



Specifying Alternative Fuel Vehicles

Making the case for alternative fuel powered vehicles

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Making the case for alternative fuel powered vehicles in fleet operations can be a complex process. In addition to considering potential fuel savings, for example, any return on investment equation must also take into account operator productivity, maintenance needs, technician training, parts, fuel infrastructure and total cost of ownership. Not to be overlooked are available tax credits and state sponsored incentive programs that support these purchases.

Recently, this subject was on the minds of the record number of fleet managers who attended the 57th annual Electric Utility Fleet Managers Conference (EUFMC). Under the theme, *A Sustainable Pathway to Your Fleet's Future*, attendees at EUFMC heard from a range of fleet managers, suppliers and other experts on related topics.

As keynote speaker at EUFMC 2010, Des Bell, Senior Vice President of Shared Services and Chief Procurement Officer at Pacific Gas and Electric Company, noted the challenge and importance of making these efforts. "Our goal is to reduce the adverse environmental impact of our purchasing decisions," he said. "A major thrust in our operation is to electrify the fleet, and by doing so use clean energy to power clean vehicles. There is no better time for us to influence this process, and we can make a difference if we work together."

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On an industry level, Bell also serves as Vice Chair of the Electric Utility Industry Sustainable Supply Chain Alliance. Formed to promote environmental stewardship and provide value to customers, the alliance's goal is to work with industry suppliers and other interested parties to improve environmental performance and advance sustainable business practices. As part of its efforts to reduce the environmental impact of products and services sourced by the electric utility industry, the alliance has developed a strategic plan calling for voluntary, industry initiatives to reduce greenhouse gas emissions in the supply chain.

Another significant industry effort is the development activity that is being driven by the Hybrid Truck Users Forum (HTUF). The group, operated by CALSTART in partnership with the U.S. Army National Automotive Center (NAC) and supported by the U.S. Department of Energy, focuses in part on helping fleets identify hybrid requirements, test technologies and make purchases of production vehicles.

Increasing adoption of medium-duty hybrid trucks is taking place in different market segments. Eaton Corporation, which has invested in and supplies three different hybrid solutions for commercial vehicles, recently announced that customers have collectively accumulated more than 30 million miles of service worldwide using more than 2,400 systems on delivery, refuse and utility trucks, buses and other applications.

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Recent reports from several HTUF working groups also point out the trend toward increased hybrid use in medium-duty applications. The group's Parcel Delivery Working Group is focusing on Class 6 hydraulic hybrid models, while the success of hybrids in the utility market is clearly evident. Initially, a working group of 14 utility fleets took part in a pilot project to deploy 24 Class 6 hybrid bucket trucks. The original fleet participants have continued to purchase more hybrid models and are now fielding over 180 units.

The HTUF Utility Working Group is now focusing on creating demand for a Class 4-5 hybrid truck. Commonly used as service or bucket vehicles in many fleets, the trucks detailed by the group have a duty cycle that includes 10,000 to 20,000 miles of operation per year and idle time two to three hours per work day.

The group has also developed a list of Key Performance Parameters, including fuel economy that exceeds a baseline unit by 50 percent, which define the most critical requirements for a hybrid work truck in this GVWR range. After collecting input to define the ranking order of the identified parameters, the group will be contacting manufacturers to solicit feedback on technical requirements and to discuss purchase interest and potential production timelines.

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HTUF has also formed a working group specifically for fleets involved in telecommunications and similar applications. The new effort will focus on Class 2 to 4 trucks widely used in these types of operations. The group's timeline is aggressive, with plans to define duty cycles and platform requirements and performance specifications, assess the viability of currently available hybrid products, determine fleet interest and commitment and deliver a request for vehicle proposals to manufacturers this year.

Several fleets are also moving forward with testing and deployment of alternative fuel powered vehicles.

Pacific Gas and Electric Company

“Pacific Gas and Electric Company (PG&E) operates 2,300 alternative fuel powered vehicles,” says Dave Meisel, Director. “We have a large and varied population of alternative fuel vehicles. In our fleet there are light- and medium-duty hybrids, a large number of Compressed Natural Gas (CNG) vehicles and a growing group of electric units.”

The biggest challenge when fielding any alternative fuel powered vehicles, Meisel notes, is to effectively evaluate different technologies. “What we need is to operate them for enough mileage to validate their effectiveness, durability and reliability,” he states. “That takes time, though, and the technology is changing amazingly fast.”

Meisel goes on to point out that PG&E looks closely at both operational and financial savings when considering alternative fuel vehicles. In general, a hybrid vehicle will cost more than its gasoline or diesel powered counterpart and electric units are higher in cost than hybrids.

“If the decision is to lease,” Meisel relates, “you only have to factor in the payments. On the other hand, if a fleet is going to purchase these vehicles, the useful life of the unit and maintenance and parts costs are of great importance.”

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Resale value is also a factor, and for many newer technologies like hybrids we still need a few more years before we can be sure where those values will wind up.”

What is clear at PG&E is that the fleet will have a dramatically larger percentage of alternatively powered vehicles in the coming years. The utility, for example, has submitted a plan to its public utility commission that, if approved, would allow it to grow that portion of its fleet by 4,500 units in the next five years.

