Testimony of

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Mr. Chairmen and Members of the two Committees, I appreciate the opportunity to appear before you today to discuss recent developments in the crude oil markets, in particular the factors that are contributing to the increases in petroleum prices.

The Energy Information Administration (EIA) is the independent statistical and analytical agency within the Department of Energy. While we do not promote, formulate, or take positions on policy issues, we do produce objective, timely, and relevant data, projections, and analyses that are meant to assist policymakers, help markets function efficiently, and inform the public. Our views are strictly those of EIA and should not be construed as representing those of the Department of Energy or the Administration.

EIA believes that supply and demand fundamentals, including strong world economic growth driving an increase in consumption, moderate non-Organization of the Petroleum Exporting Countries' (OPEC) supply growth, OPEC members' production decisions, low OPEC spare production capacity, tightness in global commercial inventories, worldwide refining bottlenecks, and ongoing geopolitical risks and concerns about supply availability, have been the main drivers of oil price movements over the past several years.

My testimony will discuss these factors and the role of speculation in more detail. Much of my testimony today relies on EIA's monthly *Short-Term Energy Outlook* (*STEO*), most recently released today; a supplement to the November *STEO* (*Why Are Oil Prices So High*?); and our weekly report**,** *This Week in Petroleum (TWIP)*, which explores trends in oil markets.

There are currently about 161 different internationally-traded crude oils, which vary in terms of characteristics, quality, and market penetration. The major benchmark of crude oil in the U. S. is West Texas Intermediate (WTI) crude oil, which is of very high quality and is excellent for refining a larger portion of gasoline. This combination of characteristics, as well as its location, make WTI an ideal crude oil to be refined in the U. S., the largest gasoline consuming country in the world. WTI is traded on the New York Mercantile Exchange (NYMEX) futures market, while other crudes similar in quality, such as Brent from the North Sea, may be substituted for delivery, should that actually occur.

The widely-reported NYMEX futures price for crude oil represents (on a per-barrel basis) the market-determined value of a futures contract to either buy or sell 1,000 barrels of crude oil at a specified time. While relatively few NYMEX crude oil contracts are actually executed for physical delivery, the NYMEX market provides important price information to buyers and sellers of crude oil.

Recent Developments in Oil Prices. The price of WTI crude oil, which averaged $56 per barrel in 2005 and $66 per barrel in 2006, is projected to average $72 per barrel in 2007 and increase to nearly $85 per barrel on average in 2008 (**Figure 1: WTI Crude Oil Price**) . With the rise in prices, oil markets have been drawing increased interest and participation from investors and financial entities without direct commercial involvement in physical oil markets. The role of these non-commercial futures market participants (as

opposed to "commercial" participants, whose activities are presumed to represent hedging of physical positions) in recent price developments is difficult to assess, particularly over short time intervals. However, general principles favor a focus on market fundamentals, rather than consideration of alternative price drivers, when the explanatory power of fundamentals is high.

Recent price increases are an extension of oil market developments originating in the 1990s. With relatively high inventories and ample surplus production capacity, oil prices fluctuated around $20 per barrel for much of the 1990s. When the spot price moved above or below this level, futures contract prices stipulating delivery in distant months generally traded close to the $20 level, consistent with a market expectation that producers would ensure that spot prices would eventually return to that level. However, as leading OPEC members shifted towards a tight inventory policy and global oil demand recovered from the slowing effect of the Asian financial crisis of the late 1990s, the global oil market balance tightened and inventories declined sharply at the beginning of the present decade. Oil prices rose to $30 per barrel, in what might be seen as the first leg of a $50 upward trend from $20 to $70 per barrel (and just recently to well over $90). At this point, prices of distant futures contracts began to rise along with spot prices, implying that market participants no longer expected prices would to return to the levels that prevailed in the 1990s.

