

# Truck & Trailer Technology Monitor

## Report - Prospectus

### A Technology Tracker Report

*An on-going monitor of what fleets are considering, evaluating, planning, and purchasing as it relates to new technologies for the commercial on-highway vehicle market*



By:

**MacKay  
& Company**

2023

# Technology Monitor

## BACKGROUND

As a leading market research and consulting firm with its primary focus on on- and off-highway mobile commercial vehicles, MacKay & Company has over five decades of experience in probing owners and maintainers of these vehicles about a variety of topics.

In the late 1980's and early 1990's, the trucking industry experienced the conversion from mechanical to electronically controlled engines. These new engines with one ECM allowed owners to track miles per gallon electronically (after the truck returned to the terminal).

The pace of new technology incorporated into the designs of trucks and trailers has accelerated at a dramatic rate and is growing more each year. While exciting and providing new ways to improve and track vehicle and driver performance, reduce emissions, increase vehicle efficiency, and increase safety for drivers and the public, it has become more difficult to forecast or predict what technologies and innovations will become standard on vehicles. In addition to understanding timing and in the case of competing technologies, which technologies will the market choose? What will be the anticipated percentage mix of the new technologies?

Three years ago, MacKay & Company began surveying fleets on their current and anticipated use of alternative powered vehicles, as well as other newer technologies in vehicles. This was completed as part of our DataMac® Truck & Trailer services, which tracks and profiles the aftermarket for replacement parts, tires, and lubricants. We initiated the inclusion of this information at the request from manufacturers to size and profile the aftermarket for alternative powered vehicles.

As the chart below shows, in the last three years there have been increases on the expectations of more alternative power vehicles as a percentage of the total fleet in 2-3 years, 5 years, and 10 years. Although there has been movement, it still does not meet expectations of many in the industry (vehicle manufacturers and government organizations) who have much more optimistic penetration targets.

## Fleet Survey –Forecast Power Mix of Fleet Class 6-8

Power Type	Survey Year 2019 (Current Use)	2 to 3 Yrs (2022)	5 Yrs (2024)	10 Yrs (2029)
ICE (Internal Combusti				
Power Type	Survey Year 2022 (Current Use)	2 to 3 Yrs (2025)	5 Yrs (2027)	10 Yrs (2032)

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Alternative powered vehicles (natural gas, electric, hydrogen, other) represent a minute portion of the current operating population of Class 6-8 on-highway trucks and school buses. However, this is anticipated to change over time and as we forecast five years out, insights into what fleets are doing and what they are thinking about potentially using in the future becomes increasingly important.

While this survey is helpful and provides a top-level look, there is a need for a much more detailed, on-going review of the technologies fleets are using and, more importantly, considering using in the future.

We believe specifically defining what fleets are *considering* will be key. Is a fleet considering electric vehicles because the owner of the fleet read an article about BEV's (battery electric vehicles)? Or is a fleet *considering* electric vehicles because they have met with different electric vehicle suppliers to better understand the potential use within their fleet, either for a portion or all applications? Has the fleet investigated specific incentives available to them in their market? Has the fleet met with their local utility (electric in this case) provider to understand what would be required to meet their charging needs if they were to have charging stations onsite? Do they feel they have realistic estimates on the cost for fueling options? Has the fleet met with, in the electric vehicle market, potential charging station providers? Do they know who they are, who are they familiar with?

Over time, we believe these and many other questions will provide better insight on fleets' timing, eventual use of/or not of certain technologies, and what providers (brands) are making inroads with fleets.

In regard to the example of a fleet's future use of BEV's, asking about potential use 3 to 5 years from now provides some insights, but knowing what concrete steps fleets have taken in the decision process, that would need to be completed to make a choice of this magnitude, will be more instructive on the reality and timing of adoption.

Understanding these trends by vehicle class, vocation, fleet size, region of the country and other factors will also be important as the penetration of new technologies will vary based on these factors and will impact the forecast and actual timing of purchases.

These insights will provide alternative vehicle manufacturers and manufacturers of related products (batteries, tanks, charging stations, etc.) with better information on actual purchase plans. In addition, it will also address the question for the parts and service providers in the commercial vehicle market on when they will see these vehicles and in what volumes.

