American Petroleum Institute Responses to U.S. Federal Trade Commission Questions
Regarding Factors That Affect Prices of Refined Petroleum Products
April 19, 2002

The American Petroleum Institute (API) is pleased to provide the following answers to selected questions posed by the Federal Trade Commission (FTC or the Commission) in its December 31, 2001, *Federal Register* Notice (66 FR 67528-67532). These answers address questions posed that may not be adequately addressed in the comments of other petroleum industry respondents. We also anticipate offering additional information after the May 2002 public conference, if we identify areas where we believe the FTC may need more data. API represents more than 400 companies engaged in all aspects of the oil and gas industry.

Supply and Transportation of Crude Oil

Question 1. How has the crude oil supply market changed since 1985? How has the demand for crude oil changed since 1985? What is the level of proven reserves? Has the growth of proven reserves kept pace with increased demand? What has been the trend in domestic production? What are the pricing trends for domestic oil sources? To what extent do changes in domestic crude production contribute to changes in levels and volatility of refined product prices?

Answer: Since 1985, the principal change in crude markets has been the growth of demand worldwide, combined with renewed worldwide reliance on OPEC. From 1985 until 2001, global oil demand rose from 59.81 million barrels per day to 75.98 million barrels per day, an average increase of just over 1 million barrels a day each year, or about 1.5% per annum. In the US, demand rose from 15.73 mmbd to 19.6 mmbd, accounting for about 24% of the worldwide growth. Proved reserves worldwide rose from 700 billion barrels in 1985 to 1032 billion barrels in 2001. This increase occurred despite the fact that 380 billion barrels had been consumed over that interval, reflecting the fact that reserve additions were more than offsetting consumption on a worldwide basis. However, this increase was entirely in the OPEC countries. Outside of OPEC, reserves fell from 227 billion barrels to 219 billion barrels, a 3.5% decline. Most of this decline was in the US, where oil reserves fell from 28 billion barrels to 21.8 billion barrels, a 22% decline, reflecting the fact that US reserves were being added at a rate replacing only about 86% of US production. As a consequence of falling reserves, US production over the period declined from 9 million barrels per day in 1985 to 5.8 million barrels per day in 2001, a 35% decline. The declining domestic production in the face of rising demand has led to a sharp increase in US import volumes and import dependence. In 1985, US petroleum imports totaled 4.3 mmbd. By 2001,they had risen to 10.6 mmbd, a 148% increase. This represented a doubling of the rate of import dependence, from 27% of domestic consumption in 1985 to 54% in 2001. Movements in refined product prices are tightly correlated with crude oil prices, which are determined in the global market. While import dependence per se does not affect the volatility of those prices, increased OPEC market share increases both the motivation and the feasibility of coordinated cartel action by OPEC, which may contribute to such volatility. During the 1985-2001 period, OPEC's market share rose from 30% to 43% of global crude oil production.

Question 2. How has OPEC managed its supply? How do domestic oil companies and state-owned companies in OPEC countries interact? To what extent have the output policies of OPEC

affected refined product prices in recent years? Has there been increased dependence on foreign sources of crude oil since 1985? To what extent, if any, has increased dependence on foreign crude sources by U.S. refineries contributed to increased levels and volatility of refined product prices? Have regulatory or other factors affected the costs or ability to import crude oil?

Answer: From 1985 until 2001, OPEC crude supply expanded by over 11 million barrels daily, or 69%, satisfying 68% of the total global demand growth over the period. As mentioned above, this expansion was associated with an increase from 30% to 43% in OPEC's share of global crude oil production. Declining US domestic production in the face of rising demand has led to a sharp increase in US import volumes and import dependence. In 1985, US petroleum imports totaled 4.3 mmbd. By 2001,they had risen to 10.6 mmbd, a 148% increase. This represented a doubling of the rate of import dependence, from 27% of domestic consumption in 1985 to 54% in 2001. As OPEC's market share rose over the period, so did its propensity to manipulate supply to attempt to control prices. These attempts, while ostensibly aimed at price stabilization, have been poorly timed and have actually introduced greater volatility in world crude oil prices in recent years. Because refined product prices are closely correlated with crude prices, this alone would have increased the volatility of product prices. However, mounting regulatory requirements, which cause fuel specifications to vary by season and region, have reduced refinery flexibility to respond to disruptions of all sorts (such as pipeline accidents or refinery fires). This reduced flexibility, superimposed on renewed crude oil price volatility, has contributed to several regional price spikes in recent years.