Increases in Global Oil Demand. By 2003, inventories were drawn down sufficiently such that subsequent increases in global demand stretched oil production to levels near capacity. The large, unexpected jump in world oil demand growth in 2004, fostered by strong growth in economic activity in Asia and the United States, significantly reduced global excess production capacity.

Continued strong world economic growth has resulted in robust world oil demand despite higher price levels. China, the United States, and the Middle East countries are the main drivers of consumption growth, and China and the United States alone are projected to account for half of world oil consumption growth in 2007 and 2008 (**Figure 2: World Oil Consumption**). The Chinese economy has shown few signs of slowing down substantially, and the economies of oil exporting countries in the Middle East and in Russia have also benefited from higher oil revenues, thereby boosting their own oil consumption. Because there are time lags in both behavioral responses to higher prices, such as reducing miles of travel, and in investment responses, such as new oil production and refining projects and purchases of more energy-efficient vehicles, recent price increases have had only limited impacts so far on the amount of oil consumed or produced. It takes a large percentage increase in prices to reduce demand to bring it in line with a relatively small percentage shortfall in supply.

Oil Supply Growth. A key factor contributing to high prices has been the inability of non-OPEC production growth to keep pace with the increase in global oil consumption (**Figure3: Non-OPEC Production Growth**). Non-OPEC production increased by 0.2 million barrels per day (bbl/d) in 2006 and is projected to rise by 0.6 and 0.9 million bbl/d in 2007 and 2008, respectively, significantly less than the increase in global oil

consumption. Non-OPEC production growth remains concentrated in a few areas and has experienced some downward revisions in recent years due to project delays and growing decline rates in some non-OPEC nations, especially Mexico, the United Kingdom, and Norway.

When non-OPEC supply growth is less than growth in global consumption, the gap needs to be filled by OPEC members' production increases, or else draws from global inventories will result. In addition, fairly low OPEC surplus production capacity, which is concentrated in Saudi Arabia, leaves the market with little flexibility to respond to surprises in supply and demand. EIA's outlook for continued rising oil consumption and moderate non-OPEC production growth suggests that world surplus production capacity will remain fairly low at around 2 to 3 million bbl/d.

OPEC Production Cuts. OPEC decided to maintain existing production targets at last week's meeting in Abu Dhabi. The combination of recent price weakness, downward revisions in demand projections, and higher supplies already expected from Saudi Arabia, Angola, Iraq, and Abu Dhabi (after recent maintenance), led OPEC to dismiss the need for additional supplies. OPEC's decisions to cut production in November 2006 and February 2007 played a critical role in reversing the oil price slide at the end of last year. OPEC's announcement in September 2007 that it would increase production beginning on November 1 may just be beginning to dampen upward price pressure, but it is unlikely that these higher volumes will be enough to halt the downward trend in commercial inventories over the next several months. While Organization for Economic Cooperation and Development (OECD) commercial inventories were 150 million barrels above their 5-year average at the end of September 2006, EIA projects that OECD commercial stocks will be 12 million barrels below the 5-year average by the end of this year. EIA projects that inventories (measured on a days-supply basis) in the first quarter of 2008 will continue to decline relative to the average, and will move toward the lower end of the 5-year range through 2008 **(Figure 4: Days of Supply of OECD Commercial Oil Stocks).**

Low Surplus Capacity. World surplus production capacity, as noted previously, will remain fairly low at around 2 to 3 million bbl/d 2007 and 2008 **(Figure 5: OPEC Surplus Crude Oil Production Capacity).** Without significant surplus capacity, market participants can no longer rely on increased production from key members of OPEC to offset any supply disruptions and restore balance to the market, without the need for significant price changes, as they did in the 1990s. Industry recognizes the need for new capacity investments, but those additions are costly and come with a significant time lag. With little excess capacity, continued expectations for demand growth, and large geopolitical uncertainties that could significantly disrupt supply, market behavior has shifted to reflect extremely tight conditions.