## THE ASSIGNMENT GOALS

**The primary goal is to provide more definitive insights on the awareness, status of acceptance and purchase timing of alternative powered vehicles.**

Additional goals:

- Provide better forecast on purchases of alternative powered vehicles
- Provide these insights (of primary goal) where they differ by:
  - Vocation
  - Vehicle class
  - Fleet size
  - Region
- Provide benchmark on awareness of providers and brands as it applies:
  - Vehicles manufacturers
  - Battery providers
  - Charging station providers
  - Tank providers
  - Other
- Provide a profile of resources accessed by fleets to assist them in their evaluation process
- Provide feedback on experience, concerns, lessons learned from fleets on these technology investigations
- Benchmark and track responses and forecasted plans over time

## SCOPE

- United States and Canada
- Class 6-8 trucks, school buses

## ASSIGNMENT ACTIVITIES

As currently envisioned, MacKay & Company will survey 500-700 fleets twice a year.

The initial survey and report will focus on their awareness, evaluation, purchase timeline plans and actual purchases of alternative powered vehicles.

The second survey and report will focus on their awareness, evaluation, planned purchases and current orders for vehicles specified to include newly released safety and support systems for trucks and trailers not related to the actual power of the vehicle, including but not limited to telematics, ADAS related products including total autonomous vehicles, 2x6, regenerative braking.

Customers who commit to purchase a report before field research begins will have the opportunity to provide input to products and topics covered. A draft survey is included in **Appendix A**.

Over time, these reports will benchmark, forecast, and track what fleets said, did, and did not do. Our hope is that probing further into fleets' evaluation process will provide better insights on actual purchases.

Deliverables will include a written report and a webinar review from MacKay & Company.

## FUTURE POTENTIAL ACTIVITIES

We anticipate that this service will expand to address other product areas, channels, and markets. Where and when we expand options for this report will be driven by customer interest.

Potential future areas to address include:










- Distribution points in the truck and trailer market on their awareness, plans and capabilities to sell and service alternative powered vehicles.
- Drivers (company and owner/operators) on their knowledge of and impressions of new technologies.
- Off-highway agriculture and/or construction equipment purchasers on similar topics.

## WHO IS MACKAY & COMPANY?

Mackay & Company is a specialized management consulting and market research firm. With headquarters in suburban Chicago, the company's focus since 1968 has been, and continues to be, commercial on- and off-highway vehicles, farm field machinery, construction equipment and related components such as engines and transmissions. The scope of the practice includes analyses of original equipment and aftermarket potential, strategic options, distribution policies, product introduction, quality management, acquisitions, and a range of related subjects.

In the early 1980's, Mackay & Company started providing a service which profiled the aftermarket for replacement parts used on Class 6-8 trucks, school buses and trailers in the United States. This service is called DataMac® Truck U.S. and is now one of many DataMac® services. DataMac® services are now available for parts, tires and lubricants for on-highway and off-highway vehicles across a number of countries. DataMac® services provide information on aftermarket demand by point of service, channel of distribution, vocation, fleet size and other segmentations. Mackay & Company maintains a large database of the people who own and maintain this equipment, as well as those companies which sell parts and provide service.

### DataMac® Profiles

<b>On-Highway</b>			
	 MED/HEAVY TRUCK	 LIGHT DUTY TRUCK	 TRANSIT/MOTOR
<i>DataMac® PARTS</i>	✓    	✓	✓  
<i>DataMac® LUBE</i>	✓	✓	
<i>DataMac® TIRE</i>	✓	✓	

<b>Off-Highway</b>			
	 AG EQUIPMENT	 CONST. EQUIPMENT	
<i>DataMac® PARTS</i>	✓  	✓	
<i>DataMac® LUBE</i>	✓	✓	

Based just outside of Chicago, Illinois, MacKay & Company has 12 full-time employees and has a network of recently retired industry contacts and specialized industry consultants that MacKay & Company can tap into as needed for research and consulting projects. MacKay & Company highlights these individuals on our website as part of our Resource Board.

The Resource Board includes people with backgrounds in the industries we serve, including people with a variety of expertise with vehicle and component manufacturers, dealers and distributors, fleets, and other users of on- and off-highway equipment.

