New study forecasts sharp increase in world oil production capacity, and risk of price collapse

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(Phys.org) -- Oil production capacity is surging in the United States and several other countries at such a fast pace that global oil output capacity is likely to grow by nearly 20 percent by 2020, which could prompt a plunge or even a collapse in oil prices, according to a new study by a researcher at the Harvard Kennedy School.

The findings by Leonardo Maugeri, a former oil industry executive who is now a fellow in the Geopolitics of Energy Project in the Kennedy School's Belfer Center for Science and International Affairs, are based on an original field-by-field analysis of the world's major oil formations and exploration projects.

Contrary to some predictions that world oil production has peaked or will soon do so, Maugeri projects that output should grow from the current 93 million barrels per day to 110 million barrels per day by 2020, the biggest jump in any decade since the 1980s. What's more, this increase represents less than 40 percent of the new oil production under development globally: more than 60 percent of the new production will likely reach the market after 2020.

Maugeri's analysis finds that the gross additional production from current exploration and development projects in the world could produce an additional 49 million barrels per day by 2020, an increase equivalent to more than half the world's current 93 million bpd. After adjusting that

gross output increase for political and technical risk factors as well as the offsetting depletion rates of current fields, the analysis projects the net increase by 2020 to be about 17.5 bpd.

His study attributes the expected growth in oil output largely to a combination of high oil prices and new technologies such as hydraulic fracturing that are opening up vast new areas and allowing extraction of "unconventional" oil such as tight oil, oil shale, tar sands and ultra-heavy oil. These increases are projected to be greatest in the United States, Canada, Venezuela and Brazil. Maugeri also predicts a major increase in Iraq's oil output as it regains stability, which will add new production in the Persian Gulf region -- potentially destabilizing OPEC's ability to manage output and prices.

The combination of new production in the Western Hemisphere and the still growing production in other parts of the world could lead to a sharp drop in oil prices, Maugeri finds, which if steep enough could lead oil companies to cut back on investment and ultimately slow down oil supplies. But if oil prices remain above about $70 per barrel, sufficient investment will occur to sustain continued growth in production, possibly leading to a stable phenomenon of oil overproduction after 2015.

"Leonardo's conclusions are not only startling, but his paper provides a transparent explanation for how he reaches them - something lacking in many studies," said Meghan O'Sullivan, the Jeane Kirkpatrick Professor of the Practice of International Affairs at the Kennedy School and director of the Geopolitics of Energy Project. "His findings have major implications for geopolitics, suggesting important shifts in how countries interact and wield influence."

Maugeri was senior executive vice president of the Eni oil company in his native Italy, and has authored books and articles suggesting that oil will remain more plentiful than many predict. His new research tests that

hypothesis with in-depth analysis of reserves and production levels of all the major oil fields across the globe. He also assesses the impact of evolving technologies that open up new fields and allow more efficient extraction in existing fields.

The most dramatic increases involve the exploitation of unconventional oils in the United States, Maugeri says. For example, the Bakken and Three Forks fields in North Dakota and Montana could become the equivalent of a Persian Gulf-producing country within the United States. The Bakken formation's output has grown from a few barrels in 2006 to 530,000 a day in December 2011.

While the surge in production in the Western Hemisphere in coming years will in effect leave the region self-sufficient in oil, the global nature of the market makes that all but meaningless except in psychological terms, Maugeri argues. He adds that the industry will need to make major investments to keep oil production environmentally safe to avoid threatening the new bonanza.

Provided by Harvard University