

## The Ethanol in Gasoline Penalty

Most Significant for California Highway Projects

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### *Introduction*

It is easy to take for granted the vast extent of highways and roads providing individual freedom and commercial lifelines in the U.S. and specifically in California. The development of the national highway system began during the post-World War II era and continues to grow and improve. In California, the expansion and maintenance of these arteries is particularly critical to its economic stability as well as continued individual independence.

The State of California has over 168,000 miles of roads and streets containing over 371,000 miles of lanes. These roads and streets experience over 306 million miles of vehicle travel per year. The California Department of Transportation, better known as Caltrans, maintains and repairs about 15,000 miles of highway with over 49,000 lane miles of pavement, about 12,000 bridges and more than 230,000 acres of right-of-way surrounding these highways. At almost any point in time, there are about 14,000 lane miles of highway (nearly 30% of the state highway system) that require repair or maintenance. This does not include the continual additions and expansions to the highway system necessary to accommodate growth and shifting commercial and residential demographics.

The California Energy Commission (CEC) predicts that the number of cars and trucks in California will grow from 22.8 million to 31.5 million by the year 2020. The cumulative distance these vehicles travel California's highways will increase from 295 billion to 360 billion miles a year. Currently, the fleet consumes about 15 billion gallons of gasoline per year.

California's year 2000 budget for statewide transportation projects was about \$5.3 billion. For fiscal year 2003-2004 the budget for statewide transportation projects stands at \$6.3 billion but is likely to be cut by \$1.6 billion due to the state's budgetary crisis. The transportation budget lists various State funds, reimbursements and unspecified federal funds. It is unclear whether Governor Davis estimated the potential impacts of the ethanol tax "penalty" to highway funds discussed later in this white paper that can amount to a further reduction in federal funds of almost \$500 million per year in California.

### *Federal Highway Trust Fund (HTF)*

The federal Highway Trust Fund (HTF or Fund) is a major source of revenue to pay for the maintenance, repair, expansion and additions to the nation's and California's highway system. The HTF was originally created in 1956 under the Highway Revenue Act. The funding mechanisms come from excise taxes imposed on motor vehicle fuels and other highway related products (i.e., gasoline, diesel, tires, etc.). For gasoline, the current HTF federal excise tax amounts to 18.4¢ per gallon composed of 15.44¢ per gallon for the Fund's highway account with 2.86¢ per gallon going to the Fund's mass transit account and a 0.1¢ per gallon going to a federal Leaking Underground

Storage Tank (LUST) trust fund. Over the past six years, this Fund has provided over \$200 billion for national transportation projects. The current supporting statute, the Transportation Equity Act for the 21st Century (TEA-21), is scheduled to expire and must be reauthorized in 2003.

California consumes about 15 billion gallons of gasoline per year with a projected annual increase of about 1.6% percent according to the CEC. During fiscal year 2001, California received \$3.7 billion from the HTF. \$2.3 billion of this went to highway planning and construction, the rest went to finance transit projects. With the significant volume of ethanol to be blended into California gasoline, the federal allocation of funds back to the state for highway projects will be severely reduced in accordance with the amount of ethanol used in California gasoline.

### *Ethanol in Gasoline Tax Incentives*

With the oil crisis in the late 1970's came concerns regarding national energy security with increased incentives to encourage the use of U.S. based sources of fuel. Alcohols, ethanol in particular, were part of the alternative fuel landscape. There were no fewer than five tax incentives up until now to encourage the production and use of alcohol as a source of fuel. These incentives began in 1978 and eventually included, (1) excise tax exemptions, (2) blender's tax credits, (3) the small ethanol producer's tax credit, (4) a tax deduction for clean-burning fuel vehicles, and (5) an alternative fuels production tax credit. Helping to motivate the use of alcohol in gasoline the Clean Air Act and the U.S. Environmental Protection Agency (USEPA) also mandated that winter gasoline in some metropolitan areas (Oxy Gasoline) and year-round gasoline in other places (Reformulated Gasoline or RFG) would have to contain oxygen supplied by the blending of either alcohols or ethers.

