

Tax Incentives Boost Biofuels/Local Plants

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Tulare County -- While the prices of fossil fuel hit record levels just about every day - a new tax bill passed by congress last week and likely to be signed by President Bush - will boost renewable based biofuels like ethanol made from corn or green waste and biodiesel made from soybeans or waste food oil.

The measure - called the American Jobs bill (HR 4520) includes tax breaks for farmers, manufacturers and small business and includes key provisions likely to ramp up the volume and availability of E85 ethanol and biodiesel blended with petroleum diesel. Significantly it allows farm co-ops for the first time to pass credits through to cooperative members spurring more interest in biofuels. It extends ethanol tax credits through 2010 and changes the way tax incentives for renewable fuel are paid for - removing penalties on current highway funding (see accompanying article).

For biodiesel the measure creates a \$1 per gallon tax credit for agri-biodiesel (farm based oils including from animal fat) and 50 cents tax credit for biodiesel recycled oil through 2006.

Surprised that the biodiesel component of the tax bill was even in the package hammered out by congress last week, was Joe La Stella director of Green Star Products who opened the state's first major biodiesel plant in Bakersfield in the past year.

La Stella explains that the measure needed the blessing of Congressman Bill Thomas of Bakersfield who heads up the Ways and Means committee who, despite the fact the plant is in his home district, had not looked favorably on biodiesel in the past. After all, "Bakersfield is the third largest oil producing region in the US, behind only Texas and Oklahoma." Oil interests don't take so kindly to competition.

But instead, the measure passed without objection from Mr. Thomas who had been criticized in several Bakersfield media reports about his lack of support for the clean burning fuel made in his own hometown.

The biodiesel provision "is just huge" says La Stella, since it incentivizes refiners to blend biodiesel with petroleum diesel.

Biodiesel is typically sold as B20 (20% biodiesel mixed with 80% diesel) or even B2 - 2% biodiesel. La Stella says it will be cheaper to blend one gallon of biodiesel with 4 gallons of diesel to make 5 gallons of B20 than pay the excise tax on 5 gallons of standard diesel. Biodiesel is currently a few cents higher than traditional diesel. "This is just what the industry needed," he says.

The Bakersfield plant that has the capacity to put out 5 million gallons a year has done only a few hundred thousand gallons in 2004 in part whipsawed by the rising cost - now the declining cost of soybeans on the market. "We've decided to make biodiesel in Bakersfield with food oil," says La Stella. He predicts there is enough around to supply the needs of the plant.

La Stella says the company is supplying biodiesel to the blenders in Salt Lake City who sell it as B2 at 3 cents below average diesel prices. Biodiesel helps lubricate car engines while it reduces toxic emissions associated with diesel.

In California Green Star Products has just announced an Automobile Club of California test confirmed that biodiesel mixed with the compound AFT made by the company actually increases fuel efficiency of cars by 5.7%. "We can clean the air, reduce our need for foreign oil and get better mileage too," says La Stella.

La Stella says he plans to test the air inside and outside a school bus using biodiesel pointing to recent reports that showed children are being harmed by petroleum diesel fumes that get inside school buses.

Biodiesel puts out far fewer harmful substances - 50% less hydrocarbons and 18% less CO2 - a factor in global warming. Particulate matter - one of the worst problems in the valley associated

with both farm tractors and diesel big rigs - can do their work using biodiesel that emits 47% less particulate matter, according to the National Biodiesel Board.

A booming market for biodiesel could do more than reduce dependence on foreign sources of oil, but could add \$1 billion to the bottom line of US farm income, says the National Biodiesel Board.

The Bakersfield plant sits on 36 acres of an organic fertilizer facility. Little of the biodiesel produced so far at the Bakersfield plant goes to Bakersfield - the smog capital of the valley. But that will change soon, vows La Stella. Instead the firm has sold to suppliers on the coast who report strong demand for the environmentally friendly fuel.

In Tulare County where at least three ethanol plants are in the works, the news from the tax bill is good as well. Tom Koehler, helping to build two proposed new ethanol plants planned in both Madera and Visalia, says the provisions will help this renewable fuel as well. The change in the law now allow any operator, refiner or marketer, distributor or jobber can get 52 cents per gallon incentive to blend ethanol up to the E85 level (85% ethanol - 15% unleaded gas).