MacKay & Company also maintains relationships with firms like ours in Europe, Brazil, and Mexico.

MacKay & Company's client base includes major original equipment manufacturers and component suppliers in these markets. A few of the clients we have been privileged to serve include: AGCO Corporation; Allison Transmission; BAE Corporation; Bendix Commercial Vehicle Systems; Bosch Corporation; Bridgestone Bandag Tire Solutions; Chevron Global Lubricants; CNH Global; Cummins Engine Company; Cummins Filtration; Daimler Trucks North America; Dana Corporation; Deere & Company; Eaton Corporation; EnPro Industries; ExxonMobil; Firestone Industrial Products; FleetPride; Ford Motor Company; Goodyear Tire & Rubber Company; Interstate Batteries; Mann+Hummel (Affinia Group); Meritor, Inc.; Michelin North America, Inc.; Navistar Inc.; PACCAR Inc.; Parker Hannifin (Clarcor), Petronas (Viscosity Oil); Volvo Trucks North America and Shell Oil Company.

More information about MacKay & Company can be found at [www.mackayco.com](http://www.mackayco.com).

## **ASSIGNMENT TIMETABLE**

MacKay & Company is anticipates the survey process for the initial Technology Monitor report in June or July of 2023. The first topic will be alternative vehicle power.

We anticipate having this report ready for customers and a review of the results 90 days after survey launch.

MacKay & Company is anticipating the second survey process for the 2<sup>nd</sup> Technology Monitor report to begin in late 2023. The topic of this report will be new technologies other than power.

Timing may vary depending on participation levels and customer requests.



Our initial thought for this multiclient project is to maintain a schedule of one report in the first half of the year and one in the second half; however, we will be open to customers feedback on timing and subject matter.

## **PRICING**

Pricing for the Technology Monitor Report will depend on if one or both reports for the year are purchased (or two consecutive reports).

Our plan is for this to become an ongoing study, If this is the case, those who purchase two consecutive reports will receive a discount.

An initial invoice will be sent at beginning of the Study and one upon delivery of the final report.

## **QUESTIONS**

If you have any questions on this study or would like to confirm participation, please contact:

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## **Appendix A: DRAFT Survey**

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Heavy Duty Fleet and Operator Services are asking for your help. We are conducting a survey on the current and expected use of alternative power for medium and heavy duty fleets. **Please check here  if you don't currently operate Class 6, Class 7 or Class 8 vehicles and return this questionnaire.** If someone else other than yourself in your company can complete this survey, please pass this along.

**THANKS FOR YOUR HELP. YOUR INPUT IS VALUABLE! PLEASE COMPLETE THE QUESTIONNAIRE, RETURN IT IN THE ENCLOSED ENVELOPE, POSTMARKED BY XXXXXXXX, 2022 AND WE WILL SEND YOU OR THE CHARITY OF YOUR CHOICE FIVE DOLLARS AS A TOKEN OF OUR APPRECIATION.** Please allow 4-6 weeks for incentive processing.

To conserve paper required to complete these studies we're asking respondents if they could provide us with their email address: \_\_\_\_\_ so that we can send online versions instead. We will gladly double the incentive amount offered to those who help us with this effort by completing the surveys online.

(Please use for corrections only)

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Work Phone: (\_\_\_\_) \_\_\_\_\_

Cell Phone: (\_\_\_\_) \_\_\_\_\_

Please choose who the \$5.00 incentive should be sent to. ONE choice only.

- |  |   |
|--|---|
| <input type="checkbox"/> American Heart Association        | <input type="checkbox"/> Salvation Army                   |
| <input type="checkbox"/> American Cancer Society           | <input type="checkbox"/> Shriners Children's Hospital     |
| <input type="checkbox"/> Breast Cancer Research Foundation | <input type="checkbox"/> Wounded Warrior Project          |
| <input type="checkbox"/> The National M.S. Society         | <input type="checkbox"/> Wyakin Warrior Foundation        |
|  | <input type="checkbox"/> \$5.00 Sent to Survey Respondent |

