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Short-Term Energy Outlook Supplement: Uncertainties in the Short-Term Global Petroleum and Other Liquids Supply Forecast

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Summary

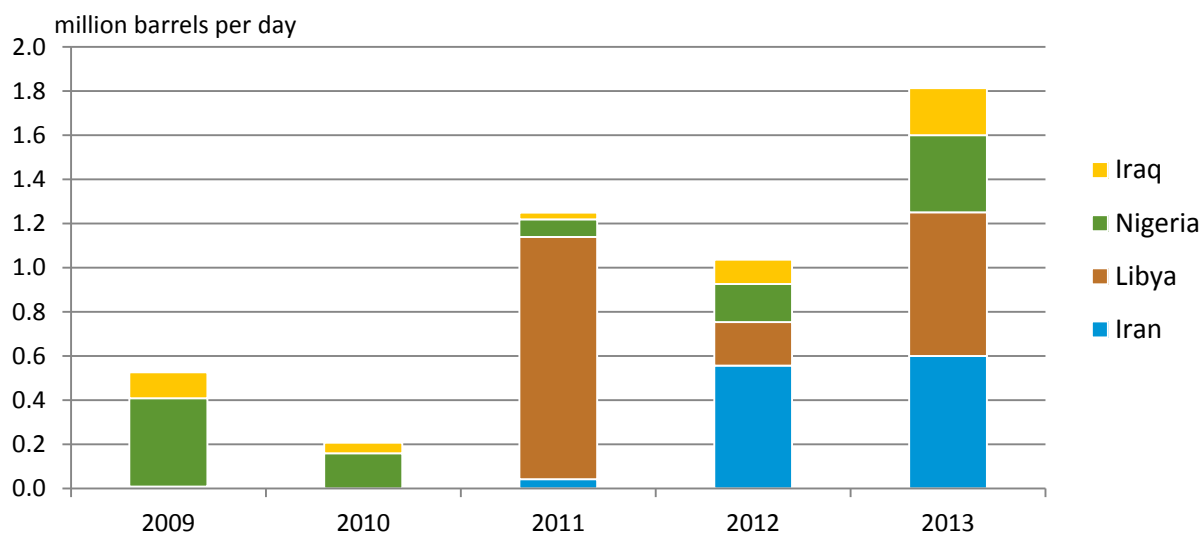
EIA forecasts that global petroleum and other liquids (or liquid fuels) supply will grow year-over-year by 1.7 million barrels per day (bbl/d) in 2014 and 1.4 million bbl/d in 2015. In 2014, EIA expects record high growth of 1.9 million bbl/d in countries outside of the Organization of the Petroleum Exporting Countries (OPEC), with the United States accounting for more than 50% of the total growth. OPEC liquid fuels supply is expected to decline by almost 0.2 million bbl/d in 2014, as some OPEC producers, led by Saudi Arabia, reduce production to accommodate the non-OPEC supply growth. In 2015, EIA expects non-OPEC liquid fuels supply growth to moderate to 1.5 million bbl/d, while OPEC liquid fuels supply declines by more than 0.1 million bbl/d.

With any forecast, there are uncertainties that will result in global supply being higher or lower than expected. In January 2013, EIA's *Short-Term Energy Outlook* (STEO) projected that global liquid fuels supply growth would average 1.0 million bbl/d in 2013, but EIA's latest estimate shows that global supply grew by about 0.6 million bbl/d in 2013. The difference mainly reflects higher-than-expected [unplanned supply disruptions](#) among OPEC producers. Planned disruptions as a result of maintenance can also be unpredictable as complications can extend the maintenance period, reducing production by a greater amount than expected. This STEO supplement addresses the major uncertainties behind EIA's 2014-15 global supply outlook.

Trends in unplanned global supply disruptions

Unplanned crude oil supply disruptions among OPEC producers averaged close to 1.8 million bbl/d in 2013, nearly double the amount from the previous year. [Libya](#) (0.7 million bbl/d), [Iran](#) (0.6 million bbl/d), [Nigeria](#) (0.3 million bbl/d), and [Iraq](#) (0.2 million bbl/d) accounted for OPEC's unplanned supply disruptions in 2013. OPEC disruptions increased in the second half of 2013, reaching 2.6 million bbl/d by the end of the year because of increased disruptions in Libya. The issues underpinning the outages in these countries are unresolved, resulting in uncertain oil production outlooks for these countries.

Figure 1. Estimated Unplanned Crude Oil Production Disruptions among OPEC Producers, 2009-13



Note: Estimated unplanned disruptions reflect the level of volumes shut in, accounting for effective production capacity.
Source: U.S. Energy Information Administration.