Role of Inventories. The inverse relationship between crude oil prices and the level of inventories remained stable during periods in which key OPEC members had significant surplus capacity and were able and willing to use it to offset market disruptions. Since

mid-2004, however, the relationship between prices and the level of inventories has changed to one in which higher prices are weakly correlated with increasing inventories. This fact alone appears confusing to some analysts, who may attribute this shift to speculation. But this relationship is not unusual given current circumstances. As oil market participants perceive the large reduction in the surplus capacity cushion that can be used to sustain previously prevailing prices in the event of a disruption, they are increasingly inclined to build and maintain a higher level of precautionary stocks during periods of heightened geopolitical risks.

Geopolitical Uncertainty. Unlike the level of inventories or the amount of surplus capacity, geopolitical risk cannot be readily quantified, but fear of potential disruptions and actions taken to prepare for them are inherently fundamental forces in determining the demand for inventories in today's oil marketplace. Geopolitical instability in many OPEC, as well as non-OPEC countries, thus has put additional upward pressure on inventory demand and crude oil prices. A lack of political stability continues to threaten production in several OPEC nations, including Iraq, Nigeria, Venezuela, and Iran. The threat of a possible Turkish incursion against Kurdish rebels in Iraq has added to supply worries.

Refining Capacity. Low global excess refining capacity, which has been shrinking as refined product demand has grown, leaves less of a buffer for periods when the supply and demand balance becomes unusually tight. Furthermore, low excess refining capacity leaves little flexibility to economically accommodate unplanned refinery outages. In OECD Europe, total commercial product inventory levels actually declined from June to September 2007 by 200,000 barrels per day, in contrast to the last 5 years when inventories increased on average during these months by 100,000 barrels per day.

Value of the Dollar. In addition, the decline in the value of the dollar against other currencies supports continued oil consumption growth in foreign countries because oil is traded globally in dollars, and a declining dollar has made the economic impact of the increase in oil prices less severe in foreign currencies.

Role of Speculation. Speculation in general, or more specifically "speculators" as a class of market participants, are cited by some observers as a driver of current high oil prices, at least partially because some assume that increased activity by these non-commercial participants automatically leads to higher prices. Much discussion has been prompted by the observation that non-commercial participation in the crude oil futures market is higher when oil prices are rising, and some analysts even draw a causal relationship between the former and the latter.

Efforts to quantify the influence of speculation on oil prices generally focus on relationships between price levels and NYMEX futures contracts held by certain classes of traders. By far the most extensive analysis of this kind has been performed by staff of the Commodity Futures Trading Commission (CFTC). CFTC economists, using a detailed set of position-level trading data not available elsewhere, have analyzed the behavior of managed money traders (MMTs) in relation to other market participants and

found both that MMTs are more prone to follow than to lead position changes by others and that MMT position changes had a significantly negative relationship to price changes in the crude oil market.

As **Figure 6 (Net Position of Non-Commercial Participants in WTI Futures Contracts vs. WTI Price)** shows, there have been many instances over the past few years in which crude oil futures prices have increased, along with an increase in the net long (that is, more buyers than sellers) positions of non-commercial participants--of course implying a counterbalancing increase in commercial participants' net short positions during these periods. This pattern seems to have held most of the time since 2005. However, there have been key periods in which the net position of non-commercial participants did not move in the same direction as prices. For example, while the average price remained around $95 per barrel over the first part of this November, the net long positions varied dramatically. Additionally, the net long positions were significantly higher in July 2007, even with oil prices more than $20 per barrel lower than they were in November. Thus, any apparent correlation between rising speculative activity and rising prices is a loose one at best. The available evidence, reinforced by the CFTC's June 2006 study, suggests that speculators shift positions in response to price changes. In particular, should the tight supply and demand conditions weaken or be expected to soften, speculative activity (i.e., long positions) would likely decline, as has been seen very recently.

Speculators and others have moved towards investing in oil markets because of tight fundamentals. In other words, high oil prices are likely to be increasing participation by non-commercial traders, rather than the other way around.

