



# GREEN POWER

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## Renewing Hope: Can Private and Public Sectors Align on Transportation Fuels?

[http://www.greenpowermagazine.com/newsletters/2007/gp\\_newsletter\\_4-07.htm#fe](http://www.greenpowermagazine.com/newsletters/2007/gp_newsletter_4-07.htm#fe)

By Dan Pullman

In his 2007 State of the Union speech, President George W. Bush called on the U.S. to reduce its gasoline consumption by 20 percent over the next decade by tightening fuel economy standards and producing 35 billion gallons of renewable fuel, such as ethanol, by 2017. However, as on any trip, the question is asked: “when will we get there?”

The prevailing opinion in the investment community is that the 20 percent renewable fuel target will be a sizeable challenge to meet given the significant ethanol and/or biodiesel refining capacity increase required. Currently, only 12 million gallons of ethanol production capacity is online or in production against an annual U.S. fuel demand of 180 million gallons. The economics associated with competitive ethanol production (competitive with gasoline) are being challenged by the rising cost of corn, the fundamental inefficiency of corn as a food stock to generate ethanol, and the as yet unproven ability of cellulosic sources (e.g., trees, wood, building materials, switch grass, etc.) to be cost attractive in the U.S.

Furthermore, the transportation costs and infrastructure capacity associated with ethanol and bio-diesel distribution are constrained. Unlike Brazil, the U.S. fuel retail market (i.e., local service stations) is unequipped to sell multiple fuels from a single site with existing infrastructure. Retailers will need to invest in their storage and pump systems to sell multiple fuels. Of the nation's 170, 000 gas stations, only 2,000 have pumps for ethanol or biodiesel. As well, the transportation industry lacks the capacity necessary to move finished ethanol fuel from plants through refineries to the pumps. Ethanol cannot simply utilize the same pipes used by other fuels. While about 70 percent of current petroleum products is moved through pipelines, ethanol cannot share the same pipelines with other petroleum products for two specific reasons. First, petroleum products can leave deposits in pipelines which would contaminate ethanol. Second, water gets into pipelines and can

mix with ethanol requiring re-refinement, but does not mix with petroleum. Unit (or dedicated) pipelines for ethanol cost as much as \$2 million per mile and would, therefore, require substantial infrastructure investments. Rail is a delivery alternative, but lacks the capacity to handle potential increases in demand.

The magnitude of the overall challenge around fuel issues in this country demands a strong cooperative partnership between public and private sectors. While the private sector “market” may be best at determining solutions, the public sector (most importantly, the federal government) will have to create economic incentives that stimulate attention and investment. To be clear, such federal incentives will have to stick. Investors will want to know that incentives created today will not be taken away within just a couple of years. Ethanol’s \$.51 subsidy has been consistent and has apparently motivated investors to build ethanol refining capacity. However, the volatility of tax incentives and credits in the solar and wind space is directly correlated to the timing of inflows and outflows of capital to those industries. Unpredictability is manifested in higher costs of capital – higher interest rates, bigger discount rates, and/or deferral of funding altogether.

Local and state governments are playing a more active role by imposing higher renewable portfolio standard (RPS) targets. California RPS targets that 20 percent of the state’s electrical retail delivery must come from renewable energy sources: solar, wind, geothermal, and biomass. The RPS target increases to 33 percent by 2020. In effect, California is creating a market for renewable fuels by imposing these requirements.

The private sector, particularly investors, are motivated by economic incentive. Venture investors also look well beyond the tax incentive opportunity and make decisions on technology investments that have economic potential in their own right. In fact, many investors execute their analysis of an investment opportunity knowing that a technology will have lower costs over time through ongoing R&D and ingenuity. Though still reliant on tax incentives, solar technology has become dramatically more efficient in producing kilowatts of energy in its history and will become more efficient in the future and will likely cross over the competitive cost threshold within the next five to 10 years. The same holds true for battery-driven vehicles. The intersection of higher performance, longer distances, and lighter weight batteries is well advanced in many of the large automotive R&D labs. But the industry is still 10 years away from a competitive, mass market, production capable vehicle. Other biotechnologies, such as algae bio-reactors, have strong economic arguments today for cost-effectively converting carbon dioxide from power plant flue gasses into lower cost ethanol and biodiesel.

What will motivate the progressive partnership between the public and private sectors to support the acceleration of transportation fuels alternatives and flexibility? Not surprisingly, the price of oil will likely be the major determining factor. Sustained oil prices well above \$60 per barrel will motivate whole industries and individual consumers alike to seek alternatives. Geopolitics will also fuel (e.g., Russia’s oil games) increased volatility and unpredictability that will drive up prices. In the U.S., the moral imperative will not be enough of a motivator. In the U.S., economics prevail and will, ultimately

drive behavior. The sooner private sector and public sector align to achieve our needed transportation goals, the quicker we will get there.

### **About the Author**

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