**SECTION 1: BACKGROUND CLASSIFICATION**

1. Which Classification BEST describes your business? (Check one box only).
- |  |   |
|--|---|
| For-hire Carrier (freight)   | 8 <input type="checkbox"/> Construction or Mining     |
| 1 <input type="checkbox"/> Common or Contract Carrier              | 9 <input type="checkbox"/> School Bus Operator        |
| 2 <input type="checkbox"/> Owner-Operator Leased to Carrier        | 10 <input type="checkbox"/> Refuse Collection         |
| 3 <input type="checkbox"/> Owner-Operator Operating as independent | 11 <input type="checkbox"/> Logging and Forestry      |
| 4 <input type="checkbox"/> Truck Lease/Rental Company              | 12 <input type="checkbox"/> Wholesale or Retail Trade |
| 5 <input type="checkbox"/> Farming/Agriculture                     | 13 <input type="checkbox"/> Manufacturing             |
| 6 <input type="checkbox"/> Government Agency                       | 14 <input type="checkbox"/> Other (Please Specify)    |
| 7 <input type="checkbox"/> Public Utility                          |   |

2. How many trucks, tractors or school buses do you operate?  
 (Class 6 = Single drive axle, GVW 19,501 - 26,000 lbs)  
 (Class 7 = Single drive axle, GVW 26,001 - 33,000 lbs)  
 (Class 8 = Some heavy single & all tandem drive axles, GVW over 33,001 lbs)  
 Please enter **THE NUMBER** of vehicles in each category

	Trucks/Tractors	School Buses		Trailers
Class 6	<input type="text"/>	<input type="text"/>		<input type="text"/>
Class 7	<input type="text"/>	<input type="text"/>		Container Chassis <input type="text"/>
Class 8	<input type="text"/>	Class 8 Tractors <input type="text"/>	Tractor % w/Sleepers	<input type="text"/> %

**SECTION 2: CURRENT ALTERNATIVE POWER USE**

1. Which of the following best describes your company's use of alternative power (CNG, LNG, Electric, Hydrogen, Etc.) vehicles?
- Have tested these vehicles, determined they work for our fleet and have some in active use.
  - In process of testing these vehicles to determine if this technology will work for our fleet.
  - N/A – Haven't tested and don't have any alternative power vehicles currently.

2. What percentage of your current medium and heavy-duty vehicles are powered by the following?

	Medium-Duty (Class 6/7)	Heavy-Duty (Class 8)
Diesel	<input type="text"/> %	<input type="text"/> %
Gasoline	<input type="text"/> %	<input type="text"/> %
Liquid Natural Gas (LNG)	<input type="text"/> %	<input type="text"/> %
Compressed Natural Gas (CNG)	<input type="text"/> %	<input type="text"/> %
Biodiesel	<input type="text"/> %	<input type="text"/> %
Electric	<input type="text"/> %	<input type="text"/> %
Hydrogen/Electric	<input type="text"/> %	<input type="text"/> %
Other (Please Specify) _____	<input type="text"/> %	<input type="text"/> %
	100%	100%

3. For the alternative power vehicles you operate, did your company benefit from any government grants or other incentives to purchase these vehicles?
- Yes. What percentage of purchase price was covered with these funds: \_\_\_\_\_ %
  - No.

4. Would your company have purchased these vehicles if these additional funds were not available?  
 1.  Yes 2.  No 3.  Other (Please Explain): \_\_\_\_\_

**SECTION 3: CONSIDERATION | USE OF ALTERNATIVE POWER**

1. Has your company investigated/considered these alternative powered vehicles for your fleet application?

CNG	LNG	Battery/Electric	Hydrogen/Electric
1. <input type="checkbox"/> Yes	1. <input type="checkbox"/> Yes	1. <input type="checkbox"/> Yes	1. <input type="checkbox"/> Yes
2. <input type="checkbox"/> No	2. <input type="checkbox"/> No	2. <input type="checkbox"/> No	2. <input type="checkbox"/> No

2. Which of the following best describes the reasons you HAVE NOT explored new technology for your fleet? Answer for each vehicle type and check all that apply. If there are more than one reason, please circle the primary reason for each type.