In conclusion, EIA's analysis points to strong demand growth, a dramatic decline in global surplus capacity, and global refining capacity constraints as the major factors driving oil prices higher. Our rationale for fundamental factors leading to increased speculative activity is straightforward. During the 1990s, when excess capacity was ample and market participants perceived that members of OPEC were both able and willing to ensure that prices would remain near $20, there was little motivation for commercial producers and consumers of energy to shed risk, or hedge, since there was little perceived risk. With little desire to shed risk, there was only a small role for those who wished to take on the risk: the speculators. During the current decade, when excess capacity has declined and market participants perceived that OPEC members would no longer maintain stable prices in the environment of geopolitical risk, market participants have become increasingly less certain of the path of future oil prices. With this increased uncertainty, commercial producers and consumer of energy increased their desire to hedge their risk. With this increased desire to shed risk, there was a much larger role in the market for those prepared to bear this risk.

This concludes my statement, Mr. Chairmen, and I will be happy to answer any questions you and the other Members may have.

Figure 1: Crude Oil Prices

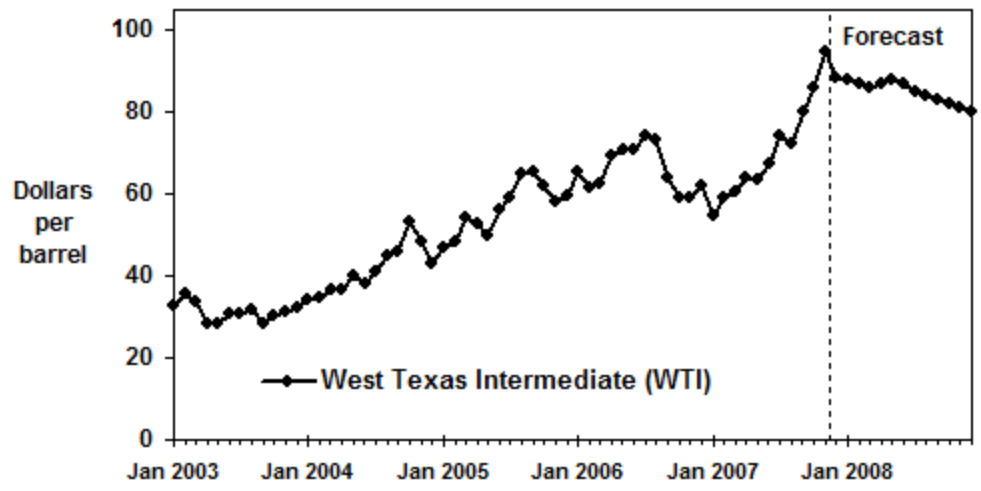

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Figure 2: World Oil Consumption

