Prepared Testimony

Oil and Gas Markets in 2012:
A Great Revival amid Economic and Geopolitical Worries

Testimony by

James Burkhard, Managing Director of IHS CERA,
before the US Senate Committee on Energy and Natural Resources,
Washington, DC, January 31, 2012

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It is an honor to speak before the US Senate Committee on Energy and Natural Resources of the 112th Congress. One year ago I testified before the Committee just as political turmoil began to dramatically affect a number of countries in North Africa and the Middle East. Oil and gasoline prices were rising and creating headwinds for a fragile economic recovery and worries for American consumers—and for many others around the world as well. In the past year there has been great turbulence in the oil market related to the upheaval in Libya, the Iranian nuclear issue, troubles in the eurozone, and a slowing pace of global economic growth. Today, oil prices are higher than a year ago. In fact, in 2011 oil reached its highest average annual price since the 1860s.

Developments in energy markets remain a top concern, but the energy story is not limited to worries about high oil prices and geopolitical tension. Energy investment is also playing a role in fueling growth in the United States. A "Great Revival" in US oil production is taking shape—a major break from the near 40-year trend of falling output.

The Great Revival

The long decline in US oil production was never supposed to end. From 1970 to 2008 US oil (total liquid fuels) production fell by 3.79 million barrels per day (mbd)—from 11.3 mbd to 7.64 mbd.[1] But the combined power of market signals (namely high oil prices), technology advances, and access to prospective acreage has changed the playing field. Biofuel policy also played a role. The aggregate impact of these forces led to a 1.3 mbd increase in US supply from 2008 to 2011—the largest gain by any country during that time. Out of that 1.3 mbd, nearly 1.1 mbd was crude oil or natural gas liquids, with the remainder coming from biofuels—mainly ethanol. The number two country was Russia, where oil production increased 0.5 mbd (see Figure 1).

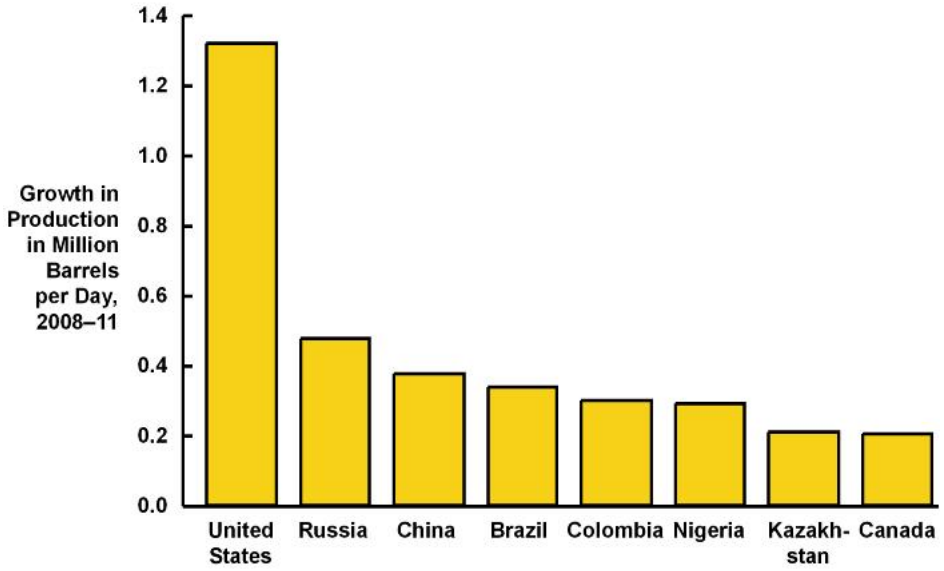
The scale of the opportunity to boost oil production in the United States is larger than in most other countries over the next decade. Indeed, the oil and gas industry has attracted tens of billions of dollars of investment capital. In the United States, spending to develop oil and gas fields rose 37% from 2009 to 2010—from $50.6 billion to $69.4 billion. Spending increased further in 2011.

[1] The term "liquids" is a broader definition of oil that includes crude oil, condensate, natural gas liquids, and biofuels.

Figure 1

The Great Revival of US Oil Production Has Made the United States a Leader in Global Oil Production Growth

(net change in oil [liquid fuels] production, 2008–11)



Sources: IHS CERA, International Energy Agency and US Energy Information Administration.
Note: Figures include crude oil, condensate, natural gas liquids and biofuels.
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US oil production growth has materialized at the same time that US oil demand has reached a plateau. US oil demand peaked in 2005 and then fell; and IHS CERA does not expect demand to exceed the 2005 level again. The challenging economic climate of the past several years explains part of the decline in demand; but in the longer term, the higher fuel economy standards and an aging population will restrain demand growth. The combined impact of US oil demand and production trends is a decline in US oil imports. By 2020, the net US oil import requirement could be around 5 mbd less than it was as recently as 2005. At an illustrative oil price of $100 per barrel, this represents an annual reduction in the oil import bill of $182 billion—an amount equal to about one-third of the entire US trade deficit in 2011.

