HESS CORPORATION

Memorandum In Opposition
To
Ultra Low Sulfur Heating Oil Bill/SB-382

Bill Synopsis
S. 382 would require the use of ultra low sulfur diesel (50 ppm S) for heating oil, beginning July 1, 2011. It further requires a reduction to 15 ppm in 2014. The bill repeals existing legislation calling for 500 ppm when surrounding states adopt similar legislation. This law eliminates the current grade of home heating oil, which has a typical sulfur content of 1500 to 2000 ppm sulfur. Hess opposes this legislation.

Background
>50% (EIA, 2002) of Connecticut households use heating oil as their primary energy source for home heating. Connecticut is the 3rd or 4th largest consumer of home heating oil in the United States, according to EIA. Both heating oil and ultra low sulfur diesel fuel ("ULSD") are called "distillate fuels."

About Hess
Hess Corporation is a headquartered in New York City. Hess operates a 65,000 BPD petroleum refinery in Port Reading, NJ and has a 50% interest in HOVENSA, L.L.C., which operates a 500,000 BPD refinery in the US Virgin Islands. Collectively, these two facilities supply 10% to 15% of the home heating oil used in the Northeast. In Connecticut, Hess also operates a fuel oil terminal in Groton, CT, markets fuel oil, natural gas and electricity and has motor fuel outlets operated by Hess and independent dealers.

Hess Supports A Balanced Regional Sulfur Reduction Approach
Hess recognizes the need for regional particulate matter reductions to meet the federal air quality standards, even though Connecticut appears to meet this standard. For this reason, Hess has expressed support for New Jersey's proposal to reduce sulfur in home heating oil (HHO) to 500 ppm by 2014. This allows US refiners essential lead time to produce additional supply of lower sulfur distillates. A study commissioned by the heating oil dealers concluded that 500 ppm heating oil was, on balance, equivalent to natural gas in environmental impact.

Why Hess Opposes This Legislation

- *In combination with cookie cutter proposals from the regional heating oil dealer groups, this legislation is likely to disrupt the supply and demand balance for distillate fuels and substantially raise prices for both road diesel and heating oil.* Tight worldwide supplies caused distillate fuels to cost >0.20 to 0.50 cents per gallon more than gasoline over the past several years. Distillate prices have dropped because of a recession driven decline in demand. But coupled with recent refinery closures in the East, the huge spike in demand during the winter months caused by using ULSD for heating oil will tighten supplies and bring back the "distillate premium," particularly as the US economy recovers. *A respected industry consultant projects that the increase will be about 20 cents per gallon for both diesel and heating oil (assuming New York or other states adopted a similar standard) and that the increase could be much higher (80 cents) during shortages. A copy of the report is attached to this memorandum.*
- *It will eliminate critical domestic heating oil supplies from Connecticut.* Hess and HOVENSA make up about 10-15% of the Northeast heating oil supply and cannot, without major capital investments and long lead times, produce new supplies of ULSD required by this bill. Many other domestic refiners have the same problem. Projects to add the hydrogen plants and hydrotreating units needed to treat home heating oil to meet a 15 ppm standard typically cost over $200MM dollars.
- *It will increase the risk of supply disruptions and price spikes.* Connecticut is already vulnerable to distillate fuel oil shortages and price spikes during winter months due to high demand for home heating. Many areas in Connecticut are not on natural gas lines and cannot afford a supply disruption or major price spike. For example, in January and February 2000, heating oil prices in the Northeast rose sharply when extreme winter weather increased demand unexpectedly, compounded by interruptible gas customers switching to fuel oil. This problem will be worsened by eliminating some local producers and many foreign producers of heating oil, because relatively few producers worldwide make 15 ppm diesel. Also, the Northeast Heating Oil Reserve will not meet the bill's specifications.
- *There is no air quality reason to reduce the sulfur content of heating oil in Connecticut.* CTDEP is on record that the state does not have a

particulate matter compliance issue, which is the primary air quality driver for this proposal. This means that this bill will impose substantial economic burdens on the residents of the state using fuel oil for no demonstrable reason:

> "Only two counties in Connecticut, Fairfield and New Haven, are designated as nonattainment for the annual PM2.5 NAAQS. These two counties, along with counties in downstate New York and northern annual PM2.5 NAAQS. These two counties, along with counties in downstate New York and northern New Jersey, are included by EPA in a single multistate PM2.5 nonattainment area based on measured violations in the New York and New Jersey portions of the area. All Connecticut monitors measure compliance with the annual PM2.5 NAAQS, with monitored PM2.5 levels in Connecticut exhibiting a general downward trend from 2001 through 2006 as a result of control program implementation."
> http://www.ct.gov/dep/lib/dep/air/regulations/proposed_and_reports/pm25/finals/abstract_&_executive_summary.pdf