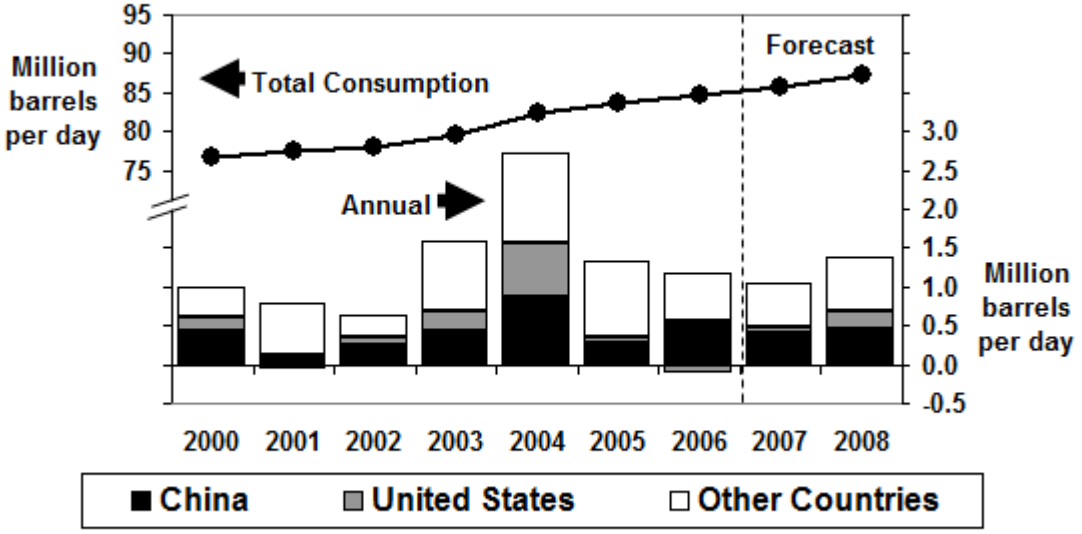

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Figure 3: Non-OPEC Oil Production Growth (Change from Previous Year)

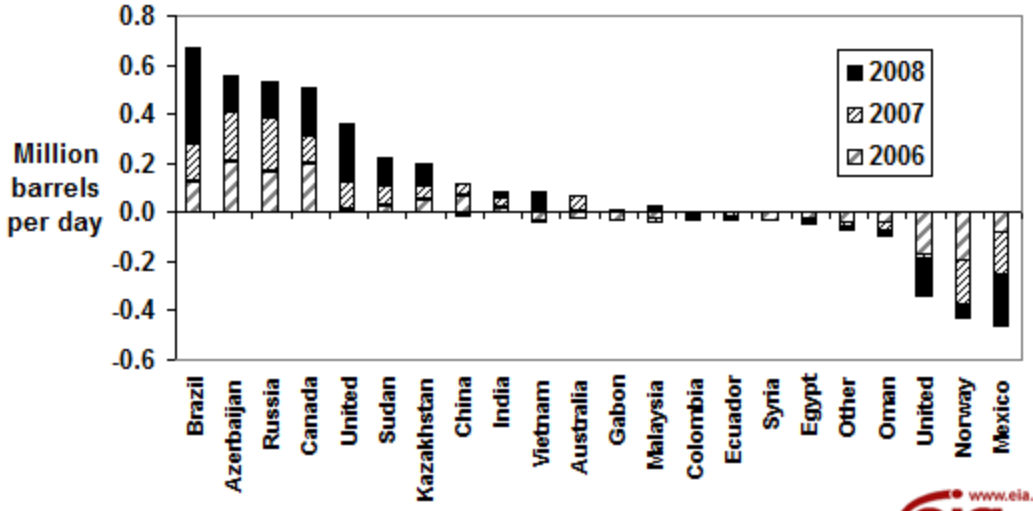

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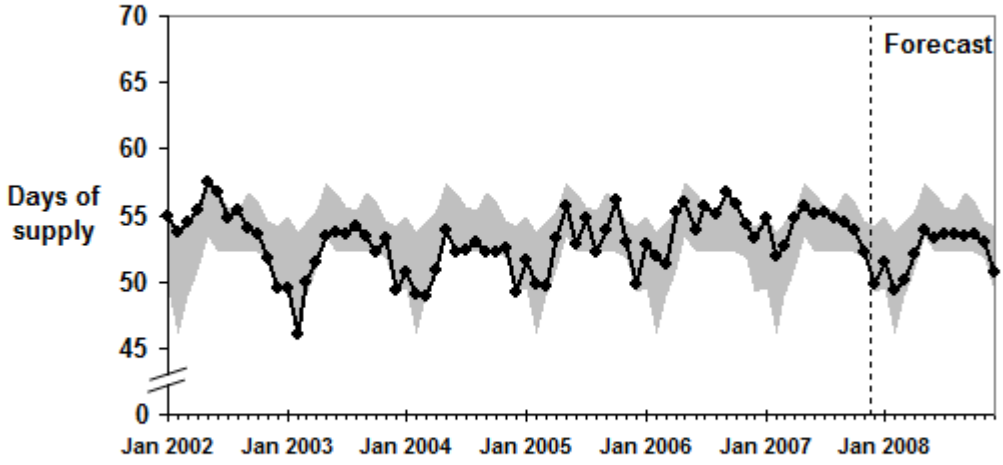
Figure 4: Days of Supply of OECD Commercial Oil Stocks