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EIA's tracking of unplanned crude oil production outages among OPEC countries focuses on Iran, Iraq, Libya, and Nigeria, which produce below their effective production capacity as a result of unplanned outages. EIA assumes that these countries do not hold surplus crude oil production capacity like some other OPEC producers. EIA assumes that other OPEC producers with surplus capacity, led by Saudi Arabia, typically increase their production level to counterbalance higher disruption volumes, leading to a reduction in total surplus crude oil production capacity.

Libya

Libya's [oil production was significantly constrained](#) in the second half of 2013 by prolonged strikes at export terminals in the central-eastern region and sporadic protests around oil fields, pipelines, and export terminals in the west. Crude oil production in Libya fell to 0.2 million bbl/d in the last two months of 2013, down from a 1.4-million-bbl/d average from January to May 2013. Libya accounted for half of the total OPEC outages in the fourth quarter of 2013. Libya presents mostly an upside supply risk to the global oil market going into 2014 because production and exports have already fallen significantly.

Libya's crude oil production partially recovered in January 2014, averaging 0.5 million bbl/d because of the restart of the 340,000-bbl/d El Sharara field in the west. However, Libya's production fell again in February because a pipeline transporting El Sharara crude was blocked by protestors. Oil fields, pipelines, and ports in the west have been intermittently targeted by groups attempting to gain political leverage. In the central-eastern region, three of the major oil terminals (Es Sider, Ras Lanuf, and Zueitina) are being occupied by a group seeking regional autonomy, which includes former members of the Petroleum Facilities Guard. The oil fields connected to those terminals have been mostly shut in since mid-2013.

EIA believes that Libya's oil production outlook is tied to the government's ability to negotiate and address the grievances of minority groups that have blocked oil production mostly in the west and the government's ability to gain control over the activities of the group pushing for regional autonomy in the central-eastern region or negotiate a compromise with the group. Also, a constitution, which has been a source of contention in the country, is expected to be drafted this year in Libya. Given the uncertainties, EIA's forecast assumes that Libya's production will remain restrained through 2014 and partially recover in 2015.

Nigeria

Nigeria's crude oil production averaged below 2.0 million bbl/d in 2013, the lowest level since 2009 when militant attacks on oil infrastructure were common. Unplanned supply disruptions averaged more than 0.3 million bbl/d in 2013, mostly due to production deferment of crude oil headed to the Bonny terminal as Shell closed the Nembe Creek Trunkline and Trans Niger Pipeline multiple times to repair leaks attributed to oil theft.

There will be lingering threats to Nigeria's supply over the next two years. Oil unions in Nigeria have threatened to shut down oil production various times in the past. Most recently the unions dropped threats to disrupt production after the government announced it would not privatize the country's existing refineries. Also, threats have resurfaced from the Movement for the Emancipation of the Niger Delta (MEND), an armed group that has caused major disruptions to oil production in the past. Lastly, increased political uncertainty leading to the run-up of the presidential elections in 2015 may result in increased disruptions to oil production.

EIA's projection assumes that Nigeria's crude oil production will remain below its effective production capacity of 2.2 to 2.3 million bbl/d. Nigeria has a few small-scale oil projects scheduled to come on line in the next two years, but major oil projects are scheduled to start production after 2015, resulting in a stagnant production capacity over the next two years at best. The Nigerian government's inability to reduce oil theft and pipeline sabotage raises the potential for downward revisions to the forecast.

Iran

EIA estimates that Iran's crude oil production averaged 2.8 million bbl/d in 2013, down from nearly 3.7 million bbl/d in 2011. Iran's crude oil production and exports declined significantly as a result of sanctions that have reduced Iran's ability to carry out investment in oil projects necessary to offset the natural declines in production and sanctions that have adversely affected the country's ability to sell oil. The [Joint Plan of Action \(JPA\) announced on November 24, 2013](#) (implementation started on January 20, 2014) does not remove the core sanctions affecting Iran's oil sector, although it does suspend sanctions on associated insurance and transportation services. However, those countries continuing to import oil from Iran had already found workarounds to the insurance ban.