Regarding regulatory factors that might affect the costs or ability to import crude oil, the greatest regulatory factors impacting the marine industry were those mandated by the Oil Pollution Act of 1990 (OPA). In a study conducted by the National Oceanic and Atmospheric Administration (NOAA) in late 2000, it has been suggested that a capital investment on the order of $1 billion was made by US industry during the 1990's (mostly between 1990 and 1993) to establish an improved infrastructure in the US, intended to prevent and respond to marine and inland oil spills. While much of the major investment was early on, some capital investment continues in order to keep response equipment up to date, maintain memberships in local spill cooperatives, keep response contracts current, cover program management costs, and to continue training and exercise programs as required by law. The largest cost element, imposed by OPA, continues to be the phase out of single-hull tankers and the mandated conversion to double-hulls over a 25-year period.

In addition, as a result of the terrorist events on September 11, 2001, anticipated security plan requirements for vessels, ports, offshore facilities, and terminals will again force an increase in capital investments of the industry.

Finally, the applicability of strict liability criminal statutes to a large number of oil spills and other vessel source pollution incidents greatly increases the risk of potential criminal liability for these incidents. The marine industry has every indication that continued pressures in this area could result in an upward trend in the cost of transporting crude oil.

Question 9. What is the effect of the Jones Act on transportation of crude oil? Does the Jones Act affect the price of crude oil to refiners? If so, what is the effect?

Answer: Section 27 of the Merchant Marine Act of 1920, popularly known as the Jones Act, provides, among other things, that vessels engaged in the commerce between two or more US ports must be registered in the US, built in the US, and crewed by US citizens. These same provisions apply to the dredging, fishing, salvage, passenger, and towing industries. Obviously such restrictions affect the cost of shipping products. Jones Act crude carriers must be used to carry Alaskan crude to US West Coast refineries -- such a trade restriction results in higher shipping costs.

Jones Act restrictions will also likely become important in the costs associated with future Floating Production, Storage, and Offloading systems (FPSOs) operations in the Gulf of Mexico. The shuttle tankers used to transport crude to the onshore refineries will be subject to Jones Act restrictions, thereby increasing the overall Jones Act fleet.

Question 10. Have infrastructure investments in crude pipelines or marine transport of crude by either barge or ship kept pace with growth in demand? If not, why not? Are there policies that can be implemented that will create or reinforce incentives for efficient investment in pipeline or marine transport infrastructure to maintain adequate capacity, including reserve capacity in the event of a supply disruption?

Answer: Demand for crude pipeline service has been shifting, but not increasing. As U.S. production fields play out, many crude pipelines are significantly below capacity. Some of these are being taken out of crude service and being put to new uses, such as conversion to petroleum product or natural gas usage. New crude pipelines are being built to serve the changing market. For instance, a major expansion on the Enbridge pipeline system and the recently built Express Pipeline have significantly expanded the capability to import crude oil from western Canada.

Both crude and product pipelines are built without the benefit of federal eminent domain or the assistance of any federal agency. Congress and the Administration could facilitate needed investment in our pipeline infrastructure by streamlining the federal permitting process to add more certainty, by improving cost recovery options, and by supporting reauthorization of the pipeline safety program aimed at ensuring the safety of our infrastructure and building the public confidence

Congress and the Administration must also maintain their commitment to marine safety, environmental protection, and the facilitation of waterborne commerce. Almost 100% of US imports of crude oil and petroleum products arrive by tankers. A network of barges and smaller vessels further transport these goods from US refineries to consumers. In addition to inland waterways being in desperate need of infrastructure modernization, accurate and current nautical charts for US ports, waterways, and coastal areas are essential to safe vessel operation, navigation, and the prevention of marine accidents and incidents.