The Volumetric Ethanol Excise Tax Credit (VEETC) provision in the tax bill extends tax credits until 2010 and introduces more flexibility in how a tax credit is taken. Many currently made flexible fuel vehicles can run on E85 fuel.

Most states blend gasoline at 10% with ethanol, although California blends at just 5.7%. Ethanol boosters want the state to up that ratio to 10% helping to decrease the volume of gasoline needed for California which at least appears to be always short on supply.

While the price and supply of imported oil remains dependent on political stability overseas or natural disasters that can suddenly reduce supply, these home grown fuels can decrease the dependence on these global fossil fuels that may be helping to warm our planet.

On October 22 the California Energy Commission and Air Resource Board will discuss just how the state can reduce gasoline and diesel fuel demand by 15% below 2003 levels by 2020, and increases use on non petroleum fuels to 20% of on road fuel consumption by 2020 and 30% by 2030.

While the focus has been on car makers to cut emissions here through engine improvement, fuel related changes using these biofuels could make a difference not a decade from now when the fleet of cars in California turns over but in the next year as more biodiesel becomes available for example.

The E85 provision in the tax code has an incentive for example for gas stations to convert one of their pumps from mid or high grade fuel used by only a few drivers, to E85 suddenly making the fuel available everywhere you shop for fuel.

ENERGY AND AMERICA'S FUTURE

Last of Three Parts

The gamble for Detroit

U.S. automakers lagging Japanese rivals in the race for fuel-efficient technology

By Robert Collier, Chronicle Staff Writer

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Detroit -- As gasoline and crude oil prices soar to record highs, a critical debate is taking place in the headquarters of America's Big Three auto companies.

Should Ford, General Motors and Daimler-Chrysler spend billions of dollars creating models that maximize fuel efficiency? And if they do, will Americans buy them?

The answers will greatly affect the ability of the United States to reduce its dependence on foreign oil -- a goal that both presidential candidates support -- and to protect the nation's environment in the coming decades.

Japanese automakers Toyota and Honda are leading the way with the development of the hybrid engine, which uses a combined gasoline and electric drivetrain and gets as much as 40 percent greater fuel mileage than regular gasoline engines.

Toyota introduced its best-selling Prius in 2000, upgraded it this year, and has two more models coming out early next year.

Honda, which released the first hybrid vehicle in 1999, has two hybrid sedans in the streets, the Insight and the Civic, with a hybrid version of the Accord being released in December.

Ford is only now rolling out its first hybrid, the Escape sport utility vehicle. General Motors is focusing on large hybrids, with a 40-foot passenger bus and two pickups on the way, while Daimler-Chrysler is not planning to produce any hybrids.

Environmentalists say Detroit is moving too slowly. "U.S. automakers did not start behind the curve in terms of technical know-how and research, but they are now definitely behind the Japanese because they have not experimented as aggressively in hybrids," said Jason Mark, transportation program director at the Union of Concerned Scientists in Berkeley.

As Detroit continues to mass-produce gas-guzzling SUVs, there are hints that consumers are shifting toward improved fuel economy, spurred by gasoline prices averaging \$2.40 per gallon for regular in the Bay Area.

GM's Hummer is having a bad sales year, while Toyota dealerships have a six-month waiting list for the Prius. Responding to the demand, Toyota has doubled the number of Priuses it will import to the United States next year to 100,000.

From General Motors' 39-story office tower in crumbling downtown Detroit to Ford's sprawling, manicured office parks in suburban Dearborn, auto executives are placing a different bet -- on hydrogen, which dovetails with the Bush administration's emphasis on hydrogen development over more short-term mileage improvements.

"Hybrids are not a panacea for fuel economy," said Dave Szczupak, Ford's vice president for power-train operations. Hybrids cost between \$3,000 and \$5,000 more than their conventional counterparts, he says, and an average driver would have to keep the car for seven years to make it cost-effective, even with savings at the gas pump.

