

**U.S. Senate Committee on Environment and Public Works
May 12, 2004**

**Statement of John R. Doshier
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“Uncertainty in the Refining Industry – Financial Impacts”

Mr. Chairman, and members of the Committee, my name is John Doshier. I am a Director of Jacobs Consultancy, formerly known as Pace Consultants.

I would like to thank the Committee for the opportunity to testify at this hearing and provide you my independent views on the refining industry.

Much of my work for Jacobs during my 40+ years with the firm has been heavily focused on helping financial institutions and refiners develop financing for major asset acquisitions and expansion projects.

Due to the poor and uncertain climate for investments in the refining industry, gasoline supply in the United States is now tight and is expected to get even tighter.

It may be helpful to the committee for me to review historical as well as expected clean fuels regulations impacting the refining industry. The first regulation, as shown on **Exhibit 1**, initiated in 1973, was the removal of lead from gasoline. This was required for the catalytic converters in cars and was phased in over a ten-year period. In 1989, the Environmental Protection Agency (EPA) instituted vapor pressure control to reduce hydrocarbon (volatile organic compounds – VOC) emissions. These vapor pressure standards were further tightened in 1992.

Based on the Clean Air Act Amendments (CAAA) of 1990, many large cities had to use Reformulated Gasoline (RFG) which by law required additional emission reductions. These reductions continue to become more stringent, even through today, with the use of more stringent and complex emission models. The RFG regulations also required the addition of oxygenates, such as MTBE or ethanol.

Under the CAAA, conventional gasoline, which is used in non-RFG areas, could not be more polluting than a baseline set for each refinery as determined by 1990 production qualities. The CAAA also allowed for second round emissions reduction. This resulted in the creation of Low Sulfur Gasoline regulations that began this year, and Ultra Low Sulfur Diesel requirements in 2006 that also are accompanied by the addition of new catalytic converters and other changes to large trucks. I should also note that California has already implemented much more stringent standards for gasoline and diesel compared to the Federal standards.

Possible further federal clean fuels initiatives pending would be the removal of MTBE from gasoline, renewable fuels (ethanol) standard, and additional ultra low sulfur standards for non-road diesel and other transport fuels. Several states have already implemented MTBE bans.

All of this has led to uncertainty in the refining industry, particularly when it comes to the financial aspects of the business. Let me present the following charts to illustrate this.

Uncertainty of required investment leads to lower asset values. This is illustrated for the refining industry by **Exhibit 2**, which shows recent transactions. The market for buying and selling refineries has ranged from 5% to 35% of replacement cost over the last few years. Replacement cost is the cost to build a new refinery. Recent transactions have been approximately 15% of replacement cost. It is also indicative that if an existing refinery sells for 20% of replacement cost, it becomes difficult to justify building a new facility at 100% of replacement costs.

Exhibit 3 outlines the landscape of financing for the refining industry. A refiner can typically borrow anywhere from 35% to 50% of their market value. The refinery value is the collateral for the loan. We look at this market value as percentage of the refinery's replacement cost.

A refinery which is valued at 20% of replacement can then expect to get financing in the range of 7%-10% of replacement cost. The clean fuels programs for low sulfur gasoline and Ultra Low Sulfur diesel are costing 8%-12% of replacement cost. This means that the refiner's available credit is more than totally tied up with these clean fuels projects and is not available for expansion projects.

Other requirements will put regional refiners in a more serious bind. A good example is the NOx reduction requirement for ozone in the Houston Galveston area. Our analysis of the capital costs to meet a substantial reduction in NOx emissions adds another 3%-6% of replacement cost to the refiners' investment needs. You can quickly see that at today's market for refining, there is not a great deal of room for the independent refiner to raise the funds needed for clean fuels and expansions. Some smaller refiners could shut down.

To meet our demand for gasoline and other refined products, as well as continue to improve the environment, three goals must be met:

1. Uncertainty in future regulations must be resolved quickly;
2. Regulations must be made and implemented in a manner to minimize the economic impact to the refining industry

Exhibit 1.

Clean Fuels Requirements and Implementation Dates	
Leaded Gasoline	1973
Phase I – VOC	1989
Phase II – VOC	1992
RFG Phase I – Simple	1995
RFG – Complex Model 1	1998
RFG – Complex Model 2	2000
MSAT (“Anti-Backsliding”)	2002
Low Sulfur Gasoline	2004
Ultra-Low Sulfur Diesel	2006
Non-Road Diesel	?

Exhibit 2.

Refinery Market

Refinery	Date	Buyer	% Replacement
Equilon Enterprises - El Dorado KS	1999	Frontier	17%
Exxon - Benecia CA	1999	Valero	37%
Equilon Enterprises - Woodriver IL	2000	Tosco	22%
BP Amoco - Alliance LA	2000	Tosco	36%
BP Amoco - Mandan SD / Salt Lake City UT	2001	Tesoro	46%
El Paso Energy - Corpus Christi TX	2001	Valero	24%
BP - Yorktown VA	2002	Giant	16%
Williams - Memphis TN	2002	Premcor	26%
ConocoPhillips - Woods Cross UT	2002	Holly	6%
ConocoPhillips - Commerce City CO	2003	Suncor	12%
Premcor - Hartford IL	2003	ConocoPhillips	4%
El Paso Energy - Eagle Point TX	2003	Sunoco	8%
Orion Refining Company - Good Hope LA	2003	Valero	27%
Farmland - Coffeyville KS	2003	Pegasus	22.7%
Motiva - Delaware City DE	2004	Premcor	16%

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Exhibit 3.

Who Can Play New High Stakes Game?

% of Replacement

Refinery Market	20	40	50
Loan Amount	7 to 10	14 to 20	18 to 25
Need			
Tier 2	8 to 12	8 to 12	8 to 12
Houston Total	11 to 18	11 to 18	11 to 18

% of Available Credit

Utilized			
Tier 2	100%+	57 to 60	44 to 48
Houston Total	100%+	80 to 90	61 to 72