select the Clean Cities Coalitions below where you consider yourself a member or stakeholder.

Answer Options	Response Percent	Response Count
Central Kansas Clean Cities Coalition	14.4%	16
Iowa Clean Cities Coalition	30.6%	34
Kansas City Regional Clean Cities Coalition	24.3%	27
Nebraska Clean Cities Coalition	5.4%	6
St. Louis Regional Clean Cities Coalition	14.4%	16
I don't work closely with Clean Cities	27.0%	30
	answered question	111
	skipped question	92

28. I am interested in learning more about Clean Cities, Alternative Fuel, Idle Reduction Technology and Policies, or other topics in this survey (please specify in comment box).

Answer Options	Response Count
	20
answered question	20
skipped question	183

Responses:

Topic
• CNG, Hydrogen
• Clean Cities
• Natural gas--cng
• Nitrogen Services for managed fleets - Idle Reduction services...
• Clean Cities Idle Reduction Natural Gas Vehicle/Station training/information Regulations/Licensing
• Need help in promoting EVs fueled by solar/wind inter-connected to utility grid
• I participate in activities with Northern Colorado

Clean Cities and Denver Metro Clean Cities

- Yes

- CNG vehicles , performance data and comparisons
- The panel presentation was very informative. If I have any questions, then I will be sure to contact you. Thank you!
- Survey is flawed...not everyone who is interested is an operator. I am for example a dealer of these vehicles, so I don't care what they buy
- I need help on financing my business
- Question 27 does not include Western Washington Clean Cities Coalition. WSDOT is a member of the WWCCC.
- Yes
- Our company is interested in Clean Cities membership.
- EV charging stations at retail locations
- Please keep government and regulations out... already causing too many issues with ethanol!
- More on Alternative Fuels, Idle Reduction, Clean Cities, retrofitting vehicles with alt. fuels
- Would like to see more propane programs.
- Yes

APPENDIX 4 – SELECT SURVEY RESPONSES (STATE LEVEL)

Relevant Questions Only

IOWA

8. Which fuel technologies do you consider the MOST likely to increase market share in the next five (5) years? Select up to three (3) choices:

Answer Options	Response Percent	Response Count
Ethanol-85	23.7%	9
Ethanol-15	21.1%	8
Biodiesel	36.8%	14
Plug-in Electric (PEV)	36.8%	14
Hybrid Electric (HEV)	28.9%	11
Extended Range EV	36.8%	14
Hydrogen	10.5%	4
Natural Gas	71.1%	27
Propane	10.5%	4
	answered question	38
	skipped question	2

13. What Interstate and highway corridors are most important to your fleet operations? Rate the importance of each highway.

Answer Options	Least Important	2	3	Most Important	N/A	Rating Average	Response Count
I-29	8	3	1	2	1	1.79	15
I-35	1	3	7	2	0	2.77	13
I-44	2	2	0	0	2	1.50	6
I-49	2	1	1	0	3	1.75	7
I-70	1	2	2	0	2	2.20	7
I-80	0	1	5	12	0	3.61	18
Other (specify below)	2	0	1	2	1	2.60	6
Other (please specify)							6
						answered question	18
						skipped question	22

Other Responses:

34, 92, 71

Don't use

69

30

20, 235

17. Select all topics below you would most like to learn about and rate their importance.

Answer Options	Least Important	Less Important	More Important	Critical	N/A	Rating Avg	Response Count
a. Business case for installing retail alternative fuels.	4	7	10	8	1	2.76	30
b. Business case for transitioning fleets from conventional to alternative fuels.	7	5	13	8	1	2.67	34
c. Overview on all alternative fuels.	2	10	15	2	0	2.59	29
d. Overview of clean transportation technologies and policies (such as idle reduction).	2	7	15	3	1	2.70	28
e. Comprehensive workshop on specific alternative fuel.	0	6	12	11	1	3.17	30
f. Local air quality emissions requirements and strategies to mitigate local emissions.	5	12	8	4	1	2.38	30
g. Other topic	0	0	0	2	6	4.00	8
					answered question		34
					skipped question		6

Other Responses:

a. CNG; Electric/CNG; Propane
b. CNG; Propane
c. Propane
d. Propane
e. CNG; Electric/CNG; Electric; CNG; Propane; EV
f. Propane
g. Financing; CNG Supply/Legislation; Funding; Incentives