- *It increases pollution*. In fact, removing sulfur from fuels is a very energy and resource intensive process and offsets the limited perceived environmental benefits. Both Hess and HOVENSA would have very significant increases in NO_x, SO_x and CO_2 emissions to produce more of these fuels. This pollution increase outweighs the purported benefits.
- *It amounts to a regressive tax.* Per capita, rural areas use more heating oil than urban areas. As a result, raising the cost of heating oil hurts people in Connecticut with lower incomes.
- *It will devastate the US petroleum refining industry and result in higher imports.* The refining industry is economically reeling from the combined effects of the recession and federal fuels mandates. The effect has been recent closures in New Jersey, Delaware, Canada, Aruba and elsewhere, and many more are hanging on by a thread. For those refineries which supply the heating oil market, the sudden shift in product specification is likely to result in some further shutdowns, reducing fuel supplies and eliminating high paying union jobs.
- *More efficient boilers can still be deployed in Connecticut without a 15 ppm S fuel mandate.*
    - There is no mandate anywhere in the world that compels a 15 or 50 ppm S standard for all residential heating oil boilers. For example, the EU standard is 1000 ppm, effective as of 2008.

- Some proponents cite more efficient "condensing boilers" as a reason for the 15 ppm standard. These boilers can (but do not always achieve) efficiencies in the 93% range vs. approximately 85 to 86% for high efficiency boilers. But there are already ultra high efficiency condensing boilers that operate on existing fuel, such as the Monitor FCX or Peerless Pinnacle and many more oil boilers that can meet the 85% standard that achieves an Energy Star rating from EPA. See, "EPA ENERGY STAR® Boiler Product List."
- For those limited number of boilers where the manufacturer recommends low sulfur fuel (e.g. Viessmann, which recommends 50 ppm S fuel), *the product needed to operate these boilers is already available in the marketplace to consumers, so that a mandate is not needed.* Even these ultra high efficiency boilers have their detractors, based on a variety of real world factors, such as much higher boiler cost (generally 30-40% higher) and higher maintenance costs.

- *Reducing S content in HHO below 500 ppm has not been demonstrated as cost effective.*
  - EPA's May 2004 Regulatory Impact Analysis for the offroad diesel rule reports that the cost of going to 500 ppm was about 2 cents or so but that the next step to 15 ppm was an additional ~ 5 cents per gallon. The main reason for the higher cost of step 2 is the difficulty of removing the last few S molecules from feedstocks that are very hard to treat. Most of the easier to treat feedstocks were converted for the road diesel rule in 2006, leaving behind harder to treat distillates.
  - 15 ppm S places heating oil in competition with the road diesel market for barrels. Virtually all countries have a separate and higher heating oil specification, where low sulfur road diesel is required. It is also the lowest sulfur specification worldwide for light distillates. That means less supply overall with two predictable effects, higher long term prices and very limited ability to obtain supply quickly in the case of a cold winter. In 2000, runouts were avoided by imports of higher sulfur material mostly from Russia and Eastern Europe. 500 ppm heating oil allows for a much greater diversity of supply.
  - The reason that EPA chose 15 ppm was because of catalyst poisoning which would not allow new vehicles to meet tailpipe

standards. There is no technological driver for heating oil, as discussed above.

- The cost benefits cited by proponents of low sulfur heating oil are based on a study by NYSERDA and Brookhaven National Labs. This study used 500 ppm heating oil, not 15 ppm heating oil. The study posited that the lower sulfur level would reduce cleaning intervals and, to a very limited extent, improve heat transfer in the boiler. The study questioned whether these savings would actually materialize. Reducing the sulfur content from 500 ppm to 15ppm would have very little, if any, positive effect on equipment costs, because it is not plausible to assume that cleaning intervals would rise to 10 or 20 years at this lower sulfur level.
- The reduction from 500 to 15 ppm requires much more aggressive refining to remove the tiny portion of sulfur remaining in the fuel. This requires significant additional investment (~$100MM for a large refinery) and significantly increases emissions.
- A 15 ppm standard "strands" high quality and expensive distillate that has gone slightly offspec. Pipeline interfaces between higher sulfur products like jet fuel or kerosene and ULSD would no longer be able to be marketed as a high value fuel, and would have to be downgraded to much lower value fuel. This same issue exists when the near zero sulfur product at a refinery exceeds the pipeline standard of 7-8 ppm because of minor technical issues or catalyst life problems.

Conclusion

Any fuel oil sulfur reduction should allow domestic refiners at least four years to make the investments necessary to produce additional supplies. No reduction below 500 ppm has been demonstrated as cost effective and is not needed for air quality or fuel combustion equipment purposes.