Additionally, the safe access to US ports and harbors, in order to ensure the timely delivery of energy products and other goods, must remain unimpeded with enhanced dredging projects. Unfortunately, these critical infrastructure needs are not being addressed adequately, jeopardizing the safety of the maritime community and the health of our precious inland and coastal ecosystems.

Refining

Question 4. Have infrastructure investments kept pace with growth in demand? If not, why not? Are there policies that can be implemented that will create or reinforce incentives for refiners to make efficient investments in infrastructure to maintain adequate capacity, including reserve capacity in the event of a supply disruption? Would such incentives vary as a function of size, capitalization, or debt level? How has the age of the industry infrastructure contributed to the need for and cost of the capital improvements?

Answer: Infrastructure investment has generally kept pace with demand growth over the past couple of decades but this performance may be more difficult to achieve going forward as explained below. U.S. refinery capacity utilization has increased from 78% in 1985 to 92% in 2001. This largely reflects the fact that the refining industry had substantial uneconomic spare capacity in the mid 1980s that has since been shut down. While capacity utilization is now high, this is important in a marketplace where customers demand the lowest possible price. With respect to refined product imports, they have grown compared to 1985, but 1985 was an unusually low year. Year 2001 refined product imports are only marginally greater than 1988 imports. Hence, recent past historical data suggest that U.S. refiners have been able to expand operable capacity to keep pace with demand growth. However, this could be more difficult to achieve going forward.

More specifically, capacity expanded (through process improvements) roughly 1.6% per year from 1994 to 1999 but has slowed since then to 1.1% per year. This may reflect more stringent environmental regulations (e.g., impact on permit availability) and increasing marginal costs of additional process improvements. If current rates hold into the future the implication may be potential increased reliance on foreign imports as demand growth occurs.

As explained above, domestic production capacity expansion will be necessary to meet future fuel demand growth and to make up for fuel volume loss due to additional processing required to meet more stringent environmental standards. A significant step the Federal government could take to help address this situation would be to coordinate the myriad regulations impacting refineries and their products to ensure certainty and predictability. This would provide refiners the foundation necessary to make sound investment decisions. Of particular importance is the need for certainty along with sensible reform of the New Source Review (NSR) program, including the development of alternate compliance programs such as plant-wide applicability limits.

Another key step to increase refining capacity would be to eliminate the currently outdated tax treatment of refinery investments by reducing the depreciation life for refinery assets, which is currently 10 years.

Most manufacturing assets are depreciated over five or seven years. Despite substantial changes in the refining business and considerable investment made during the last decade, refinery assets are still subject to a 10-year depreciation schedule. The longer recovery period for refinery capital assets results in a depreciation deduction present value that is 17 percent to 25 percent

less (i.e., the present value (15%) of tax depreciation of $1 of refinery investment is 59 cents (10 years) vs. present value of 67 cents (7 years) or 74 cents (5 years)) than that for other manufacturing assets and thus reduces the incentive to invest in refinery capacity expansion projects. Shortening the depreciation life for refinery assets to five or seven years will reduce the cost of capital and remove the current bias in the tax code against needed refinery capacity expansion.

Question 5. In light of EPA's report and white paper, how have changes in environmental regulations affected refinery production in ways that have potential impacts on the prices of refined products? What has been the actual and historical effect of such regulations? Have changes in fuel specifications, both past and prospective, affected the competitiveness, fungibility, cost, and price stability of the gasoline and distillate fuel pools?