The Great Revival is the oily equivalent of the "shale gale"—the revolution in unconventional gas production that emerged several years ago. Shale gas now accounts for about 34% of total US gas production, up from just 5% in 2006. The shale gale has not only helped to boost total US gas production by 28% during this time, but it has also created jobs. A new study by IHS Global Insight, *The Economic and Employment Contributions of Shale Gas in the United States*, finds that shale gas production supported more than 600,000 jobs in 2010, a number that is projected to grow to nearly 870,000 by 2015.

US natural gas prices have hit 10-year lows recently because of the vast amount of relatively low-cost shale gas being produced and the warm winter weather, which lowers demand for gas to generate heat. Another factor is that many gas producing wells also produce oil—and oil sells at a much higher price. Even if gas prices remain low, production will continue from these wells because the higher price that the oil fetches in the market can offset the lower price of gas.

Application of advanced technology is critical to the growth in US oil and gas production. Horizontal drilling and hydraulic fracturing are two technologies at the heart of the growth story. They are also part of the debate about the environmental impacts of rising domestic oil and gas production. Questions about water availability and quality, air pollution, cumulative land use, and the impacts on local communities need to be addressed to ensure that oil and gas development meets environmental needs and enhances public trust.

Last summer an Advisory Board to the US Secretary of Energy released recommendations related to environmental aspects of shale gas production. Increased transparency—particularly through greater public access to data on gas-producing operations—and efforts to assure water and air quality were among the proposed recommendations. A key point made by the Advisory Board was the need for more systematic data collection to better measure environmental impacts.

In addition to addressing environmental impacts, growth in US production along with higher output from our neighbor, Canada, requires the US pipeline system to catch up with changing supply trends. Canada has become, by far, the largest source of foreign oil to the United States. In the first 10 months of 2011, the United States imported 2.2 mbd of oil from Canada, or 24% of total US imports. More than half, 1.2 mbd, of the supply was from the oil sands of Alberta. In themselves, oil sands are now a top source of US oil supply.

The denial earlier this month of a permit for the proposed Keystone XL pipeline project raises the level of uncertainty regarding the long-term growth and disposition of major sources of world supply growth—the Canadian oil sands and American onshore output. The project would have added 700,000 barrels per day of pipeline capacity between the oil sands of Alberta, Canada, and the US Gulf Coast. This is equivalent to about one-third of Iranian oil exports.

If a new application results in a permit by 2013, it is possible that sections of the pipeline could be online by late 2014, with the entire Keystone XL project in service by late 2015. In this case, the January 18 permit denial would have a minimal impact on future crude flows from Canada to the United States.

If no additional cross-border capacity is built, output from the Canadian oil sands would eventually hit the limits of existing cross-border capacity by around 2019. Even before that, however, oil sands supply would run up against the capacity limits of Canada's existing US customers—refineries in the Mid-Continent—to process oil sands production. This could occur as soon as 2015 and is a key reason Canadian producers are seeking access to the much bigger refining market in the US Gulf Coast. Therefore, Keystone XL would have helped to resolve more urgent bottlenecks in the US Mid-Continent. The US pipeline system has not yet caught up with growing US Mid-Continent and Canadian production, as signaled by the price disconnect between West Texas Intermediate—a key US crude oil price benchmark—and similar crudes on the global market. If pipeline infrastructure does not keep pace with growing oil supply from the US Mid-Continent and Canada, then production growth will eventually slow.

The controversy over Keystone XL means Canada will push harder to diversify its oil export markets. The United States is currently the sole foreign market for the oil sands. The permit denial highlights the risk to Canada of such demand dependence.

The World Oil Market: "Tug-of-War" Between a Weak Economy and Geopolitical Concerns

Slow economic growth and modest gains in world oil demand—this is the starting point for 2012. We project the world economy to grow 2.7% in 2012—well below the 3.7% average over 2010 and 2011. World oil demand is expected to increase 0.7 mbd, which is well below the 10-year average increase of 1.1 mbd per year.

This would appear to be a recipe for lower oil prices. Yet oil prices are high and spare crude oil production capacity is limited. IHS CERA estimates there is about 1.8 to 2.5 mbd of effective spare oil production capacity in the world—all of it concentrated on the Arabian Peninsula. This is a small "shock absorber" for the oil market—equivalent to about 2% to 3% of world oil demand. As recently as 2010, spare capacity was much higher—around 5.5 mbd. Geopolitical fears have a more pronounced impact on oil prices when spare capacity is low—as it is today.

Tension over Iran's efforts to develop nuclear technology and potentially apply it to military purposes is the most prominent—and worrisome—geopolitical issue for the oil market. The decade-long nuclear standoff has become a constant feature of the oil market, with anxiety fluctuating in response to Iran's volatile posture toward negotiations. A threat several weeks ago by an Iranian official to close the Straits of Hormuz—the most important oil export route in the world—sent a shudder through oil markets.