With the number of cars on American roads expected to double by 2025, only a revolutionary change in energy technology will make for a reduction in gasoline consumption.

"The future is hydrogen, and we are uniquely positioned among automakers to lead the way," Szczupak said.

Both President Bush and Sen. John Kerry have expressed support for hydrogen -- a technology that promises virtually unlimited supplies of pollution-free fuel -- but there's a major catch. Hydrogen fuel cell engines are estimated to be 10 to 20 years away from viable commercial development.

Ford officials say they are creating a stepping-stone to the fuel-cell vehicle by developing a hydrogen internal-combustion engine, which is essentially a regular auto engine rigged to run on hydrogen.

This technology is believed to be impractical for widespread use by average drivers, but Ford says it hopes to sell many hydrogen internal-combustion vehicles to government fleets after about 2010.

At that same time, they say, federal aid will help create a network of 15,000 hydrogen filling stations in the nation's 100 largest cities and along the interstate highway system, at a cost of \$15 billion.

In the meantime, the automakers' vast cadres of scientists and technicians are expected to have ironed out the many technical flaws in the fuel-cell engine. The result, they say, will be a "tipping point" that enables the public to buy hydrogen fuel-cell vehicles.

Critics call the automakers' predictions about hydrogen overly optimistic and say major fuel-efficiency improvements are available using existing technology.

"What's frustrating is that very few companies except Toyota are talking about the near term, about achievable reductions in new cars using the gasoline internal combustion engine and existing, off-the-shelf technology," said Mark, at the Union of Concerned Scientists. "It's a bait-and-switch strategy to dangle the promise of a long-term solution as a way to avoid short-term action."

According to a study published by Mark's group, a Ford Explorer could be rebuilt to achieve 36 miles per gallon, a 71 percent improvement over the current model's performance, with no decrease in acceleration or towing capacity.

The suggested changes include improvements such as a six-speed automatic transmission, variable valve control and direct-injection engines, as well as lighter materials.

Asked about the study, Ford and General Motors executives say many of the suggested changes are already percolating through the companies' vast research- and-development bureaucracies and are only a few years from production.

California has also challenged U.S. automakers to do more. A state law enacted last month allows single-occupant cars to use freeway commuter "diamond" lanes if the vehicle is a hybrid that gets over 45 miles per gallon -- a cutting-off point that includes the Toyota and Honda hybrid cars but excludes the less-efficient Ford and General Motors hybrids.

And the state Air Resources Board last month ordered automakers to produce vehicles with greatly reduced tailpipe emissions, beginning in 2009. The measure could greatly reduce the sale of large sport-utility vehicles and high-performance sports cars.

U.S. automakers strongly oppose both laws and are expected to file a lawsuit after the November election seeking to block the second measure.

"What California has done is the right policies, wrongly applied," said Scott Fosgard, a General Motors spokesman.

"Instead of picking winners and losers and forcing consumers to buy a particular technology, government should be working to provide consumer incentives, to educate the consumers. How can we build a market for those technologies?"

With both Bush and Kerry actively courting the auto industry -- and auto workers, who usually support the companies in regulatory fights -- the Big Three stand to gain no matter who wins on Nov. 2.

Bush has continued a Clinton administration program of federal support for hydrogen technology development, but he has opposed significant strengthening of fuel-economy standards and has continued to hold SUVs and so-called light pickups to lower miles-per-gallon mandates than regular cars. He has continued to exempt heavy SUVs such as the Hummer and Ford Excursion from these standards.

Currently, buyers of hybrid vehicles can get a one-time \$2,000 tax deduction, far less than the \$25,000 tax break for small-business owners and self-employed people who buy extra-large vehicles -- a category that includes the Hummer and the Excursion.

Kerry is offering to raise the hybrids' tax credit to \$5,000, and he would give \$10 billion over four years in tax breaks to U.S. automakers to help them retool factories for cars and trucks that get high fuel efficiency.

Bush says he would raise the hybrid credit to \$4,000, although no such action was taken in a large tax bill he signed Friday, and the credit is scheduled to be phased out by 2007. Bush would not give tax breaks directly to the auto firms for switching to hybrid production.