Answer: Regarding the last two questions, there are numerous effects attributable to federal fuels regulations. EPA also mentioned similar effects in its Boutique Fuels White Paper. Controls on volatility (Reid Vapor Pressure or RVP), winter oxygenated fuels and reformulated gasoline (RFG) regulations, as well as the state fuels waiver provisions of Section 211 of the Clean Air Act, have resulted in a patchwork of fuels programs across the country. Particularly, summertime low-RVP gasoline programs (some also include sulfur limits and other controls) have proliferated over the last decade, primarily as the result of state and local efforts to control air emissions without incurring the higher cost of reformulated gasoline or to avoid the use of oxygenates required in RFG. There are as many as eighteen different gasoline programs required today across the nation. When these are considered along with the three standard grades of gasoline generally offered at retail, ***54 different gasolines*** must be supplied across the United States.

While not all of these fuels are present in all regional distribution networks, the logistical difficulties of keeping this number of fuels segregated in a "fungible" distribution system are evident. The sheer number of these boutique fuels makes it difficult for the supply system(s) to respond flexibly and efficiently in the event of unplanned supply disruptions of any one fuel type. Ensuring compliance with multiple requirements and guarding against contamination throughout the distribution system is also more difficult and results in increased costs.

Question 6. What capital investments have been needed to produce refined petroleum products (e.g., reformulated gasoline) in compliance with federal and state environmental and other regulations implemented since 1985? Have any refineries shut down because they found the needed capital improvements would be uneconomical? What capital investments will be needed to comply with federal and state regulations scheduled to take effect in the future?

Answer: Environmental compliance costs are a major factor impacting the ability of refiners to invest in capacity expansion. From 1990 to 1999, the refining industry spent ***$46.9 Billion*** to bring refineries into compliance with various environmental regulations. (API U.S. Petroleum Industry's Environmental Expenditures 1990-1999) This represents a major expenditure by any standard. While these investments in greatly improved environmental performance benefit all Americans, the result is that much of the available refinery investment capital has been focused on environmental compliance rather than on expansion projects to increase capacity.

The June 2000 National Petroleum Council report projected that required capital investments totaling $12 billion dollars would be required to comply with Tier 2 sulfur and highway diesel sulfur averages of 30 ppm. The final diesel sulfur regulations require a cap of 15 ppm on diesel sulfur levels, so the costs projected in the NPC report ($4 billion) likely underestimated what the actual costs of the rulemaking will be. EPA projected needed capital investments totaling $5.3 billion in the regulatory impact analysis for the final rule. As we noted in our comments to EPA on the proposed rule, API believes the industry capital costs to meet a 15 ppm cap will be roughly $8 billion. If refiners choose to make these investments, they would likely be made, again, at the expense of expansion projects to increase capacity needed to keep up with the growth in petroleum product demand

With regard to refinery closures, we note that all refiners, not just small refiners, face decisions about whether to upgrade or close existing refineries, or shift production from those refineries to other products, in response to additional environmental requirements. Decisions to close a refinery are based on whether a company determines that there will be an adequate return on the capital invested in the modifications needed to meet new environmental requirements.

Question 8. What new motor gasoline transportation and storage issues have arisen due to new environmental regulations since 1985?

Answer: As noted in our answer to question 5, federal, state and local environmental requirements have resulted in a proliferation of fuel specifications. Each additional fuel type introduced into the distribution system increases the complexity of moving and storing fuels and reduces the fungibility of the system, thus increasing costs. Each unique fuel type needs to be transported carefully and stored separately from other fuels to avoid commingling that can lead to contaminated, off-specification fuels.

In addition to the numerous gasoline types mentioned earlier, resulting from RFG, RVP and other gasoline controls, the federal highway diesel sulfur regulations that go into effect in 2006 will also increase the number of diesel fuels from two to three. Terminal operators and marketers will need to decide whether to provide storage for all three diesel grades (15 ppm, 500 ppm and 5000 ppm), or limit their operations to some combination of two or even one grade. There are additional concerns with the transportation through pipelines of 15 ppm diesel. Extreme care must be taken in moving it through pipelines that also transport high sulfur products because historically minimal sources of contamination can throw this ultra low sulfur product off-specification.

Pipelines and Marine Bulk Transport

Question 2. Have infrastructure investments in product pipelines or marine bulk transport of refined product kept pace with growth in demand? If not, why not? Are there policies that can be implemented that will create or reinforce incentives for efficient investment in pipeline transport infrastructure to maintain adequate capacity, including reserve capacity in the event of a supply disruption?