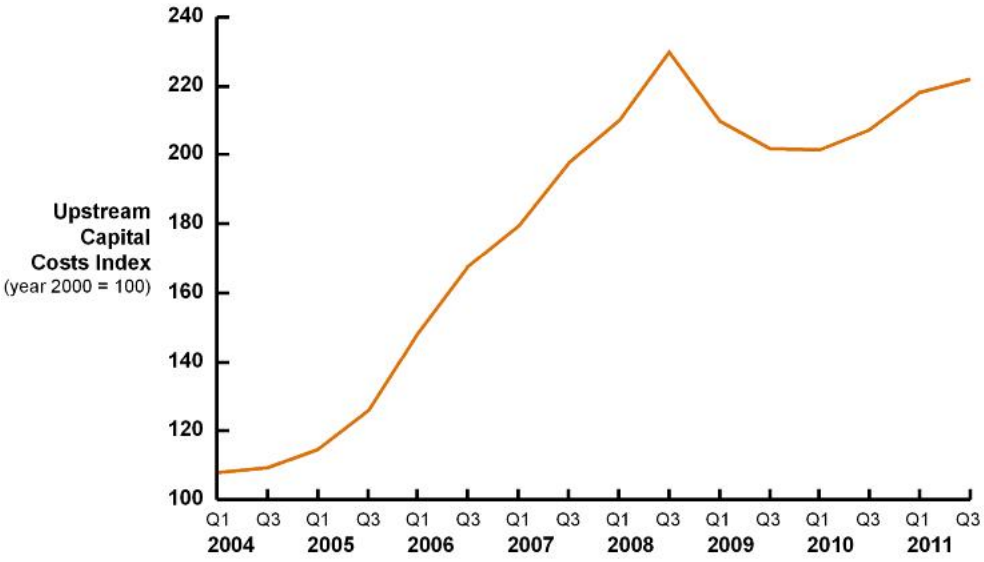
In 2012 the Iranian nuclear issue could have a significant impact on the oil market. The combination of tighter US and European financial sanctions, the European oil embargo on purchases of Iranian oil, political infighting in Iran, and Iran's growing fear of encirclement creates a volatile atmosphere in which miscalculations could lead to grave consequences. Escalation of efforts to disconnect Iran from the global economy has increased "supply anxiety" and is a key support for high prices amid weak economic and oil demand growth.

The Iranian nuclear issue is not the only geopolitical concern. Violence in Iraq threatens the pace of infrastructure rehabilitation and expansion of oil production and export capacity. Iraq's potential to increase oil supply is enormous, but realizing that potential will be difficult. Supply disruptions need not be large scale to have an impact. For example, disputes between South Sudan—the world's newest country—and Sudan are constraining oil flows from these countries. This and other potential difficulties in Africa or other parts of the world can collectively have a big impact. This was the case in the middle part of the past decade when a series of events removed large volumes of oil from the market—what we referred to at that time as the "aggregate disruption."

Apart from geopolitical concerns, the oil and gas industry continues to struggle with rising costs to find and develop new fields. As was the case a year ago, costs are on the rise. Indeed, the IHS CERA Upstream Capital Costs Index—a type of "consumer price index" for the global oil industry—illustrates the cost pressure. After a modest dip during the recession, costs are likely to approach or set a new record level in 2012 (see Figure 2).

Figure 2

The IHS CERA Upstream Capital Costs Index
(UCCI)



Source: IHS CERA.
Note: This index measures the change in the cost of developing a global portfolio of oil and gas projects. Changes in cost are indexed to 2000, the base year.
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Wide Spectrum of Potential Outcomes

In early 2012, assessing the future course of the world oil market is a challenge because of the wide spectrum of potential outcomes. Limited spare capacity, geopolitical concerns, and the risk of disrupted supply point toward the possibility of higher prices and even a severe price spike. However, the global economy is in a fragile state. The eurozone crisis remains unsettled and could worsen. The pace of growth in India and China has also showed signs of slowing down. And unemployment is still high in the United States.

IHS CERA has long used a scenario framework to assess the potential course of change in the oil market and the broader energy industry. Several years ago we constructed a scenario called "Vortex," which envisions a member country exiting the eurozone, the United States unable to adequately address its fiscal problems, and much weaker growth in emerging markets. The outcome in the Vortex scenario is another global recession, followed by several years of below-trend growth. Oil prices fall below $50 per barrel. We do not believe the world has entered such a scenario, but it cannot be ruled out for 2012 given the concerns emanating from the eurozone.

Any oil market outlook faces uncertainties. But in 2012, the uncertainties are broader than usual and fraught with risk. However, the Great Revival in US oil output and further expansion in gas supply are sources of growth and secure production at a time of heightened anxiety. ■