NOTE: Colored band represents the 5-year minimum/maximum range for each

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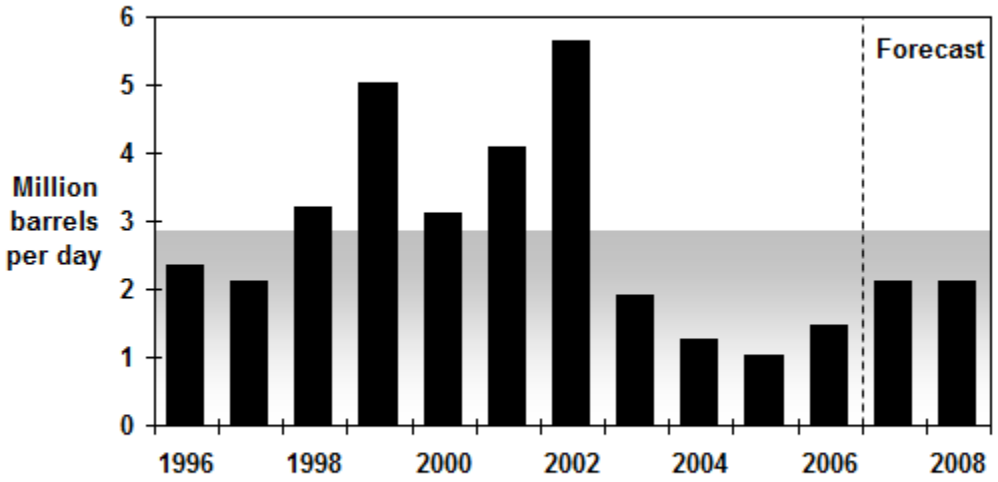
Figure 5: OPEC Surplus Crude Oil Production Capacity



Note: Shaded area represents 1996-2006 average (2.8 million barrels per day)

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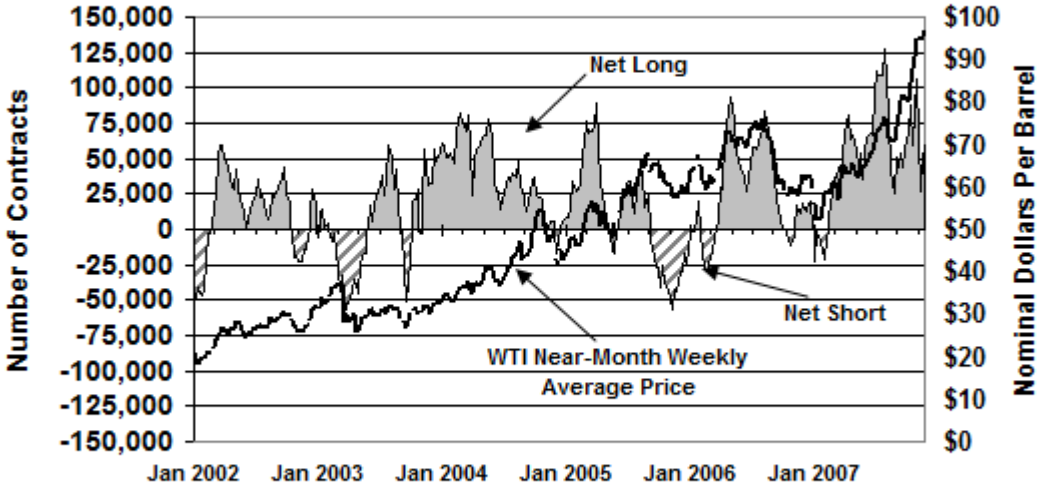
Figure 6: Net Position of Non-Commercial Participants in WTI Futures Contracts vs. WTI Price



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