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## The bumpy plateau of oil production

At the beginning of July the International Energy Agency came out with their latest midterm oil production update. Based on an analysis of all oil fields under development in the world, the report gives insights on the oil market until 2013. Its production expectation suggests that production capacity will grow by 1.5 million b/d each year until 2010, after which growth drops off to an additional half a million barrels per day each year until 2013. However, such analyses weigh heavily on the authors interpretation of events that are going to occur in the oil market. For example, additional all liquids production from non-OPEC between 2008 and 2013 is estimated at 1.2 million barrels per day in total. A large part of this increment is expected to come from Canada, where unconventional crude should stir production up by 1 million barrels per day if the IEA is to be believed. Shortly after the report was released, however, EnCana, one of the largest oilsand players, made known that it will delay the construction of a pipeline from West Canada to the US. The pipeline is now scheduled to become operational in 2013/2014 instead of 2011. According to EnCana the sole reason for the delay is lower production growth than earlier expected. Furthermore, Canadian production growth between 2002 and 2007 was only 400,000 b/d. It is improbable that production can grow at more than double that pace in the next five years, as additional personnel and equipment becomes increasingly harder to acquire due to demographics and industry cycles.

Setting aside such uncertainties, we can conclude from the IEA report that the bumpy plateau that we have been on since 2004 will continue until at least 2010. In the best case with some large production increases on the road, leading to a production of 89 - 90 million b/d or so by 2010. As to what happens afterwards there is likely to be disagreement from various sides. Can Russia maintain plateau production? Can/will Saudi-Arabia increase production from 12 million b/d in 2010 to 15 million b/d around 2015? Will Angola stay with its plan to fix output at 2 million b/d after 2010 despite further output potential? Will the security situation in Iraq and Nigeria change significantly? Is Chinese production going to decline after 2010?

As long as there are no solid answers to such questions, forecasting production beyond 2010 will remain difficult. However, general trends can be ascertained that should serve as a warning sign, given the IEA's estimate that production will hardly increase beyond 2010. If some event turns production towards the downside in the oil market, as often happens, it will mean a decline in production on a worldwide scale. A scenario that is seen as increasingly likely by two ongoing independent painstaking analyses of all the oil fields under development in the world. One by Chris Skrebowski, editor of the industry magazine Petroleum Review, the other by an analyst team founded by energy blog the oil Drum that can be located at the megaprojects wiki.

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**President ASPO Netherlands**

## Definitions

Crude Oil, petroleum found in liquid and semi liquid form including deepsea and lease condensates.

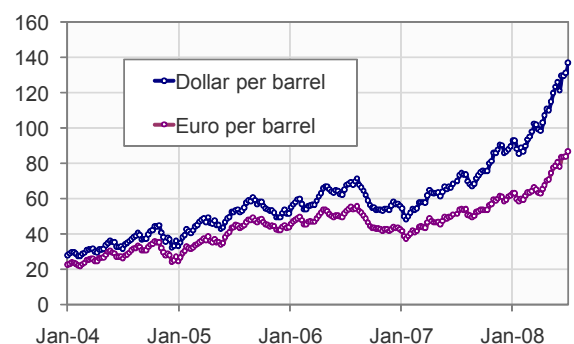
Liquids, all forms of liquid fuels including conventional, heavy, and extra heavy oil, oil shale, oil sands, natural gas liquids, lease condensates, gas-to-liquids, coal-to-liquids, and biofuels.

One Barrel of oil is equivalent to 159 litres

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**Chart 1:** Oil Price Weighed Average of Blends

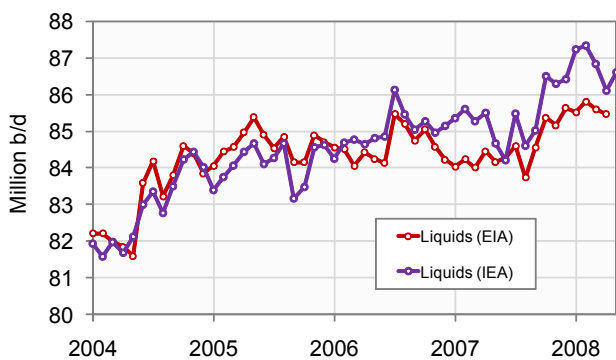


Source: Energy Information Administration

**World liquids production status**

In May world production of total liquids increased by 490,000 barrels per day from April according to the latest figures of the International Energy Agency (IEA). Resulting in total world liquids production of 86.60 million b/d.