	CNG	LNG	Battery/Electric	Hydrogen/Electric
Don't have the need to consider	1. <input type="checkbox"/>	1. <input type="checkbox"/>	1. <input type="checkbox"/>	1. <input type="checkbox"/>
Don't believe technology would work for our application	2. <input type="checkbox"/>	2. <input type="checkbox"/>	2. <input type="checkbox"/>	2. <input type="checkbox"/>
Cost would be prohibitive	3. <input type="checkbox"/>	3. <input type="checkbox"/>	3. <input type="checkbox"/>	3. <input type="checkbox"/>
Concerned about our shop working on new technology	4. <input type="checkbox"/>	4. <input type="checkbox"/>	4. <input type="checkbox"/>	4. <input type="checkbox"/>
Concerned with Resale Value of Vehicles with new technology	5. <input type="checkbox"/>	5. <input type="checkbox"/>	5. <input type="checkbox"/>	5. <input type="checkbox"/>
Other (Please Specify) _____	6. <input type="checkbox"/>	6. <input type="checkbox"/>	6. <input type="checkbox"/>	6. <input type="checkbox"/>

3. Which best describes the reasons **YOU HAVE** explored new technology for your fleet? Answer for each vehicle type and check all that apply. If there are more than one reason, please circle the primary reason for each type.

	CNG	LNG	Battery/Electric	Hydrogen/Electric
Directed by company management	1. <input type="checkbox"/>	1. <input type="checkbox"/>	1. <input type="checkbox"/>	1. <input type="checkbox"/>
Consider it a responsibility to explore new technologies	2. <input type="checkbox"/>	2. <input type="checkbox"/>	2. <input type="checkbox"/>	2. <input type="checkbox"/>
Compare Total Cost of Ownership to diesel	3. <input type="checkbox"/>	3. <input type="checkbox"/>	3. <input type="checkbox"/>	3. <input type="checkbox"/>
Customers are pushing us to explore	4. <input type="checkbox"/>	4. <input type="checkbox"/>	4. <input type="checkbox"/>	4. <input type="checkbox"/>
Intellectual curiosity	5. <input type="checkbox"/>	5. <input type="checkbox"/>	5. <input type="checkbox"/>	5. <input type="checkbox"/>
Other (Please Specify) _____	6. <input type="checkbox"/>	6. <input type="checkbox"/>	6. <input type="checkbox"/>	6. <input type="checkbox"/>

4. Which of the following have been investigated/considered in regards to specing and or purchasing these new technologies? Answer for each vehicle type and check all that apply.