Clearly, Meisel adds, the emphasis at PG&E is now on electric vehicles. “We have 5,000 vehicles, such as light-duty pickups and SUVs, that could take advantage of this technology,” he says. “If we converted all of them to this technology we’d cut our fuel bill by 74 percent, saving about \$35 million annually.

“My job is to make a business case for alternative fuel powered vehicles and ensure we adopt them for the right applications in our operation,” Meisel concludes. “Investing in these technologies can make sense and enable us to take advantage of some really amazing opportunities.”

Pacific Gas and Electric Company, a subsidiary of PG&E Corporation based in San Francisco, provides natural gas and electric service to approximately 15 million people throughout a 7,000-square-mile service area in northern and central California.

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San Diego Gas & Electric Co. and Southern California Gas Co.

“We have two distinct but jointly managed fleets with a combined 6,000 vehicles,” says Hector Madariaga, Director of Fleet Services. “With the very strong emphasis on reducing greenhouse gas emissions in California it’s important for us to look at opportunities to field alternative fuel powered vehicles in our fleets. At the same time, we must make sound fleet management decisions and remember that we’re here to serve our customers.”

Alternative fuel vehicles currently in the two fleets include over 1,100 Compressed Natural Gas (CNG), Bi-Fuel, hybrid electric and electric models. The companies, Madariaga notes, purchased a large number of dedicated bi-fuel vehicles in the early 1990s, including pick-ups with utility bodies and units used for customer service and meter repair operations.

With a large natural gas infrastructure in its operating territory, CNG was a natural choice for the SCG and SDG&E fleets. “Before 2000 we converted many of our vehicles to run on CNG,” Madariaga relates. “In 2009, the fleets consumed about 425,000 gallons of CNG. But conversions have become costly and when we looked at reducing greenhouse gas emissions, the higher cost of CNG-powered vehicles wasn’t always justifiable. At the same time, our CNG vehicles were getting older and parts as well as trained technicians were becoming harder to find.”

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With new OEM options for CNG vehicles now becoming available, Madariaga says that the SCG and SDG&E fleets are looking to replace at least 1,000 trucks with CNG vehicles. “We can also increase their productivity by placing them in areas of our operating territory where CNG is in more widespread use. The higher level of utilization will also help develop a faster return on this investment.”

Overall, SCG and SDG&E have set high greenhouse gas emissions reduction goals, including a 15 percent drop by 2012 and a 25 percent decrease by 2015. “Those objectives are achievable by replacing passenger cars with hybrids and light-duty trucks and vans with CNG vehicles,” Madariaga states. “Of course, we’re also reducing fuel use through other operational measures and increasing our use of biofuels wherever feasible.

“And always,” Madariaga concludes, “while we take our obligation to be green seriously, we never lose sight of our mission to ensure the highest level of fleet reliability and availability at all times.”

San Diego Gas & Electric Co. and Southern California Gas Co. serve more than 20 million consumers combined. The two utilities are part of Sempra Energy, a Fortune 500 energy services company based in San Diego, California.

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Tucson Electric Power

“We’re in the process of developing a “Green Fleet “ initiative,” says Gary Kelly, Fleet Manager, “At Tucson Electric Power (TEP) and our parent company, Unisource Energy Services this plan is aimed at reducing our carbon footprint.”

Currently, the TEP fleet of 800 vehicles and pieces of equipment includes hybrid SUVs, Flex Fuel light-duty pickups, larger models that run on biodiesel and neighborhood electric units such as golf carts. “In the next five years,” Kelly relates, “we may acquire more than 40 new alternative fuel powered vehicles. The exact numbers will be determined by a variety of considerations.”

Those factors, Kelly relates, include replacement schedules for existing equipment and new technologies that may become available. Currently, the plan calls for adding one hybrid derrick and bucket truck this year and five more of those units, plus five to ten plug-in derrick and bucket trucks in the next five years.

Other plug-in vehicles that could be added at TEP include as many as four sedans in 2010 and ten more in the next five years. For the gas utility side of the business, 15 to 20 Compressed Natural Gas trucks and two hybrid construction crew trucks could join the fleet by 2015.

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“For each category of alternative fuel powered vehicle under the Green Fleet plan,” Kelly says, “we will evaluate initial and operating costs and total return on investment. With the hybrid SUVs we have in the fleet today, we have already absorbed the higher cost in fuel savings.

“For all of our alternative fuel powered vehicle choices,” Kelly concludes, “we’ll validate our decisions with hard numbers that tell us whether the return on investment is acceptable. Ultimately, though, the fleet will not be the sole decision maker. What we can do to help protect the environment will also be a factor.”

Tucson Electric Power Company (TEP), the principal subsidiary of UniSource Energy Services, serves more than 400,000 customers in Southern Arizona. UniSource Energy serves 176,000 natural gas and 80,000 electric customers throughout Northern Arizona.

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Good Match

When it comes to specifying alternative fuel powered fleet vehicles, there is not a one-size-fits-all technology. Considering all the relevant factors is essential to making informed and effective decisions.

Still, on many fronts, demand and ongoing development by manufacturers is being driven by increasingly favorable performance results for existing and evaluation vehicles.

In addition to fuel savings, it also seems, growing interest in viable alternatives is also the result of the value that more companies see in helping with the effort to safeguard the environment and reduce dependence on oil.

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