EIA's outlook for Iran's crude oil production remains unchanged and assumes a steady decline into 2015, as existing sanctions inhibit the country's ability to carry out investment projects that are necessary to offset natural decline in production from existing wells. EIA believes that Iran's ability to sell more oil and thereby increase production will be closely tied to the outcome of the negotiations between Iran and the five permanent members of the United Nations Security Council (the United States, United Kingdom, France, Russia, and China) plus Germany (P5+1) and the level of oil-related sanctions that the United States and the European Union maintain. EIA will continue to monitor and evaluate the situation, particularly changes to Iran's monthly volume of crude oil exports, and make adjustments to the forecast as necessary.

Iraq

EIA estimates that Iraq's crude oil production increased to 3.03 million bbl/d in 2013 from 2.96 million bbl/d in 2012 and 2.60 million bbl/d in 2011. Iraq's production in 2013 was mostly restrained by unplanned supply disruptions from pipeline attacks in the north and planned maintenance at southern terminals in the last four months of 2013. EIA expects Iraq's crude oil production to increase at a similar pace as the previous two-year period (2011 to 2013) over the next two years. EIA's projection of Iraq's crude oil production is more modest than the Iraqi government's crude oil production target of more than 4.0 million bbl/d because infrastructure constraints and political disputes continue to limit Iraq's ability to meet production targets.

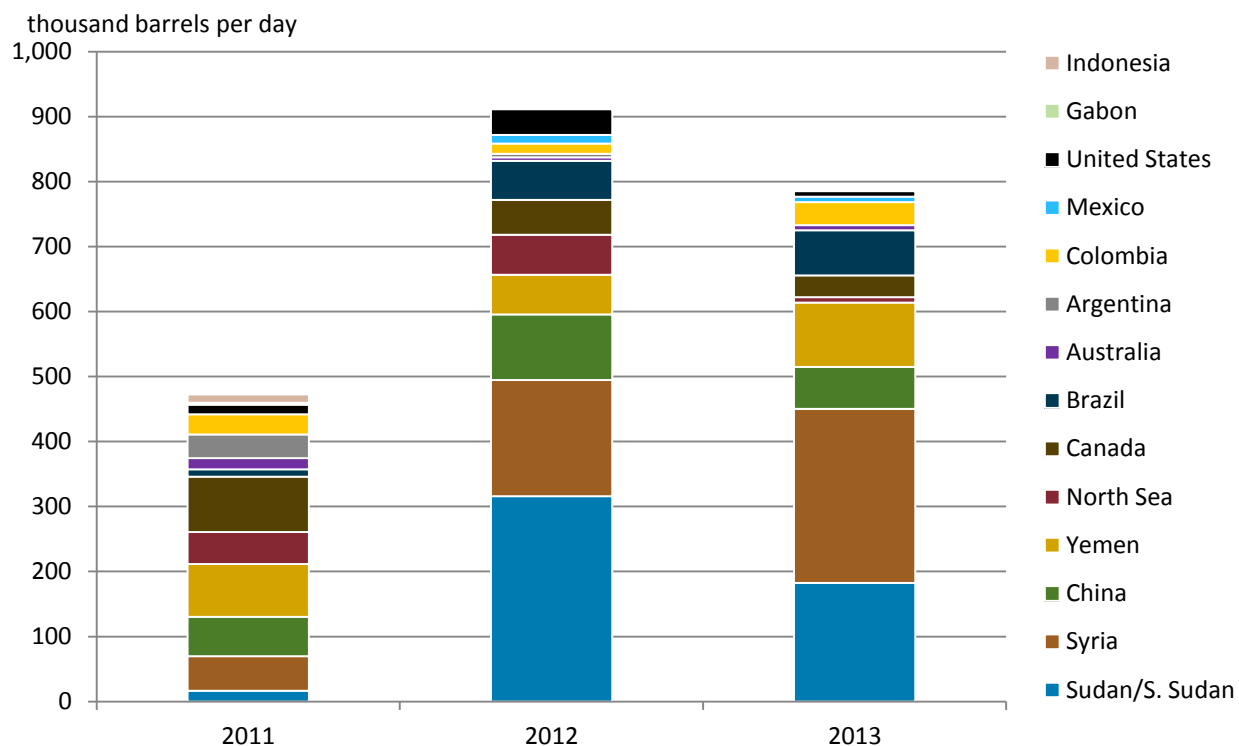
Both Iraqi refining and export infrastructure are severely constrained, with bottlenecks preventing more crude oil processing. Iraqi oil exports are currently running at near full capacity in the south, while export capacity in the north has been restricted by sabotage, deteriorating pipelines, and the inability to receive more oil from the south of Iraq via the deteriorated Strategic Pipeline.

