

Alternative FUELS IN TRUCKING



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ENERGY POLICY ACT OF 1992:

IMPACT ON FLEET VEHICLES IN THE TRUCKING INDUSTRY

By Allen Schaeffer

On October 24, 1992, President Bush signed into law HR 776, the Energy Policy Act of 1992. This new law sets out a comprehensive energy strategy that is based largely on conservation, reduced dependence on foreign oil and the introduction of renewable energy sources and the increasing use of alternative transportation fuels.

Key Provisions Applicable to the Fleet Industry

The following summarizes the key provisions of the Act that are most likely to impact vehicles and transportation fleets. Full copies of

the Energy Policy Act of 1992 are available from the U.S. Government Printing Office, Washington DC; request report 102-1018. More detailed information is also available from the ATA Department of Environmental Affairs.

Mandatory Fleet Alternative Fuel Requirements

The Energy Policy Act of 1992 requires that fleets of light-duty motor vehicles (up to 8,500 lbs. gross vehicle weight rating) begin to phase in a certain percentage of their new vehicle acquisitions as alternative fuels

beginning in 1999, with 20 percent of new vehicle acquisitions being alternatively fueled up to 70 percent in the year 2006 and thereafter.

Heavy duty vehicles (those over 8,500 lbs. gvwr) are not covered by the acquisition mandate, but are eligible to receive tax deductions for the purchase of alternative fueled heavy-duty vehicles and also the installation of an alternative fueling facility.

What is a "Clean Fuel" in the Energy Policy Act ?

The energy policy act defines clean burning fuels to include natural gas, liquefied natural gas, liquefied petroleum gas, hydrogen, electricity, and any other fuel which is at least 85 percent methanol, ethanol or any other alcohol or ether.

(Note: The energy policy act does not recognize clean diesel as an alternative fuel. This is unlike the provisions in the Clean Air Act Amendments of 1990 which do consider diesel fuel a clean alternative fuel, provided that it meets certain emissions standards.)

Deduction for Clean Fuel Vehicles and Certain Refueling Property

Beginning July 1, 1993, section 179 of the Internal Revenue Code is amended to allow fleets a tax deduction on the cost of qualified clean-fuel vehicles, and qualified clean-fuel refueling facilities. The deduction is allowed for the taxable year in which the property is placed in service.

Fleets can claim the deduction as a business expense under section 179A; an amendment to IRS code section 179, "Election to Expense Certain Depreciable Business Assets." Similar procedures are followed in taking the 179A deduction as the 179 deduction. The basis of the alternatively fueled

— continued on page 3

"Heavy duty vehicles are not covered by the acquisition mandate, but are eligible to receive tax deductions."- Allen Schaeffer

Project Profile

A SYNOPSIS OF HEAVY-DUTY ALTERNATIVE FUELS RESEARCH

By William H. Peerenboom

The ATA Foundation and its research arm, the Trucking Research Institute (TRI), first became involved in Alternative Fuels research relative to medium and heavy duty trucking in 1989 when it commenced a study of the effects of alternative fuels on the trucking industry. That effort, funded by the industry, was conducted by the Battelle Memorial Institute. The study was completed in 1991, and published in April of that year.

The Trucking Research Institute, building on the knowledge gained through the study, sought and was awarded a contract with the U.S. Department of Energy to further its research into alternative fuels in trucking by developing a catalogue of existing and planned alternative fuel demonstration projects, and

working within the trucking industry, fuel suppliers, and governmental agencies to set up additional demonstrations of all forms of alternative fuels in both heavy and medium duty trucks. For this purpose, the low limit of weight is 8,500 lbs GVW, and alternative fuels include alcohol, natural gas, and propane.

