The Changing Fuels Market

What Alternative Fuel Vehicles Mean for Fleets

By Bill Romba

GASOLINE-POWERED AUTOMOBILES ARE STILL the kings of the road. But, as automotive technology continues to advance, vehicles that run on alternative, more renewable fuels are beginning to challenge those powered by traditional internal combustion. More and more automakers are offering hybrid versions of some of their popular cars and trucks, while others are developing cars that run on alternative fuels like electricity, propane, and hydrogen.

The fuel market is changing, and fleet managers must be aware of the pros and cons of these alternative fuel cars and trucks as it relates to their organizations' fleets.

"Gasoline/diesel prices have declined dramatically over the last decade thanks to booming domestic oil production," said Mark Smith, Technology Integration Program Manager for the U.S. Department of Energy. "For alternative fuels, prices have held relatively stable over the last 10 years. The U.S. is producing more gasoline and alternative fuels domestically than at any time over the last three decades, resulting in more stable prices, which allows fleets to budget more accurately for fuel expenses."

While prices for gasoline and diesel fuels have dropped, it can still be advantageous for organizations to diversify the types of vehicles in their fleets. Making these changes can be difficult, but there are advantages in addition to cutting fuel costs. NAFA Regular Member Ronald Gitelman, CAFM®, Fleet Administrator for Yale University, mentioned that one key benefit is being able to show your community that your organization is committed to sustainability, especially in environments where it is a significant focus.

"We operate in a fairly heavily congested area with some rankings having the New Haven, Connecticut, area as high as fourth to seventh on worst air quality," he explained. "Yale is trying to do its part to help clean the air." Gitelman also said that fueling costs for alternative fuel vehicles can be lower, depending on the source, and some can also have lower maintenance costs.

Likewise, NAFA Regular Member Richard E. Battersby, CAFM, Assistant Director, Bureau of Maintenance and Internal Services for the City of Oakland, California, said that alternative fuel vehicles help meet his organization's stated sustainability goals by reducing their carbon footprint and lowering exhaust emissions.

However, there can be drawbacks to adopting this new technology. Battersby said that such vehicles can result in higher capital acquisition costs. He also added that "some fuels may have range limitations, and others are not always available."

If a fleet adds the required infrastructure so they can combat this issue and fuel these vehicles on-site, costs can increase significantly. "To put in a solid level-2 charging station can cost between $5,000 and $10,000 depending upon the type of station used. If you want a DC fast charge, you could be looking at $30,000 to $35,000. That is significant," said Gitelman.

"The cost of the upfit adds to the cost of the vehicle and can reduce ROI, especially if you don't calculate the social costs as part of the savings," he stated. "Repairs may need to be sent to an upfitter, and this can increase downtime."

There is also the prevalent issue of getting buy-in from drivers who may be used to topping off the tank at the local gas station. Part of getting over that hurdle is getting drivers into the vehicles to try them out. "Fleets that have a motor pool also have an effective way to ingratiate drivers to vehicles with different fuel types," said NAFA Regular Member Sara Burnam, CAFM, Director of Palm Beach County Fleet Management in Palm Beach, Florida. "Pool vehicles have shown to be a particularly good entry point to electric vehicle adoption."

"All vehicle technologies have trade-offs and alternative-fueled vehicles are no different," added Smith.

"For example, alternative fuel vehicles can have fewer operations and maintenance costs than gasoline and diesel vehicles, although they tend to cost more upfront. Payback periods vary depending on use, so whether an alternative fuel vehicle makes sense depends on individual customer preferences."

Just as with any other car or truck, fleet managers must consider maintenance and repair costs for alternative fuel vehicles and how they factor into their organization's

Richard Battersby

Ron Gitelman

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budget before bringing them into their fleet. These will typically vary based on the type of vehicle being considered and the type of fuel used to run it.

"Electric has lower costs due to no oil and other items you may find in a non-alternative fuel vehicle," said Gitelman. "Hybrid vehicles can reduce brake repairs, but you must be careful in the long-term with the hybrid battery. Propane results in cleaner filters so they may last longer. "Utilizing NAFA's tools to run a complete lifecycle cost analysis would be needed to help determine the budgetary requirements."

Battersby added that service and maintenance costs can go down, although repairs are sometimes costlier due to more expensive components. "Cost-neutral alternative fuels that require no vehicle or fuel storage modifications, such as renewable diesel, can lower repair and maintenance costs and reduce downtime by decreasing the amount of particulate matter (PM) going into the diesel particulate filter (DPF) by 33 percent. This significantly cuts down on service and downtime, number of regeneration cycles, and expensive replacement of the DPF catalyst," he stated.

Electric and alternative fuel vehicles are becoming the future of the automotive industry, with several automakers announcing that they will be significantly scaling back their production of cars and trucks that run on internal combustion engines in the coming years. Additionally, both Ford and General Motors' Chevrolet brand have announced that they will be focusing solely on the production of crossovers and sport utility vehicles and discontinuing production of several passenger car models.

Gitelman explained that he doesn't feel alternative fuel vehicles will make SUVs less appealing, but rather that their technology will need to advance so they can become a more viable option in atypical environments.

"An alternative fuel vehicle in a cold and snowy climate will be a hard sell until there is mass production of AWD on such automobiles," he said. "Range can also be a problem. If a vehicle puts on 200 miles per day, it is a hard sell to use electric until ranges are around 350 to 400 miles."

What's an Alternative Fuel Anyway?

While there is a common tendency to hear "alternative fuel" and think of natural gas or electric vehicles, the reality is much simpler. An alternative fuel is an energy type that differs from the most common types: petroleum gasoline and diesel.

The diversity of fuel types emerged from the circumstances with which vehicles — in this case, fleets — operate. Heavy-duty trucks that run in the central United States may not have access to natural gas in either compressed or liquefied form. However, biodiesel might be a solution.

Likewise, vehicles located in areas of the country that have not yet built up an electric charging infrastructure may not be able to go all-in on EV but could find benefits from hybrid vehicle types.

Some reasons operators look to these alternatives include potential cost savings, modernization, sustainability goals that seek reductions of carbon emissions, and limiting the import of and reliance upon foreign oil and its derivatives.

Smith added that while every vehicle may not be suited for every environment, the broad selection of alternative fuel vehicles that is available can be a benefit to fleets.

"With the wide variety of fuels and vehicles available today, fleets can typically find an alternatively fueled vehicle that fits their needs," Smith explained. "Once a fleet knows their duty-cycle and any additional requirements for the vehicle, they can assess what options are available to them. There's no single fuel that works for all fleets, but the variety of fuels available presents a lot of opportunities."

As the fuel market changes and alternative fuel vehicles start to become more prevalent in the fleet industry, managers will have a big choice to make regarding when to bring alternative fuel vehicles into their fleet. As Gitelman explains, it is imperative that fleet managers do their homework and research all aspects of how these vehicles will fit into their fleets.

"Don't push your sales staff into electric vehicles when the infrastructure to charge the vehicles is not in place or their range will not allow them to do their job without significant delays. Find what works for you and move with it," he said. "Don't jump in blindly, but rather get your feet wet, be willing to admit failures, and move forward to find success." ■