The tax incentive most responsible for the greater development and use of fuel ethanol is a partial exemption from the gasoline excise tax designated for the HTF. This exemption has enabled ethanol to remain somewhat competitive with an ether-based oxygenate, methyl tertiary butyl ether (MTBE). The current HTF excise tax rate for ethanol blended in gasoline at 10 volume percent (vol%) is 13.2¢ per gallon with 7.74¢ per gallon going to the highway account, 2.86¢ per gallon going to the mass transit account, 2.5¢ per gallon going to the federal General Fund and a 0.1¢ per gallon contribution to the LUST trust fund. The 5.2¢ per gallon tax break is scheduled to go to 5.1¢ per gallon in 2005 and expire at the end of the fiscal year 2007.

The Government Accounting Office (GAO) estimates that the national loss of HTF revenues due to the ethanol excise tax exemption was \$6.01 billion between 1998 and 2001. The GAO further estimates that the loss would be about \$4.37 billion for fiscal year 2003 given the ethanol tax exemption and the transfer of ethanol taxes to the General Fund. The ethanol industry is seeking to partially offset this loss by changing the law to redirect the 2.5¢ per gallon portion of the ethanol excise tax (which amounted to \$6.92 billion over 3 years ending in 2001) back into the HTF.

California collects the full 18.4¢ per gallon for gasoline without ethanol with 15.44¢ per gallon potentially applied to its highway programs. Gasoline containing 5.7 vol% ethanol generates a total of 15.436¢ per gallon (MTBE does not have any tax exemptions) with only 7.74¢ per gallon potentially applied to its highway expansion and maintenance programs vis-à-vis federal funding from the HTF. "Potentially applied" because of the manner in which HTF funds are allocated back to the individual states is complicated and not straightforward.

California's share of the nationwide loss of \$14 billion in highway revenues due to projected ethanol blending will mean a loss of about \$500 million per year or more with the phase out of MTBE and its replacement by ethanol. Proportional revenues coming back to the State of California will be substantially less than blending MTBE or if the blending of ethyl tertiary butyl ether (ETBE) were allowed. ETBE, a derivative of ethanol, receives only a 3.08¢ per gallon exemption when blended at 12.7 vol% to meet the federal two weight percent (2 wt%) oxygen level requirement for reformulated gasoline (an equivalent to ethanol blended at 5.7 vol%).

#### *Cumulative Economic Impacts*

Although the need to phase out MTBE has been greatly mitigated by significant enhancements to the California's underground tank program, the momentum is apparently set to meet the phase out decreed by Governor Davis and supported by some California refiners before or by the end of 2003. Stillwater Associates, under contract to the California Energy Commission (CEC), observes that taking MTBE out of gasoline will mean a gasoline supply reduction of from 5 vol% to 10 vol% in the face of a California refining capacity that is virtually capped out. They also observe that the infrastructure needed to import necessary additional gasoline meeting the unique California gasoline specification is inadequate. Bottom line, Stillwater projects a gasoline shortage resulting in gasoline price increases pegged at from 30¢ to 50¢ per gallon. Refinery disruptions that happen quite frequently in California, could result in price spikes of from 50% to 100%. We have already experienced the plus 30¢ increase as well as some of price spikes.

#### *An Alternative Approach*

The EtBE cousin of MTBE is very different with regard to its properties as compared to its chemical cousin MTBE. It can replace MTBE and add greater refining flexibility to better maintain the California's gasoline supply as compared to ethanol. A few more facts about EtBE:

- ... EtBE is considerably less soluble than MTBE thus more controllable if released into the environment.
- ... ETBE can be blended into gasoline at refinery and shipped through common carrier pipelines.
- ... Gasoline containing ETBE is considered a "fungible" product that can be mixed with most other blends of gasoline.
- ... Blending EtBE in gasoline does not result in increased volatility.
- ... The use of ETBE provides additional gasoline supply flexibility much as MTBE provided.
- ... EtBE would also add an aspect of competition to available clean gasoline components.

Considering the condition of our national and state economies, the State of California needs to fully investigate and allow all viable options available to minimize the gasoline supply reduction and price increase impacts coming from the MTBE phase out and threatened reduced highway funding. This is critical to California's recovering economy as well as to assuring a more stable California gasoline supply. As the ethanol tax exemption and the requirement for oxygen in reformulated gasoline seem to be rather durable fixtures in Washington, D.C., California's CalEPA should implement a multimedia environmental impact study that could open the doors to the use of EtBE in gasoline.

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