This contract, executed through the Alternative Fuels office of the National Renewable Energy Laboratory (NREL) in Golden, Colorado, provides a mechanism by which a "win-win" circumstance can be achieved for a fleet operator who wishes to see first hand the effects of using alternative fueled vehicles. This occurs by creating a cooperative funding arrangement between a fleet operator, one or more fuel suppliers, interested environmental and local governmental groups and the Trucking Research Institute, acting on behalf of the federal government. Each party provides a funding contribution commensurate with its

interest;(i.e.)the fleet operator pays for vehicles up to the level of cost for conventionally fueled vehicles of the same type; the fuel supplier contributes money to provide necessary infrastructure (fueling storage and delivery) as well as supplying fuel; the other members of the group contribute funds which cover the differential costs associated with converting the vehicle to alternative fuel capable. These latter costs vary widely with both the type of vehicle and kind of alternative fuel.

The purpose of the demonstration projects set up under this arrangement is to gather and provide data to the Alternative Fuels Data Center at NREL where it can be analyzed and used to determine the costs and benefits of using each type of alternative fuel in a particular duty cycle. Data gathered will be in an easy to access format, and is available to the public.

The ATA Foundation is actively seeking to bring together groups of participants. To date, two projects are in startup and will commence in late winter/early spring 1993; they involve use of ethanol (E-95) to power snowplow/road maintenance vehicles in Hennepin County, Minnesota and the state of Nebraska. The vehicles are Navistar International 5070 chassis with Detroit Diesel 6V92 ethanol burning engines. Other projects being readied to begin involve use of 20 CNG powered package vans operated by UPS in the greater Washington, D.C. metropolitan area, and a group of seven Mack Truck refuse haulers powered by Mack's E-7 engine, converted to burn Liquefied Natural Gas (LNG). These vehicles will be operated by Chambers Development Company in Washington, Pennsylvania. Our objective is to set up projects which provide as much diversity as possible in location, type of fuel, kind of vehicle, an duty cycle.

Participation in the alternative fuel activities of the ATA Foundation is also possible through membership on the Foundation's Alternative Fuels Task Force, a group consisting of over sixty people from a variety of occupations dealing with alternative fuels. Membership includes motor carrier executives with specialties in operations, safety, maintenance and marketing; executives of engine and truck manufacturers with engineering and marketing expertise; members of fuel supplier companies in the natural gas and alcohol fuel industries; government and agency executives whose interests include the environment and energy conservation, as well as safety and public health.

Editor's Note: The writer is Vice President of the Trucking Research Institute

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- Bill Peerenboom*

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The aim of **Alternative Fuels In Trucking** is to keep fleet owners and operators, equipment suppliers, government officials and other interested parties informed of important developments which impact the use of alternative fuels in heavy-duty trucks. Suggestions and comments are welcome.

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IMPACT ON — from page 1

vehicle is reduced by the portion of the cost that is deducted. Also, the deduction is not allowed with respect to the portion of the cost taken into account under section 179.

Only the incremental costs of the alternative fueled vehicle are eligible for deduction; not the entire vehicle. This means that when purchasing a new, original equipment manufacturer (OEM) vehicle, only the incremental cost for clean-fuel related components above the cost of a comparable conventional-fueled vehicle is deductible.

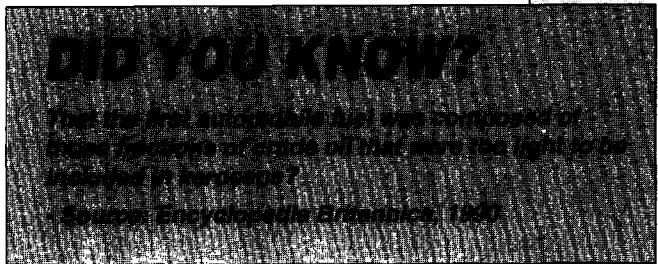
Retrofitted or converted vehicles are also eligible for this deduction. When retrofitting or converting an existing vehicle to a clean-fuel vehicle, the deduction applies only to certain engine, fueling system, or exhaust-related retrofit parts, components or conversion kits to convert existing gasoline or diesel powered vehicles to run on a clean alternative fuel (such as natural gas or methanol), provided that the modifications meet applicable state and federal emissions standards.

