



Highlights of [GAO-07-713](#), a report to congressional requesters

Why GAO Did This Study

The U.S. transportation sector is almost entirely dependent on oil, a condition that poses significant economic and environmental risks. Biofuels, such as ethanol and biodiesel, have the potential to displace oil use in transportation fuel. GAO was asked to describe the status of and impediments to expanding biofuel production, distribution infrastructure, and compatible vehicles as well as federal policy options to overcome the impediments. GAO was also asked to assess the extent to which the Department of Energy (DOE) has developed a strategic approach to coordinate the expansion of biofuel production, infrastructure, and vehicles and has evaluated the effectiveness of biofuel tax credits. GAO interviewed representatives and reviewed studies and data from DOE, states, industry, and other sources.

What GAO Recommends

GAO recommends that the Secretary of Energy (1) collaborate with public and private sector stakeholders to develop a strategic approach that coordinates expected biofuel production with distribution infrastructure and vehicle production, and (2) collaborate with the Secretary of the Treasury to evaluate and report on the extent to which biofuel-related tax expenditures are achieving their goals.

DOE reviewed a draft of this report and generally agreed with the findings and recommendations.

www.gao.gov/cgi-bin/getrpt?GAO-07-713.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Mark Gaffigan at (202) 512-3841 or gaffiganm@gao.gov.

BIOFUELS

DOE Lacks a Strategic Approach to Coordinate Increasing Production with Infrastructure Development and Vehicle Needs

What GAO Found

Combined ethanol and biodiesel production increased rapidly from about 3.4 billion gallons in 2004 to about 4.9 billion gallons in 2006, but these biofuels—primarily ethanol—composed only about 3 percent of 2006 U.S. gasoline and diesel transportation fuel use. Due to limitations on the production and use of corn—the primary feedstock used to produce ethanol in the United States—15 billion to 16 billion gallons is the generally agreed maximum amount of U.S. corn ethanol production. Using cellulosic feedstocks, such as corn stalks or other plant material, could expand the amount of ethanol produced, but the production costs are currently twice those of corn ethanol. Policies that support cellulosic ethanol research have the potential to increase the future availability of cost-competitive ethanol.

Existing biofuel distribution infrastructure has limited capacity to transport the fuels and deliver them to consumers. Biofuels are transported largely by rail, and the ability of that industry to meet growing demand is uncertain. In addition, in early 2007, about 1 percent of fueling stations in the United States offered E85—a blend of about 85 percent ethanol and 15 percent gasoline—or high blends of biodiesel, such as B20 or higher. Increasing the availability of E85 at fueling stations is impeded largely by the limited availability of ethanol for use in high blends. Several policy options, such as mandating their installation, could increase the number of biofuel dispensers in stations. However, until more biofuel is available at a lower cost, it is unlikely that more fueling stations would lead to significantly greater biofuels use.

In 2006, an estimated 4.5 million flexible fuel vehicles (FFV) capable of operating on ethanol blends up to E85 were in use—an estimated 1.8 percent of the nearly 244 million U.S. vehicles. The number of FFVs may increase substantially because of a recent commitment by DaimlerChrysler, Ford, and General Motors to increase FFV production to compose about 50 percent of their annual production by 2012. Several policy options, such as a tax credit for FFV production, could increase the number of FFVs, but would likely have little impact on biofuel use until E85 is less expensive and more widely available. It is also a concern that because many FFVs are less fuel efficient than other vehicles and rarely use E85, they actually increase petroleum use.

DOE has not yet developed a comprehensive approach to coordinate its strategy for expanding biofuels production with the development of biofuel infrastructure and production of vehicles. Such an approach could assist in determining which blend of ethanol—E10, E85, or something in between—would most effectively and efficiently increase the use of the fuel and what infrastructure development or vehicle production is needed to support that blend level. In addition, DOE has not evaluated the performance of biofuel-related tax credits, the largest of which cost the Treasury \$2.7 billion in 2006. As a result, it is not known if these expenditures produced the desired outcomes or if similar benefits might have been achieved at a lower cost.