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Hybrid Electric Truck Users Forum (H-TUF): Initial South Coast Outreach

Contractor

CALSTART

Cosponsors

US Army National Automotive Center
Allison
AVS
Enova
AQMD

Project Officer

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Background

H-TUF is a national program launched by CALSTART and the US Army's National Automotive Center (NAC) to assist with the commercialization of heavy-duty hybrid technologies. As the Army has already selected hybrids for its future combat vehicles to significantly reduce its fuel use and increase performance, H-TUF is designed to generate demand for hybrids in the US domestic commercial market in order to expedite the development and reduce the cost of such vehicles. As such, H-TUF is designed to function as a user-driven process for commercialization leading through several steps: recruitment; familiarization; identification of prime hybrid applications based on duty and business needs; common specification development and modeling; business case development; pre-production volume procurement, deployment and testing; production purchase commitments.

Project Objective

The AQMD supported CALSTART's efforts to bring together truck fleet operators, truck manufacturers, hybrid-electric technology manufacturers, and other stakeholders located in the South Coast Air Basin as part of the early recruitment and familiarization stages.

Technology Description

While there are early signs of consumer acceptance of light-duty hybrid electric vehicles, heavy-duty truck operators in the private sector are going to be far less likely to accept any alternative to the standard diesel drive train. The diesel engine is omnipresent and well established within the trucking industry. Nonetheless, hybrids show the ability to tackle two critical and current concerns of truck fleets: meeting increasingly stringent emissions requirements and reducing fuel use/costs (generally with labor one of the highest operating costs of a fleet, and the highest variable cost).

Status

HTUF is still in its early year phases, and much of what still needs to happen involves education and involvement of truck users and truck makers. There is also the very real opportunity to shape the evolving technology, within the framework of what is commercially supportable and meets user needs. H-TUF is now beginning its common specification development phase.

Results

To be successful in commercialization, there are several critical barriers to the development of hybrid electric trucks that must be overcome:

- Truck OEM's are still on the sidelines of this discussion and need to become engaged and active, seeing the business case to manufacture hybrids.
- While fleets have significant interest, they have little knowledge and no

experience with these vehicles, as there are very few available today.

As the vehicles do become available, their reliability, performance and cost will be the barriers which will need to be overcome.

H-TUF has now held two major "forums" to provide education and familiarization for fleetes and OEMs. *The AQMD funding specifically helped support this effort to reach, inform and recruit fleets into the process, leading up to the second forum help in Chattanooga, TN in October, 2002.*

While this education and familiarization effort needs to continue – indeed, to expand – in order to bring in additional fleets, the effort has also now moved forward to the next phase: Working Groups of fleets in specific applications, developing common performance specifications for a hybrid truck. These Working Groups – formed around targeted applications best suited to hybrids (urban delivery; urban refuse; urban service/utility; and regional delivery) – have held several meetings to date and are developing their next steps: the Utility Working group hopes to finalize a spec to take to OEMs by the April – June time frame; it may begin some early-level "modeling" of the spec to determine trade-offs required. The Delivery Working Group will meet Spring 2003 for purposes of outlining a generic spec for its segment. Additional Working Groups in the refuse and beverage delivery segments are organizing.

Benefits

Given their strong potential to improve fuel economy, reduce operating costs, provide greater performance, and lower emissions, hybrids could be a viable alternative to diesel engines. In fact, hybrids could be one of the most promising strategies to increase fuel economy while meeting the EPA's demanding 2007 heavy-duty vehicle emission standards. There is indeed a "window of opportunity" for the technology.

Project Costs

To date, the H-TUF program efforts since the initial January 2002 meeting date have totaled $330,000. The bulk of the funding support has come from the NAC, with additional funding supporting forums coming from sponsors such as Allison, AVS, and Enova. The $25,000 support from AQMD provided a particularly useful and critical component to the effort, helping H-TUF to reach and inform South Coast Basin fleets of the emerging opportunities.

Commercialization and Applications

Given that the South Coast region will need cleaner heavy-duty vehicles earlier than any region in the nation, and based on its fleet rule is requiring users to shift to alternatives to conventional diesel vehicles, the region presents an ideal location to continue focused efforts. The Working groups efforts specifically target truck applications most promising for hybrid commercialization, based on duty cycle, truck cost and business operations considerations. These are generally prime urban applications, operating in neighborhoods and city centers where emissions concerns are highest and stop-and-go cycles are most conducive to hybrid technology.

There is an opportunity for sponsors to take an active and leading role in this effort to expedite the development of hybrid electric trucks. Some opportunities include:

- ✓ Sponsor or co-sponsor a full H-TUF meeting to be held in the South Coast region, possibly located at the facilities of a California developer or user, such as Southern California Edison. The possibilities of alternative-fuel hybrids could be a topic.
- ✓ Sponsor a H-TUF working group meeting in the South Coast region, for utilities or delivery.
- ✓ Sponsor a forum specifically to discuss the role of alternative fuels, such as natural gas, in heavy-duty hybrids. The meeting could be held at SCE with a ride and drive of their Trouble Truck and some special presentations on the value of using alternative fuel hybrids