Deduction	Vehicle Type
\$50,000	truck or van with a gvwr > 26,000 pounds; (or buses with > 20 passenger capacity).
\$10,000	truck or van with gvwr 10,000-26000 lbs.
\$2,000	all other motor vehicles

These deductions on qualified clean-fuel vehicle property placed in service after December 31, 2001, are gradually reduced beginning in the year 2002 by 25 percent, 2003 by 50 percent, 2004 by 75 percent, with no deductions available after 2004.

Tax Deductions for Refueling Property

In addition there are deductions available for new clean-fueled vehicle refueling property. These deductions do not apply to any structures or buildings, nor acquired property that already had a clean fuel vehicle refueling facility installed. The up-to- \$100,000 deduction is available only for the actual storage and dispensing of a clean-burning fuel into clean-fuel vehicles located on site. Recharging equipment for electric motor vehicles is also covered provided that recharging is done on the premises.



Section 401. Truck Commercial Application Program

Additional funding is authorized from 1993 through 1995 for implementing Section 400 BB of the Alternative Motor Fuels Act of 1990, which provides for commercial application projects in heavy-duty truck fleets. This will provide more research into the practical aspect of utilizing alternative fueled vehicles in commercial vehicles in revenue service. (no dollar amounts were specified).

Other Provisions of Interest

The Secretary of DOE will issue regulations by October 1993 outlining how states may work to implement more expansive alternative fueled vehicle programs, including exemptions from sales tax for alternative fuels, preferred parking programs, expanded government alternative fueled fleet programs.

Private fleets of light-duty vehicles may petition DOE for a full or partial exemption from the requirements if fuels and/or suitable vehicles are not available that meet the fleets requirements. Private fleets will also be eligible to receive credits for the purchase of more alternative fueled vehicles than required. The credits are equivalent to the size of vehicles required to be purchased, and could be applied toward future purchase requirements or traded or sold to other fleets of the same vehicle types.

For more information, contact Allen Schaeffer in the ATA Department of Environmental Affairs at 703-838-1844. For specific questions regarding the tax deduction provisions, contact Chamain O'Mahoney in the National Accounting and Finance Council at 703-838-1915.

Editor's Note: The writer is Director of Environmental Affairs for the American Trucking Associations

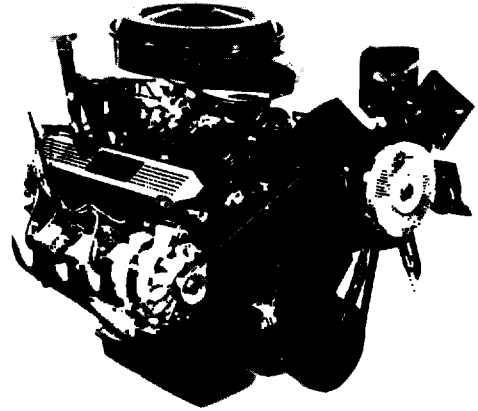
Engine Profile

TECODRIVE 4300 & TECODRIVE 7000

The Tecogen Company of Waltham, Massachusetts has developed two dedicated compressed natural gas engines for use in the light-duty truck and school bus markets.

The Tecodrive 4300 is a 262 cubic inch displacement, V-6, spark ignited engine. It comes equipped with a 12-volt automotive starter, a natural gas carburetor and other natural-gas specific parts. It is used primarily in truck classes I and II: step vans and delivery trucks.

The Tecodrive 7000 is a 427 cubic inch displacement V-8, spark ignition bus engine. Internal engine modifications include high-



compression aluminum pistons, a long-life ring pack and valve train modifications. This engine is California Air Resources (CARB) certified to meet current emissions standards for natural gas engines.

Engine Model	BHP	Cycle	Bore	Stroke	Compression Ratio
TECODRIVE 4300	140 @ 3600 rpm	4	4.0 in.	3.48 in.	9.3:1
TECODRIVE 7000	195 @ 4000 rpm	4	4.25 in.	3.67 in.	10.5:1

Table specification and photo courtesy of Tecogen, Inc.

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