Answer: Many domestic product pipelines are at or near capacity. Some existing pipelines are expanding capacity by adding pump stations or looping their lines. New pipelines are being brought on line through conversion of pipeline stock previously put to another use (natural gas or crude service) and through some new pipeline construction. However, the uncertainty of the permitting required for a pipeline conversion or construction project and the limitations on cost recovery imposed by the Federal Energy Regulatory Commission discourage many pipeline projects.

New pipelines typically compete with existing infrastructure for the incremental growth in demand. Pipeline projects are approved based on net present value. Since new pipeline infrastructure requires a substantial capital investment, the basis of the net present value is very sensitive to a delay in the start of the revenue stream. The current vagaries of the permitting process and the uncertainty regarding cost recovery through the federal ratemaking options are counter-incentives to new investment.

Substantial investments will be needed in the nation's oil and natural gas pipeline system, as well as in new petroleum storage facilities. The present law 15-year depreciation life for pipelines denies an adequate cost recovery for tax purposes. In the case of gas gathering lines, which carry natural gas from the well to the processing plant or trunk line, the proposal to allow 7-year depreciation, as provided for in House and Senate energy bill tax titles, would merely clarify their status as lease and well equipment. Contrary to an appellate court decision, the IRS currently challenges that classification in certain circumstances.

Under current IRS classifications, petroleum storage facilities are depreciated over 5 years or 15 years, depending on whether the IRS considers them to be movable property. This demarcation is difficult to administer, depends on factors unrelated to useful life, and easily penalizes the economics of a project, often retroactively on tax audit. Modernization and clarification of relevant depreciation rules will help spur the investment needed to assure the maintenance of an adequate and environmentally safe pipeline transportation system and petroleum storage facilities.

For marine transportation, the major infrastructure investments that need to be made are not those undertaken by industry, but those assumed by the US government in order to enhance the nation's marine transportation system. Almost 100% of US imports of crude oil and petroleum products arrive by tankers. A network of barges and smaller vessels further transport these goods from US refineries to consumers. In addition to inland waterways being in desperate need of infrastructure modernization, accurate and current nautical charts for US ports, waterways, and coastal areas are essential to safe vessel operation, navigation, and the prevention of marine accidents and incidents.

Additionally, the safe access to US ports and harbors, in order to ensure the timely delivery of energy products and other goods, must remain unimpeded with enhanced dredging projects. Unfortunately, these critical infrastructure needs are not being addressed adequately, jeopardizing the safety of the maritime community and the health of our precious inland and coastal ecosystems. Congress must maintain its commitment to marine safety, environmental protection, and the facilitation of waterborne commerce.

Question 5. Is there any exercise of significant market power currently being observed in particular aspects of the domestic pipeline or marine transport industry? If so, to what extent has such distortion affected the prices of refined products at the wholesale or retail level?

Answer: There is no exercise of a significant market power in the domestic pipeline or marine transportation industry – it is a very competitive, and sometimes volatile, business.

The Federal Energy Regulatory Commission regulates all interstate oil pipelines and rates have generally been held to levels significantly below inflation. Oil pipelines do not enjoy franchise territories and also compete with other transportation modes such as tankers, barges and trucks. Some pipelines are authorized to charge market-based rates if the Commission has determined that the pipeline lacks market power in the markets served. In general, pipeline transportation rates have very little impact on the retail price.

In regards to marine transportation, the demand for tankers, for example, is a function of the demand for crude oil and the length of the voyage. As recently as this week, reports indicated that tanker rates were at their lowest levels since the mid-1980s after OPEC said it has no plans to pump more oil to make up the shortfall caused by Iraq's suspension of exports.

This current gap between the supply of tankers and demand for transport is at its widest since the mid-to-late 1980s with some 80 very large crude carriers (VLCCs) available for charter in the Middle East in the next 30 days compared with 40 cargoes.