Alternative Fuel Use Among California Fleets: Current Use, Barriers, & Opportunities

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Overview

- Goal
- Methods
- Results
  - Users
    - Who is using alternative fuels?
    - What are the barriers to expansion?
    - What are the opportunities to promote expansion?
  - Non-users
    - Who is willing to use alternative fuels?
    - What are the barriers to alternative fuel use?
    - What are the opportunities to promote use?
- Recommendations
Goal

- To identify and describe niche opportunities for alternative fuel market penetration among California fleets by characterizing the attitudes of fleet operators likely to affect their alternative fuel decisions.
Methods

- **Survey**
  - Online survey
  - 1,330 respondents from DMV database and California Fleet News listserve

- **Focus Groups**
  - Northern California
    - 3 fleet operators using alternative fuels
  - Southern California
    - 6 fleet operators in the industries of agriculture, construction/maintenance, and short haul goods transportation
Survey

Fleet profile
Currently using AF’s?

Users
AF use
Original Motivation
Satisfaction
Problems
Future Use
Changes to Expand Use
Overall Satisfaction

Non-Users
Willingness to Use
Potential Motivation
Concerns
Changes to Begin Use
Users

- Who is using alternative fuels?
- What are the barriers to expansion?
- What are the opportunities for expansion among users?
How many fleets are using alternative fuels?

Alternative fuel use among government and private fleets

Alternative fuel use by industry

## Alternative Fuel Use by Industry

<table>
<thead>
<tr>
<th>Most likely to use</th>
<th>Moderately likely to use</th>
<th>Least likely to use</th>
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<tbody>
<tr>
<td>Fuel-related</td>
<td>Retail</td>
<td>People transportation</td>
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<td>Busing</td>
<td>Wholesale</td>
<td>Other services</td>
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<td>Public works-Refuse</td>
<td>Goods transport-Long haul</td>
<td>Construction/Maintenance</td>
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<tr>
<td>Public works-Utility</td>
<td>Goods transport-Short haul</td>
<td>“Other” fleets</td>
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<tr>
<td>Administration</td>
<td>Lease/rental</td>
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<tr>
<td>Goods transport</td>
<td>Towing</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>Package/Mail delivery</td>
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<tr>
<td></td>
<td>Public works - Other</td>
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</tr>
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</table>

Source: ‘What is the Future of Alternative Fuel in California?’ survey data
Which alternative fuels are being used?

Alternative fuels used by government and private fleets

### Which industries are using each alternative fuel?

<table>
<thead>
<tr>
<th>Industry</th>
<th>CNG</th>
<th>LNG</th>
<th>LPG</th>
<th>E85</th>
<th>Biodiesel</th>
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<td>Other Services</td>
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<tr>
<td>Taxi/Limousine/Charter</td>
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</tr>
</tbody>
</table>

Overall satisfaction of users

- Vehicle performance: 4.14
- Fueling cost: 3.83
- Fuel infrastructure: 3.29

Users are fairly satisfied with alternative fuel experience

1 = “Not at All Satisfied”
2 = “Not Very Satisfied”
3 = “Somewhat Satisfied”
4 = “Fairly Satisfied”
5 = “Very Satisfied”
6 = “Extremely Satisfied”

Users’ experiences are somewhat problematic

1 = “Not at All Problematic”
2 = “Not Very Problematic”
3 = “Somewhat Problematic”
4 = “Fairly Problematic”
5 = “Very Problematic”
6 = “Extremely Problematic”

Average rating across concerns: 2.71

Problems and satisfaction vary by alternative fuel type

Satisfaction with fuel cost varies by fuel type

![Bar chart showing satisfaction levels for different fuel types.]

- **CNG**
- **LNG**
- **LPG**
- **E85**
- **Biodiesel**
- **Electric**
- **Other**

**Private - Average 3.93**  **Gov't - Average 3.53**

Satisfaction with fuel availability varies by fuel type

Problems of E85 users: access to fuel

- Access to fueling stations
- Vehicle choice
- Conversion cost
- Complying Govn't Mandates
- Vehicle cost
- Driving range
- Fuel cost
- Vehicle performance
- Maintenance cost
- Vehicle reliability
- No PR benefits

"I have vehicles that will run on ethanol – can’t find the fuel."

Problems of Biodiesel users: fuel access and cost

“Our local provider can’t supply my demand to even 50% of the diesel I’m currently using now.”

“The fuel cost is greater than regular diesel when I use virgin soybean oil. The fuel cost is the same when I use used vegetable oil. (I am not including the federal tax credit)”

Industries vary in experience of vehicle problems. 

Future use of alternative fuels

Future use by fuel type

Changes to expand alternative fuel use among users

1 = “Not at All Helpful”
2 = “Not Very Helpful”
3 = “Somewhat Helpful”
4 = “Fairly Helpful”
5 = “Very Helpful”
6 = “Extremely Helpful”

Changes by fuel type

- **Biodiesel:** Fuel availability at a competitive price
- **CNG:** Vehicle choice and fuel availability
- **E85:** Fuel availability
- **Electric:** Technology development for better driving range
- **LNG:** Start-up cost
- **LPG:** Vehicle choice and technology
Expansion among users

- Increase supply and availability of alternative fuels
- Increase supply and selection of alternative fuel vehicles
- Improve alternative fuel vehicle technology
Expansion opportunities

- Agriculture fleets
  - Large industry
  - 20% already using
  - *Promote biodiesel availability*

- Large fleets
  - More easily manage initial costs
  - More likely to be using already
  - *Promote vehicle choice availability*
Non-Users

- Who is willing to use alternative fuels?
- What are the barriers to alternative fuels use?
- What are the opportunities to promote use?
How many fleets will consider using alternative fuels?