23. In your opinion, what fleet operations are most likely to use alternative fuels? Check all that apply.

Answer Options	Response Percent	Response Count
Delivery services	64.5%	20
Long-haul trucking	25.8%	8
Off-road and construction equipment	19.4%	6
Public Transit	96.8%	30
Refuse collection	80.6%	25
Public Safety	32.3%	10
Public works	77.4%	24
School transportation	74.2%	23
Taxi services	38.7%	12
Passenger vehicle	32.3%	10
	answered question	31
	skipped question	9

24. In your opinion, how readily available are the following alternative fuels in your area? (0 - Not Available to 5 - Very Available)

Answer Options	0	1	2	3	4	5	Don't Know	Rating Average	Response Count
Ethanol 85	0	1	6	5	7	11	1	3.70	31
Biodiesel	0	2	2	9	6	7	5	3.54	31
EV charging stations	9	11	4	3	0	0	4	1.04	31
Hydrogen	22	1	1	0	0	0	7	0.13	31
Natural Gas	9	8	6	1	1	0	6	1.08	31
Propane	8	7	1	6	1	1	7	1.50	31
								answered question	31
								skipped question	9

25. In your opinion, what items below best describe the barriers limiting the adoption of alternate fuels and vehicles? Select all that apply.

Answer Options	Response Percent	Response Count
Cost of new alternative fuel vehicle.	87.1%	27
Lack of public AFV refueling infrastructure	83.9%	26
Cost of retrofitting current fleet vehicles	54.8%	17
Cost of facility alternate fuel retrofitting	64.5%	20
Lack of financial incentives	64.5%	20
Unknown vehicle maintenance and operations costs	58.1%	18
There is good petroleum supply and availability	35.5%	11
Lack of market ready alternative fuel vehicles	32.3%	10
Unknown vehicle resale market	25.8%	8
Lack of alternative fuels fleet planning guidelines and resources	22.6%	7
Lack of staff training resources	6.5%	2
Cost of training current staff	12.9%	4
Alternative fuels are not in state or metropolitan planning agency transportation plan	9.7%	3
Local government regulations	16.1%	5
Outdated utility statutes	6.5%	2
Local permitting process	9.7%	3
	answered question	31
	skipped question	9

KANSAS

8. Which fuel technologies do you consider the MOST likely to increase market share in the next five (5) years? Select up to three (3) choices:

Answer Options	Response Percent	Response Count
Ethanol-85	19.0%	8
Ethanol-15	7.1%	3
Biodiesel	23.8%	10
Plug-in Electric (PEV)	50.0%	21
Hybrid Electric (HEV)	73.8%	31
Extended Range EV	14.3%	6
Hydrogen	11.9%	5
Natural Gas	61.9%	26
Propane	7.1%	3
	answered question	42
	skipped question	11

13. What Interstate and highway corridors are most important to your fleet operations? Rate the importance of each highway.

Answer Options	Least Important	2	3	Most Important	N/A	Rating Average	Response Count
I-29	2	3	1	0	2	1.83	8
I-35	0	0	3	12	0	3.80	15
I-44	0	2	1	0	0	2.33	3
I-49	3	0	0	0	1	1.00	4
I-70	0	1	3	3	1	3.29	8
I-80	2	0	1	0	2	1.67	5
Other (specify below)	0	1	2	1	2	3.00	6
Other (please specify)							0
					answered question		16
					skipped question		37

Other Responses:

Local transit
Kansas Turnpike
US54/100
I135/US81
Metro area hwys
I70/35

17. Select all topics below you would most like to learn about and rate their importance.

Answer Options	Least Important	Less Important	More Important	Critical	N/A	Rating Avg	Response Count
a. Business case for installing retail alternative fuels.	3	10	8	2	1	2.39	24
b. Business case for transitioning fleets from conventional to alternative fuels.	1	3	16	6	0	3.04	26
c. Overview on all alternative fuels.	1	3	14	7	0	3.08	25
d. Overview of clean transportation technologies and policies (such as idle reduction).	0	8	11	7	0	2.96	26
e. Comprehensive workshop on specific alternative fuel.	2	9	13	2	0	2.58	26
f. Local air quality emissions requirements and strategies to mitigate local emissions.	0	9	11	5	1	2.84	26
g. Other topic	0	0	0	0	6	#DIV/0!	6
					answered question		26
					skipped question		27

Other Responses:

a. CNG
b. CNG; EV / Nat Gas; CNG/LNG
c. EV/Nat Gas
d. EV/Nat Gas
e. CNG/LNG; Nat Gas; CNG
f. EV/Nat Gas; EV
g. -

