

## **Biofuels – A responsible, sustainable energy solution**

The nation's increasing dependence on foreign oil poses problems for the economy that go far beyond those associated with our domestic deficit in reserves, its price and volatility. Links to foreign policy have been made in the debate about our ability to quench our thirst for oil and associated energy security issues. There is no need for any of it. If the national imperative is to reduce our energy dependence and create cleaner, more cost-effective transportation solutions, one already well-established solution to the problem is ethanol. This is not new technology, or a 'pie-in-the-sky' idea that will take years to get to market. It's already here.

Ethanol is currently used in vehicles across the nation, and the world, in "low blends" like E10 and "high blends" with gasoline such as E85. Its use does not require major modifications to existing engines, transportation, delivery or storage infrastructure, and it is a clean source of energy, getting cleaner and greener by the day. Changes required for existing engines to run on ethanol are minimal, with engine technology nearly mirroring that in use today, meaning retraining of the mechanic at the corner garage is not an arduous task. Nor is maintaining a readily available supply of spare parts to service such engines in Duluth, Minnesota.

Counter arguments to the adoption of ethanol are many, and generally issue from large, influential interest groups like the oil industry lobby and environmentalists, many of whom call into question ethanol's 'green' credentials. On closer inspection these arguments are largely empty. Whilst emissions from ethanol engines and the refining process are higher than hydrogen, this argument fails when the entire hydrogen production process, including

the electricity used to produce it is considered. Further harming the hydrogen argument is the length of time, development risk and investment required for it to be a viable solution (we have to retrain all those mechanics mentioned earlier). The Department of Energy forecast is we might have something impactful in a hydrogen-based transportation system by 2040.

Ethanol is available NOW.

The move to ethanol will also provide a much needed boost to the US agricultural sector, under pressure from the WTO community, crying for a reduction in subsidies. What if we redirected the subsidies to energy crops, giving farmers the same revenue per acre as they currently receive under the subsidy regime? With an additional \$20-40/dry ton of cellulosic waste (or energy crops), farm incomes will increase to a point where the need for these subsidies and competitive revenue rises above the subsidy benchmarks. It will also redirect funds flowing into the Middle East towards US rural economies. Further, WTO pressure to reduce subsidies will decline as energy crops are unlikely to be assessed as international crops under WTO rules.

It has also been argued that we simply do not have the land for these energy crops. Viewed differently, 73 million acres of soybeans have only recently been planted through farm subsidies. Why can't we do the same with energy crops? Improved efficiency in ethanol production and use of waste biomass leads to a smaller land area requirement. Former Secretary of State George Schultz and former CIA Director Jim Woolsey have estimated that we will need only thirty million acres to meet half our energy needs. NRDC estimates we will need just over 100m acres. In sum the land mass devoted to the soy crop planted today could eliminate our oil imports for cars. This is an achievable change.

And let us not forget the automakers who are, unknown to many, quietly embracing the ethanol change through development of the flex-fuel vehicle, or FFV's. In California, a Ford F150 has the same price irrespective of the fuel used, either FFV or gasoline. Globally, growth of FFVs is burgeoning, to a point where Volkswagen in Brazil is giving serious consideration to phasing out gasoline powered vehicles. With FFV sales in December 2005 accounting for 71% of new car sales in Brazil, it's easy to see why.

All of this needs regulatory support. To achieve rapid change, that support should come in the form of a requirement that 100% of all high volume new car models manufactured in the US have flexible fuel capability. Clearly not a feasible overnight change, but phased introduction through a 20% annual increase in the FFV share of new car sales over the next five years is achievable. Brazil has achieved 70% in less than three years. Simple economics will help drive this change, as consumers will be happy to buy cars that can run on gasoline, that may give them the option of using greener ethanol at a cheaper price. As soon as FFVs start to appear more widely and ethanol remains cheaper, as it is today, distribution will mushroom. Walmart and Costco, among others, would love the opportunity to entice every FFV owner to their parking lot by providing ethanol gas stations. While there is an ethanol subsidy there is also an equivalent tax on the cheapest ethanol from Brazil. Would we rather import cheaper Brazilian ethanol or expensive mid-east oil? Should we support terrorism financing oil or redirecting those dollars to rural economies through ethanol use?

As 100% of cars become FFVs ethanol and the US economy becomes accustomed to this development, our concerns about our energy security and the price and volatility associated foreign oil will rapidly become an historical tome.

In our lifetime.