Which alternative fuels are non-users most interested in?

Motivations to begin using alternative fuels

1. Vehicle reliability
2. Fuel cost savings
3. Lower cost of maintenance
4. Vehicle performance
5. Environmental Benefits
6. Government incentives
7. Government mandates
8. Public relations benefits
9. Other

Average ratings across reasons: 4.70

1 = “Not at All Important”
2 = “Not Very Important”
3 = “Somewhat Important”
4 = “Fairly Important”
5 = “Very Important”
6 = “Extremely Important”

Other motivations to begin using alternative fuel include:

- **Availability**
- **Cost**
- **Vehicle Choice**
- **Health**
- **Education**
- **Patriotism**


“What's important is that fuel costs, vehicle performance, vehicle reliability, and maintenance costs just need to be the SAME!”
Concerns about using alternative fuels

<table>
<thead>
<tr>
<th>Concern</th>
<th>Concern Rating</th>
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<tr>
<td>Access to fueling stations</td>
<td>Higher than Average</td>
</tr>
<tr>
<td>Conversion costs</td>
<td>Average Rating</td>
</tr>
<tr>
<td>Vehicle reliability</td>
<td>Lower than Average</td>
</tr>
<tr>
<td>Maintenance cost</td>
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<td>Vehicle performance</td>
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<tr>
<td>Vehicle Choice</td>
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<td>Vehicle cost</td>
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</tr>
<tr>
<td>Fuel cost</td>
<td></td>
</tr>
<tr>
<td>Vehicle driving range</td>
<td></td>
</tr>
<tr>
<td>Complying w/ Govn't Mandates</td>
<td></td>
</tr>
<tr>
<td>No public relations benefit</td>
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<tr>
<td>Other</td>
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</tbody>
</table>

Average concern rating: 4.74

Source: 'What is the Future of Alternative Fuel in California?' survey data.
Other concerns about using: supply of fuel, vehicles, and information

“We just never really checked into it. There are no real incentives and not a lot of information that is handed out as to the pros and cons of alternatives. If we don't have any information about why we should change, why would we think about it? Don't fix it if it isn't broken.”

Problems for small fleets: start-up costs

- Small businesses have a harder time overcoming start-up costs:
  - “I would have to win the lottery to re-invest in new equipment. Due to the states strangling of small business through taxes, DMV, EPA, Workers Comp., Health care, etc. It is impossible to make enough to upgrade equipment.”
High concern of non-users vs Low problems of users

Figure 5.2 Source: ‘What is the Future of Alternative Fuel in California?’ survey data.
Changes to encourage use among non-users

1 = “Not at All Helpful”
2 = “Not Very Helpful”
3 = “Somewhat Helpful”
4 = “Fairly Helpful”
5 = “Very Helpful”
6 = “Extremely Helpful”

Source: ’What is the Future of Alternative Fuel in California?’ survey data.
Non-users need assurance of availability and effects on bottom dollar

Opportunities to promote alternative fuel use

- Industry
  - Willing industries
  - Biggest industries
  - Industry-fuel match

- Fleet size
  - Small businesses
Willing industries

What is the Future of Alternative Fuel in California?

## Industry-fuel match

<table>
<thead>
<tr>
<th>Industry</th>
<th>CNG</th>
<th>LNG</th>
<th>LPG</th>
<th>E85</th>
<th>Bio-diesel</th>
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<tr>
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<td>People Transport</td>
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<td>4</td>
<td>17</td>
<td>9</td>
<td>8</td>
<td>7</td>
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<td>17</td>
<td>28</td>
<td>17</td>
<td>3</td>
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</tbody>
</table>
Fleet size

- Most fleets are small fleets (< 20 vehicles)
- Small businesses:
  - have flexible decision-making
  - are at higher risk when trying new technology
  - need help with start-up costs
Opportunities to promote alternative fuel use

- **Large industries are interested in biodiesel:**
  - Promote biodiesel availability and information for:
    - Agriculture
    - Construction/Maintenance
    - Short Haul Goods Transportation

- **Small fleets are flexible but need help with start-up costs**
  - Provide incentives for start-up costs, with clear phase-out plan.
Top 4 Recommendations

- Disseminate all current information on alternative fuel use in an easily accessible format from a trusted source.
- Generate accurate information on the costs and benefits of alternative fuel use.
- Address the supply of alternative fuels and vehicles by facilitating conversations between fleet operators and suppliers/manufacturers.
- Help small businesses afford the start-up costs; include a clear plan for phase-out of incentives.
Thank you!

For invaluable assistance with this project, Zetetic Associates would like to thank:

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- Kevin Nesbitt and Dan Sperling
- California Department of Motor Vehicles
- 20 pilot survey participants
- 1330 survey participants
- 9 focus group participants
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Among California Fleets:
Current Use, Barriers, & Opportunities

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