	CNG	LNG	Battery/ Electric	Hydrogen/ Electric
Read articles on technology	1. <input type="checkbox"/>	1. <input type="checkbox"/>	1. <input type="checkbox"/>	1. <input type="checkbox"/>
Attended meeting about using this technology	2. <input type="checkbox"/>	2. <input type="checkbox"/>	2. <input type="checkbox"/>	2. <input type="checkbox"/>
Discussed with vehicle manufacturers or dealers this technology for our fleet	3. <input type="checkbox"/>	3. <input type="checkbox"/>	3. <input type="checkbox"/>	3. <input type="checkbox"/>
Researched the impact on our shop operations	4. <input type="checkbox"/>	4. <input type="checkbox"/>	4. <input type="checkbox"/>	4. <input type="checkbox"/>
Defined anticipated cost to make our shop safe to use this technology	5. <input type="checkbox"/>	5. <input type="checkbox"/>	5. <input type="checkbox"/>	5. <input type="checkbox"/>
Met with energy providers (natural gas/electric/hydrogen) to determine infrastructure needed to support technology	6. <input type="checkbox"/>	6. <input type="checkbox"/>	6. <input type="checkbox"/>	6. <input type="checkbox"/>
Researched what technicians need to work on this technology	7. <input type="checkbox"/>	7. <input type="checkbox"/>	7. <input type="checkbox"/>	7. <input type="checkbox"/>
Completed analysis on anticipated total cost of operation of this technology compared to our current diesel-powered units	8. <input type="checkbox"/>	8. <input type="checkbox"/>	8. <input type="checkbox"/>	8. <input type="checkbox"/>
Taken test drive in truck with this technology	9. <input type="checkbox"/>	9. <input type="checkbox"/>	9. <input type="checkbox"/>	9. <input type="checkbox"/>
Had demo unit to test	10. <input type="checkbox"/>	10. <input type="checkbox"/>	10. <input type="checkbox"/>	10. <input type="checkbox"/>
Had more than one demo unit from more than one manufacturer to test	11. <input type="checkbox"/>	11. <input type="checkbox"/>	11. <input type="checkbox"/>	11. <input type="checkbox"/>
Spoken with peers at other companies about this technology	12. <input type="checkbox"/>	12. <input type="checkbox"/>	12. <input type="checkbox"/>	12. <input type="checkbox"/>
Researched grants and/or other incentives to purchase vehicle(s) with this technology	13. <input type="checkbox"/>	13. <input type="checkbox"/>	13. <input type="checkbox"/>	13. <input type="checkbox"/>
Researched grants and/or other incentives to purchase dispensing/charging equipment chargers (pumps, etc.)	14. <input type="checkbox"/>	14. <input type="checkbox"/>	14. <input type="checkbox"/>	14. <input type="checkbox"/>
Proposed to management the purchase of vehicles with this technology	15. <input type="checkbox"/>	15. <input type="checkbox"/>	15. <input type="checkbox"/>	15. <input type="checkbox"/>
Requested and received proposals from vehicle manufacturers/dealers to purchase vehicle(s) with this technology	16. <input type="checkbox"/>	16. <input type="checkbox"/>	16. <input type="checkbox"/>	16. <input type="checkbox"/>
Ordered (or plan to order in the next 6 months) the required equipment, pumps, etc.	17. <input type="checkbox"/>	17. <input type="checkbox"/>	17. <input type="checkbox"/>	17. <input type="checkbox"/>
Ordered (or plan to order in the next 6 months) vehicles with technology	18. <input type="checkbox"/>	18. <input type="checkbox"/>	18. <input type="checkbox"/>	18. <input type="checkbox"/>

5. If you haven't ordered or don't have plans to order a vehicle with this technology, what best describes your current position on purchasing a vehicle with this technology?

	CNG	LNG	Battery/ Electric	Hydrogen/ Electric
Researching but no specific timetable to purchase	1. <input type="checkbox"/>	1. <input type="checkbox"/>	1. <input type="checkbox"/>	1. <input type="checkbox"/>
Researching but hope to purchase by	2. <input type="checkbox"/>	2. <input type="checkbox"/>	2. <input type="checkbox"/>	2. <input type="checkbox"/>
Exhausted research at this point and have no plans to purchase	3. <input type="checkbox"/>	3. <input type="checkbox"/>	3. <input type="checkbox"/>	3. <input type="checkbox"/>

**SECTION 4: BRAND FAMILIARITY AND USE**

1. Which of the following alternative power vehicle brands are you familiar with? (Check all that apply)

	CNG	LNG	Battery/ Electric	Hydrogen/ Electric
Autocar	1. <input type="checkbox"/>	1. <input type="checkbox"/>	1. <input type="checkbox"/>	
Battle Motors	2. <input type="checkbox"/>		2. <input type="checkbox"/>	
BYD			3. <input type="checkbox"/>	
ELMS			4. <input type="checkbox"/>	
Envirotech Vehicles (ETEV)			5. <input type="checkbox"/>	
Ford	6. <input type="checkbox"/>		6. <input type="checkbox"/>	6. <input type="checkbox"/>
Freightliner	7. <input type="checkbox"/>	7. <input type="checkbox"/>	7. <input type="checkbox"/>	
FUSO			8. <input type="checkbox"/>	
GreenPower Motor International			9. <input type="checkbox"/>	
Heil Environmental	11. <input type="checkbox"/>		10. <input type="checkbox"/>	
Kenworth	12. <input type="checkbox"/>	12. <input type="checkbox"/>	12. <input type="checkbox"/>	
Lion Electric			13. <input type="checkbox"/>	
Mack	14. <input type="checkbox"/>	14. <input type="checkbox"/>	14. <input type="checkbox"/>	
McNeilus	15. <input type="checkbox"/>		15. <input type="checkbox"/>	
Peterbilt	16. <input type="checkbox"/>	16. <input type="checkbox"/>	16. <input type="checkbox"/>	
Thomas Built	17. <input type="checkbox"/>		17. <input type="checkbox"/>	
Volvo			18. <input type="checkbox"/>	
Workhorse			19. <input type="checkbox"/>	
Xox			20. <input type="checkbox"/>	
Other (Please Specify)	21. <input type="checkbox"/>	21. <input type="checkbox"/>	21. <input type="checkbox"/>	21. <input type="checkbox"/>