23. In your opinion, what fleet operations are most likely to use alternative fuels? Check all that apply.

Answer Options	Response Percent	Response Count
Delivery services	80.8%	21
Long-haul trucking	42.3%	11
Off-road and construction equipment	11.5%	3
Public Transit	92.3%	24
Refuse collection	50.0%	13
Public Safety	26.9%	7
Public works	69.2%	18
School transportation	80.8%	21
Taxi services	38.5%	10
Passenger vehicle	46.2%	12
answered question		26
skipped question		27

24. In your opinion, how readily available are the following alternative fuels in your area? (0 - Not Available to 5 - Very Available)

Answer Options	0	1	2	3	4	5	Don't Know	Rating Average	Response Count
Ethanol 85	0	1	5	9	7	1	3	3.09	26
Biodiesel	1	5	6	5	3	2	4	2.45	26
EV charging stations	5	10	2	1	0	2	6	1.35	26
Hydrogen	13	2	0	0	0	0	11	0.13	26
Natural Gas	1	6	9	2	3	2	3	2.26	26
Propane	2	0	2	5	4	6	7	3.42	26
								answered question	26
								skipped question	27

25. In your opinion, what items below best describe the barriers limiting the adoption of alternate fuels and vehicles? Select all that apply.

Answer Options	Response Percent	Response Count
Cost of new alternative fuel vehicle.	92.0%	23
Lack of public AFV refueling infrastructure	72.0%	18
Cost of retrofitting current fleet vehicles	76.0%	19
Cost of facility alternate fuel retrofitting	36.0%	9
Lack of financial incentives	44.0%	11
Unknown vehicle maintenance and operations costs	52.0%	13
There is good petroleum supply and availability	36.0%	9
Lack of market ready alternative fuel vehicles	52.0%	13
Unknown vehicle resale market	20.0%	5
Lack of alternative fuels fleet planning guidelines and resources	4.0%	1
Lack of staff training resources	8.0%	2
Cost of training current staff	12.0%	3
Alternative fuels are not in state or metropolitan planning agency transportation plan	16.0%	4
Local government regulations	0.0%	0
Outdated utility statutes	8.0%	2
Local permitting process	0.0%	0
	answered question	25
	skipped question	28

MISSOURI

8. Which fuel technologies do you consider the MOST likely to increase market share in the next five (5) years? Select up to three (3) choices:

Answer Options	Response Percent	Response Count
Ethanol-85	7.7%	2
Ethanol-15	3.8%	1
Biodiesel	11.5%	3
Plug-in Electric (PEV)	53.8%	14
Hybrid Electric (HEV)	65.4%	17
Extended Range EV	30.8%	8
Hydrogen	7.7%	2
Natural Gas	80.8%	21
Propane	42.3%	11
	answered question	26
	skipped question	1

13. What Interstate and highway corridors are most important to your fleet operations? Rate the importance of each highway.

Answer Options	Least Important	2	3	Most Important	N/A	Rating Average	Response Count
I-29	2	3	0	0	2	1.60	7
I-35	2	1	2	0	0	2.00	5
I-44	0	1	2	1	2	3.00	6
I-49	1	1	1	2	0	2.80	5
I-70	1	0	3	10	0	3.57	14
I-80	0	1	0	0	3	2.00	4
Other (specify below)	0	0	0	1	0	4.00	1
Other (please specify)							0
					answered question		18
					skipped question		9

Other Responses:

Outside city limits; I-270; Assume 71 is 49 here; 40, 60

17. Select all topics below you would most like to learn about and rate their importance.

Answer Options	Least Important	Less Important	More Important	Critical	N/A	Rating Avg	Response Count
a. Business case for installing retail alternative fuels.	2	6	8	5	0	2.76	21
b. Business case for transitioning fleets from conventional to alternative fuels.	0	5	7	9	0	3.19	21
c. Overview on all alternative fuels.	0	9	8	3	0	2.70	20
d. Overview of clean transportation technologies and policies (such as idle reduction).	2	4	9	5	0	2.85	20
e. Comprehensive workshop on specific alternative fuel.	0	6	7	6	0	3.00	19
f. Local air quality emissions requirements and strategies to mitigate local emissions.	4	5	6	4	0	2.53	19
g. Other topic	3	0	0	0	2	1.00	5
						answered question	21
						skipped question	6