Iraq's crude oil production could be higher than EIA's forecast if Iraq restores its existing oil production infrastructure and expands export capacity in the south. However, if capacity expansions are slow and political disputes escalate, causing increased supply disruptions, Iraq's crude oil production could fall below EIA's projection. Unplanned supply disruptions of 0.2 million bbl/d in 2013 were largely attributed to persistent attacks on the Kirkuk-Ceyhan pipeline between Iraq and Turkey. The political disputes underlying the attacks are still unresolved, contributing to uncertainty over the forecast period.

Non-OPEC Producers

EIA estimates that non-OPEC liquid fuels production grew by nearly 1.4 million bbl/d in 2013, despite unplanned non-OPEC supply outages averaging almost 0.8 million bbl/d. Unplanned non-OPEC supply outages declined slightly in 2013 from more than 0.9 million bbl/d in 2012 but still remained considerably above the 2011 level of less than 0.5 million bbl/d. [Sudan and South Sudan](#), [Syria](#), and [Yemen](#) accounted for 70% of the total disrupted volume among non-OPEC producers in 2013. [Brazil](#), [Canada](#), [China](#), and [Colombia](#) accounted for most of the remaining disrupted volumes.

Figure 2. Estimated Unplanned Liquid Fuels Production Disruptions among Non-OPEC Producers, 2011-2013



Note: Estimated unplanned disruptions reflect the level of volumes shut in, accounting for effective production capacity.
Source: U.S. Energy Information Administration.

EIA expects Syria and Yemen to continue to account for a large portion of non-OPEC supply disruptions over the next two years as the issues underlying the disruptions remain unresolved. The production volume offline during the fourth quarter of 2013 averaged close to 290,000 bbl/d in Syria and 100,000 bbl/d in Yemen. EIA expects the [effective production capacity](#) in both countries to continue to decrease over the forecast period, reflecting damage to oil reservoirs, fields, and infrastructure.

The outlook for Sudan and South Sudan's oil production is less certain. The disruption volume in South Sudan fell during 2013, from an average of about 330,000 bbl/d in the first quarter to below 100,000 bbl/d in the fourth quarter of 2013, reflecting increased production and a downward revision to effective production capacity. However, in December 2013, armed conflict escalated in South Sudan, causing some oil fields to be shut in and reducing output at other fields. EIA estimates that liquid fuels production in Sudan and South Sudan will average between 300,000 to 350,000 bbl/d during the STEO outlook, lower than the 2011 pre-shut-in level of 460,000 bbl/d. South Sudan presents mostly downside supply risks given the recent escalation in conflict.

Trends in U.S. oil production

Onshore

Uncertainty in onshore production forecasts for the United States comes primarily from upside supply risks. [Recent EIA forecasts of U.S. oil production](#) undershot actual production because the pace of improvement in onshore drilling productivity has surpassed expectations. Exploration and production companies are drilling many wells and constantly experimenting with new techniques to hydraulically fracture the tight formations. Technological innovation may cause a faster rise in [drilling productivity](#) than currently forecast. Should this occur, EIA's current forecast for onshore Lower 48 states oil production rising from 5.7 million bbl/d in 2013 to 7.1 million bbl/d in 2015 could understate actual production growth.

Offshore

Oil production in the federal Gulf of Mexico (GOM) is forecast to grow from an average of 1.3 million bbl/d in 2013 to 1.6 million bbl/d in 2015. While the GOM forecast is based on current and planned drilling projects, there is considerable uncertainty because of potential project delays and hurricane or maintenance outages.

Large scale drilling projects in the Gulf of Mexico are extremely complex and progress can be easily delayed. Additionally, limited information is available about how productive new projects will be, and there is much uncertainty about how much production will come from offshore wells once they actually come on line. While EIA periodically tracks and updates project schedules, assumptions about production start dates and peak volumes are determined by publicly available information from the operating companies. As such, GOM production forecasts reflect current project schedules and production estimates. As projects are delayed the expected production volumes associated with those projects are pushed back as well.