2. Which of the following alternative power vehicle brands have you researched or had actual conversations with? (Check all that apply)

	CNG	LNG	Battery/ Electric	Hydrogen/ Electric
Autocar	1. <input type="checkbox"/>	1. <input type="checkbox"/>	1. <input type="checkbox"/>	
Battle Motors	2. <input type="checkbox"/>		2. <input type="checkbox"/>	
BYD			3. <input type="checkbox"/>	
ELMS			4. <input type="checkbox"/>	
Envirotech Vehicles (ETEV)			5. <input type="checkbox"/>	
Ford	6. <input type="checkbox"/>		6. <input type="checkbox"/>	6. <input type="checkbox"/>
Freightliner	7. <input type="checkbox"/>	7. <input type="checkbox"/>	7. <input type="checkbox"/>	
FUSO			8. <input type="checkbox"/>	
GreenPower Motor International			9. <input type="checkbox"/>	
Heil Environmental	11. <input type="checkbox"/>		10. <input type="checkbox"/>	
Kenworth	12. <input type="checkbox"/>	12. <input type="checkbox"/>	12. <input type="checkbox"/>	
Lion Electric			13. <input type="checkbox"/>	
Mack	14. <input type="checkbox"/>	14. <input type="checkbox"/>	14. <input type="checkbox"/>	
McNeilus	15. <input type="checkbox"/>		15. <input type="checkbox"/>	
Peterbilt	16. <input type="checkbox"/>	16. <input type="checkbox"/>	16. <input type="checkbox"/>	
Thomas Built	17. <input type="checkbox"/>		17. <input type="checkbox"/>	
Volvo			18. <input type="checkbox"/>	
Workhorse			19. <input type="checkbox"/>	
Xox			20. <input type="checkbox"/>	
Other (Please Specify)	21. <input type="checkbox"/>	21. <input type="checkbox"/>	21. <input type="checkbox"/>	21. <input type="checkbox"/>

3. Which of the following alternative power charging/dispensing equipment manufacturers are you familiar with?

CNG/LNG		Battery/Electric
1. <input type="checkbox"/> Compac	6. <input type="checkbox"/> Censtar	1. <input type="checkbox"/> Tokheim
2. <input type="checkbox"/> Emerson	7. <input type="checkbox"/> Wayne Fueling Systems	2. <input type="checkbox"/> Wayne Power
3. <input type="checkbox"/> Emcara Gas Development	8. <input type="checkbox"/> LIQAI	3. <input type="checkbox"/> Charge Point
4. <input type="checkbox"/> OPW Fueling	9. <input type="checkbox"/> DFS	4. <input type="checkbox"/> Semaconnect
5. <input type="checkbox"/> WEH	10. <input type="checkbox"/> Other (Please Specify)	5. <input type="checkbox"/> Volta
		6. <input type="checkbox"/> Heliex Energy
		7. <input type="checkbox"/> Terrawatt
		8. <input type="checkbox"/> Other (Please Specify)

4. Which of the following alternative power pump and/or tank equipment manufacturers are you familiar with?

1. <input type="checkbox"/> Bennett Pumps	7. <input type="checkbox"/> Thomasnet Tanks
2. <input type="checkbox"/> OPW	8. <input type="checkbox"/> Universal Tanks
3. <input type="checkbox"/> Proguage	9. <input type="checkbox"/> Steelhead Composites
4. <input type="checkbox"/> ATP Lincoln Composites	10. <input type="checkbox"/> Specialty Fleet Services
5. <input type="checkbox"/> Worthington Industries	11. <input type="checkbox"/> Other (Please Specify)
6. <input type="checkbox"/> GRI Pumps	