Other Responses:

a. LPG
b. LPG
c. -
d. LPG
e. LPG
f. –
g. –

23. In your opinion, what fleet operations are most likely to use alternative fuels? Check all that apply.

Answer Options	Response Percent	Response Count
Delivery services	90.5%	19
Long-haul trucking	14.3%	3
Off-road and construction equipment	0.0%	0
Public Transit	90.5%	19
Refuse collection	57.1%	12
Public Safety	42.9%	9
Public works	52.4%	11
School transportation	71.4%	15
Taxi services	66.7%	14
Passenger vehicle	42.9%	9
	answered question	21
	skipped question	6

24. In your opinion, how readily available are the following alternative fuels in your area? (0 - Not Available to 5 - Very Available)

Answer Options	0	1	2	3	4	5	Don't Know	Rating Average	Response Count
Ethanol 85	1	3	2	1	7	7	0	3.48	21
Biodiesel	1	5	3	6	1	2	3	2.39	21
EV charging stations	7	4	3	5	2	0	0	1.57	21
Hydrogen	13	2	0	2	0	0	4	0.47	21
Natural Gas	4	6	1	4	3	2	1	2.10	21
Propane	4	1	2	5	5	3	1	2.75	21
								answered question	21
								skipped question	6

25. In your opinion, what items below best describe the barriers limiting the adoption of alternate fuels and vehicles? Select all that apply.

Answer Options	Response Percent	Response Count
Cost of new alternative fuel vehicle.	81.0%	17
Lack of public AFV refueling infrastructure	90.5%	19
Cost of retrofitting current fleet vehicles	57.1%	12
Cost of facility alternate fuel retrofitting	61.9%	13
Lack of financial incentives	66.7%	14
Unknown vehicle maintenance and operations costs	38.1%	8
There is good petroleum supply and availability	38.1%	8
Lack of market ready alternative fuel vehicles	28.6%	6
Unknown vehicle resale market	19.0%	4
Lack of alternative fuels fleet planning guidelines and resources	19.0%	4
Lack of staff training resources	14.3%	3
Cost of training current staff	9.5%	2
Alternative fuels are not in state or metropolitan planning agency transportation plan	4.8%	1
Local government regulations	9.5%	2
Outdated utility statutes	14.3%	3
Local permitting process	4.8%	1
	answered question	21
	skipped question	6

NEBRASKA

8. Which fuel technologies do you consider the MOST likely to increase market share in the next five (5) years? Select up to three (3) choices:

Answer Options	Response Percent	Response Count
Ethanol-85	26.7%	4
Ethanol-15	33.3%	5
Biodiesel	33.3%	5
Plug-in Electric (PEV)	40.0%	6
Hybrid Electric (HEV)	73.3%	11
Extended Range EV	26.7%	4
Hydrogen	20.0%	3
Natural Gas	53.3%	8
Propane	13.3%	2
	answered question	15
	skipped question	7

13. What Interstate and highway corridors are most important to your fleet operations? Rate the importance of each highway.

Answer Options	Least Important	2	3	Most Important	N/A	Rating Average	Response Count
I-29	0	0	2	0	0	3.00	2
I-35	0	1	1	0	0	2.50	2
I-44	1	0	0	0	1	1.00	2
I-49	1	0	0	0	1	1.00	2
I-70	0	0	0	0	0	#DIV/0!	0
I-80	0	0	0	4	0	4.00	4
Other (specify below)	0	0	0	0	0	#DIV/0!	0
Other (please specify)							0
					answered question		4
					skipped question		18

17. Select all topics below you would most like to learn about and rate their importance.

Answer Options	Least Important	Less Important	More Important	Critical	N/A	Rating Avg	Response Count
a. Business case for installing retail alternative fuels.	3	2	5	0	0	2.20	10
b. Business case for transitioning fleets from conventional to alternative fuels.	1	1	5	2	0	2.89	9
c. Overview on all alternative fuels.	0	1	6	2	0	3.11	9
d. Overview of clean transportation technologies and policies (such as idle reduction).	0	2	4	2	1	3.00	9
e. Comprehensive workshop on specific alternative fuel.	1	3	4	1	0	2.56	9
f. Local air quality emissions requirements and strategies to mitigate local emissions.	4	2	3	0	0	1.89	9
g. Other topic	1	0	0	0	2	1.00	3
					answered question		10
					skipped question		12