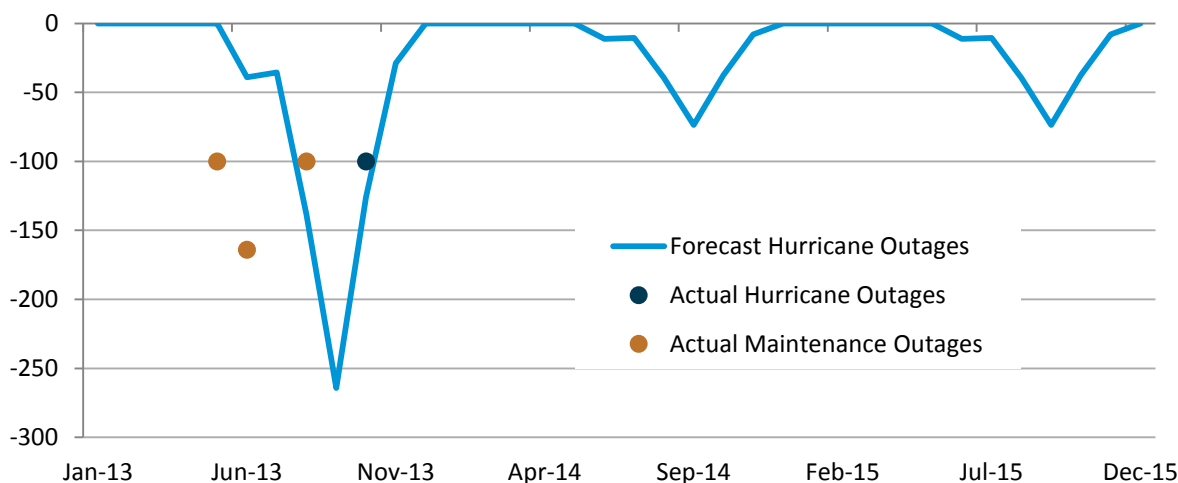
Hurricanes moving through the GOM reduce production volumes nearly every year as offshore platforms must be evacuated and production is shut in. EIA forecasts production outages based on National Oceanic and Atmospheric Administration (NOAA) hurricane forecasts. 2013 was forecast to have above-average hurricane activity, which was reflected in EIA's hurricane production outage forecast (Figure 3, blue line) below. The only significant hurricane outages in 2013 came from Hurricane Karen in October (Figure 3, blue dot), averaging 100,000 bbl/d through the month (approximately 3 million bbl of production were shut in). So far, the 2014 and 2015 forecasts assume average levels of production outages due to hurricanes, although considerable uncertainty exists as shut-in production may be either less or greater.

Another source of production forecasting uncertainty in the GOM is maintenance or installation of production, processing, or refining infrastructure in the Gulf or along the Gulf Coast. Much of the GOM production outages observed in 2013 were the result of infrastructure issues (Figure 3, brown dots), including wells being shut in for maintenance of the Pascagoula, Mississippi natural gas processing plant in May and June, installation of an offshore platform for the Atlantis Phase 2 project in June, and various operators conducting routine maintenance in August. Maintenance outages are generally not publicly announced, so this is always a source of downside uncertainty in forecasting offshore production.

Figure 3. Gulf of Mexico Production Outages

GOM production outages - forecast vs. actual

thousand barrels per day



Source: U.S. Energy Information Administration.

Kazakhstan's Kashagan oil field production in 2014

EIA expects that [Kazakhstan's](#) liquid fuels production will grow by an annual average of 110,000 bbl/d over the next two years, reflecting the projected restart of the [Kashagan oil field](#) in the second half of 2014. Kashagan, the largest oil field discovered in the past 35 years, continues to experience technical challenges, resulting in repeated delays of commercial production and two faulty starts in the second half of 2013.

EIA forecasts that Kashagan will restart production in the second half of 2014 and ramp up in 2015 but remain below the field's phase one target of 370,000 bbl/d as technical challenges and high development costs may limit its expansion. However, if commercial production from Kashagan is delayed beyond 2015, this would result in a downward revision of Kazakhstan's total projected supply growth over the next two years because the country's supply growth is mainly dependent on Kashagan.

North Sea planned maintenance duration

Planned maintenance on fields, pipelines, gas processing facilities, and terminals in the North Sea typically occurs from May through September. The maintenance work temporarily reduces the supply of the [Brent, Forties, Oseberg, and Ekofisk \(BFOE\)](#) blends, which are North Sea crudes that together determine the global benchmark Brent price. Liquid fuels production at associated fields is also affected because of maintenance at gas processing facilities. Typically, more than 200,000 bbl/d of liquid fuels supply on average is offline in the North Sea during maintenance season.

The main uncertainties surrounding North Sea maintenance are the duration of the maintenance period, the production volume offline due to maintenance, and unexpected outages that may occur during maintenance. According to the International Energy Agency, the impact that planned maintenance has on oil production depends on the duration and the scope of the work, both of which are difficult to track because no public disclosure related to maintenance on oil facilities is required. Also, the maturity of fields and technical challenges may prolong plans to restart production. Technical challenges can lead to unplanned maintenance work and outages lasting longer than expected.