The need to improve fuel efficiency seems undeniable, because two-thirds of the United States' oil consumption is devoured by passenger cars and commercial trucks. While official overall gas mileage of new U.S. passenger cars rose from about 14 miles per gallon in the late 1970s to a

peak of 22 miles per gallon in 1987, it has since declined to 21 miles per gallon. In fact, real mileage is significantly less, because the official tests are conducted under atypical conditions, such as closely obeying freeway speed limits.

Most improvements in auto technology in recent decades have been channeled into increased power, acceleration and size rather than fuel efficiency. If the average size and power of American cars and trucks had stayed constant from 1981 to 2003, the United States would now have a net surplus of 50,000 barrels of gasoline per day rather than its current imports of 320,000 barrels per day, according to a study released in July by the consulting firm Booz Allen Hamilton.

If the gas mileage of the 17 million passenger vehicles sold annually in the United States were to increase by one-third, about 3.4 billion gallons of gasoline would be saved annually, according to the Union of Concerned Scientists.

After five years of such improved efficiency, the United States would need to purchase about 850 million fewer barrels of petroleum each year -- about the same amount imported annually from Persian Gulf states.

Savings could also be realized with more fuel-efficient diesel-based engines, but they create sootier exhaust and do not meet California smog standards. Automakers say they expect to have a new, clean diesel engine available by 2007.

For now, hybrids are the car of choice for environmentalists because of their superior gas mileage, such as the Prius' 55 mpg average, and because they emit 90 percent less pollution than the typical passenger car.

The key question is whether, with or without government support, enough Americans will buy more fuel-efficient vehicles. Fosgard said that in GM's consumer surveys, its customers rank fuel economy 18th among their priorities in choosing a vehicle. "If customers were interested in small vehicles, they'd be downsizing their houses, and a lot of other things. What sells is performance and what I would really call sex appeal. That's the tried and true. "

Many analysts are more bullish on hybrids, noting that the Prius is expected to sell 47,000 models in the United States this year and that Ford's Escape hybrid has been a hot seller since it was introduced last month. Toyota's Lexus division says it has already sold more than 9,000 of its RX400 hybrid SUV, the biggest pre-order in the company's 15-year history, ahead of the model's launch early next year.

"One hundred thousand cars sold is not just a niche, it's a successful mainstream model," said Jim Hall, vice president of industry analysis for AutoPacific, Inc., in Southfield, Mich, referring to projected sales next year for the Prius.

Yet even Toyota executives say they are unclear about the long-term potential of hybrids.

"This is the million-dollar question," said Paul Daverio, Toyota's advanced technology vehicles marketing manager. "There is a huge wave of demand, but time is only going to tell how much."

Image, Daverio suggested, may determine whether hybrids go mainstream or wind up as merely a fad for techies and tree-huggers. He's optimistic that hybrids will attain the necessary status.

"We're definitely turning the corner in terms of what's accepted as cool," he said. "There's a growing psychographic of people wanting do the right thing but who don't want any sacrifice. They want the ice cream sundae but with no calories. They want performance without harming the environment."

Steaming into the future

Chronology of hybrid vehicle production:

- Honda: Insight hatchback -- 1999
- Toyota: Prius sedan* -- 2000
- Honda: Civic sedan -- 2002
- General Motors/Allison: city bus** -- 2003

- Ford: Escape SUV -- Sept. 2004
- Chevrolet: Silverado pickup -- Oct. 2004
- GMC: Sierra pickup -- Oct. 2004
- Honda: Accord sedan -- Dec. 2004
- Toyota/Lexus: RX400h SUV -- early 2005
- Toyota: Highlander SUV -- early 2005
- Saturn: VUE crossover SUV -- 2006
- Nissan: Altima sedan -- 2006
- Chevrolet: Malibu sedan -- 2006
- Mercury: Mariner SUV -- 2007
- Chevrolet: Tahoe SUV -- 2007
- GMC: Yukon SUV -- 2007
- Ford: Fusion sedan -- 2007
- * substantially revised in 2004
- ** diesel-electric hybrid.

Sources: Booz Allen Hamilton, Chronicle research