Other Responses:

a. CNG
b. CNG
c. -
d. -
e. CNG
f. –
g. –

23. In your opinion, what fleet operations are most likely to use alternative fuels? Check all that apply.

Answer Options	Response Percent	Response Count
Delivery services	50.0%	5
Long-haul trucking	20.0%	2
Off-road and construction equipment	10.0%	1
Public Transit	90.0%	9
Refuse collection	20.0%	2
Public Safety	20.0%	2
Public works	60.0%	6
School transportation	80.0%	8
Taxi services	30.0%	3
Passenger vehicle	60.0%	6
	answered question	10
	skipped question	12

24. In your opinion, how readily available are the following alternative fuels in your area? (0 - Not Available to 5 - Very Available)

Answer Options	0	1	2	3	4	5	Don't Know	Rating Average	Response Count
Ethanol 85	0	1	0	1	3	5	0	4.10	10
Biodiesel	0	3	1	0	2	2	2	2.88	10
EV charging stations	5	2	0	0	0	1	2	0.88	10
Hydrogen	6	0	0	0	0	0	4	0.00	10
Natural Gas	2	2	1	2	0	2	1	2.22	10
Propane	1	1	1	1	2	2	2	3.00	10
								answered question	10
								skipped question	12

25. In your opinion, what items below best describe the barriers limiting the adoption of alternate fuels and vehicles? Select all that apply.

Answer Options	Response Percent	Response Count
Cost of new alternative fuel vehicle.	80.0%	8
Lack of public AFV refueling infrastructure	90.0%	9
Cost of retrofitting current fleet vehicles	60.0%	6
Cost of facility alternate fuel retrofitting	40.0%	4
Lack of financial incentives	40.0%	4
Unknown vehicle maintenance and operations costs	60.0%	6
There is good petroleum supply and availability	40.0%	4
Lack of market ready alternative fuel vehicles	20.0%	2
Unknown vehicle resale market	50.0%	5
Lack of alternative fuels fleet planning guidelines and resources	30.0%	3
Lack of staff training resources	10.0%	1
Cost of training current staff	10.0%	1
Alternative fuels are not in state or metropolitan planning agency transportation plan	10.0%	1
Local government regulations	20.0%	2
Outdated utility statutes	10.0%	1
Local permitting process	0.0%	0
	answered question	10
	skipped question	12

APPENDIX 5 – 2014 MID AMERICA COLLABORATIVE FLEET SURVEY

Relevant Questions Only

12. Using the rating scale below please rate how likely you believe each of the following alternative fuel technologies is to increase in market share over the next 3 years:

Answer Options	Very Unlikely	Unlikely	Likely	Very Likely	I Don't Know	Rating Average	Response Count
Ethanol 85%	3	26	17	13	3	2.68	62
Biodiesel	2	16	28	14	2	2.90	62
Dedicated Electric	6	15	30	2	7	2.53	60
Plug-In Hybrid Electric	6	10	28	11	7	2.80	62
Compressed Natural Gas	2	7	22	28	4	3.29	63
Liquefied Natural Gas	3	19	24	8	7	2.69	61
Propane	3	22	20	11	6	2.70	62
						answered question	63
						skipped question	10

21. Most organizations like mine are interested in using a credible alternative fuel fleet planning tool

Answer Options	Response Percent	Response Count
Agree	54.0%	34
Disagree	17.5%	11
I Don't Know	28.6%	18
	answered question	63
	skipped question	10

22. Within your organization, which is the BIGGEST barrier to adoption of alternative fuel vehicles? (Please check one)

Answer Options	Response Percent	Response Count
Incremental cost to purchase alternative fuel vehicles	35.0%	21
Lack of refueling infrastructure	33.3%	20
Unknown maintenance and operating costs	13.3%	8
Lack of available / suitable alternative fuel vehicles	1.7%	1
Regulatory issues	1.7%	1
Lack of adequate fleet evaluation tools	3.3%	2
Other	11.7%	7
Other (please specify)		10
	answered question	60
	skipped question	13

24. Using the rating scale below please rate how readily available each of the following alternative fuels is in your area

Answer Options	Very Low	Low	High	Very High	I Don't Know	Rating Average	Response Count
Ethanol E85	3	15	22	19	2	2.97	61
Biodiesel	2	25	20	8	6	2.62	61
Public EV Charging Stations	35	14	1	2	9	1.42	61
Compressed Natural Gas	30	16	6	2	8	1.63	62
Liquefied Natural Gas	35	12	1	0	13	1.29	61
Propane	22	11	14	7	8	2.11	62
						answered question	62
						skipped question	11