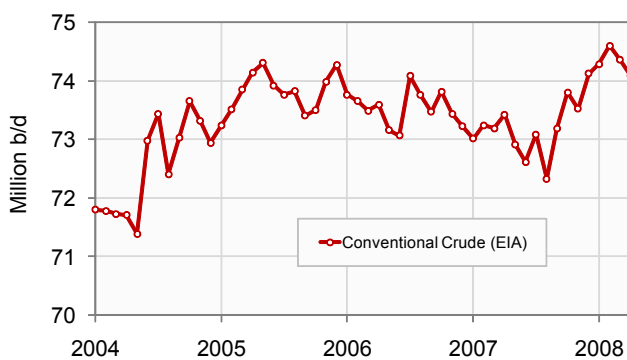
Average global production in 2007 was 85.41 million b/d according to the IEA. In the first five months of 2008 an average of 86.82 million b/d was produced. The US Energy Information Administration (EIA) in their International Petroleum Monthly puts average global 2007 production at 84.55 million b/d and the first four months of 2008 at 85.60 million b/d.

**Chart 2: World Liquids Production January 2004 - May 2008**


Source: Energy Information Administration, International Energy Agency

**World crude oil production status**

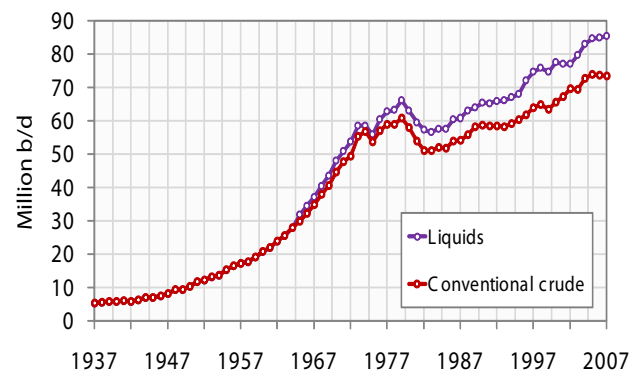
Latest available figures from the Energy Information Administration (EIA) show that crude oil production including lease condensates decreased by 272,000 b/d from March to April. Overall crude oil production statistics have been revised downwards, leading to a lower all time high crude oil production of 74.59 million b/d that still stands at February 2008.

**Chart 3: World Crude Oil Production January 2004 - April 2008**


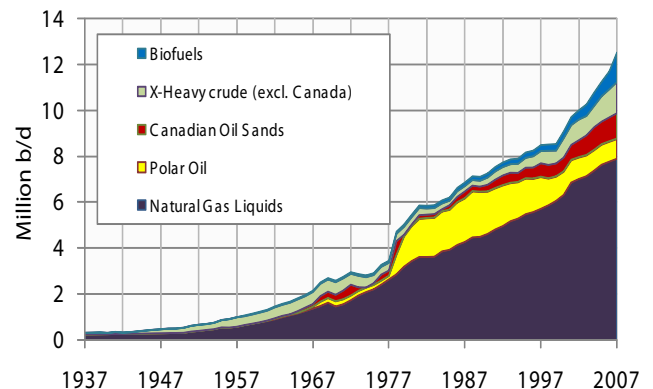
Source: Energy Information Administration

**World conventional crude versus liquids production ratio**

Approximately 86% of world liquids production in 2007 came from conventional crude oil including lease condensates. The remaining share of 14% was produced by other unconventional sources including Biofuels, Extra Heavy Oil, Tar Sands, Polar Oil and Natural Gas Liquids. In absolute amounts unconventional production has increased steadily, from 4 million b/d at the end of the 1970's, to approximately 12 mb/d in 2007 excluding lease condensates.

**Chart 4: World Crude and Liquids production 1937 - 2007**


Source: Energy Information Administration, IHS Energy, International Energy Agency

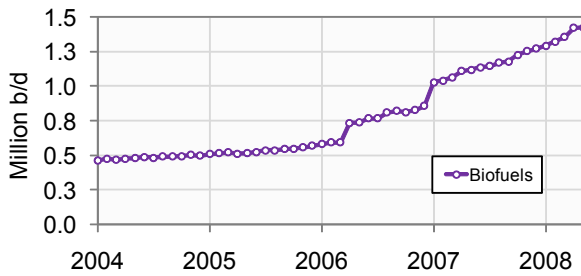
**Chart 5: World Unconventional Production 1937 - 2007**


Source: Energy Information Administration, IHS Energy, International Energy Agency, Canadian Association of Petroleum Producers

**World Biofuel production status**

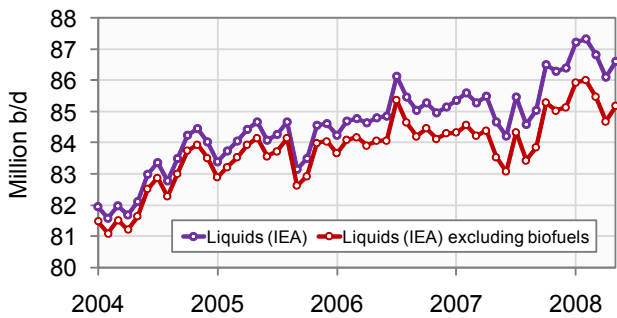
In May total world biofuel production was 1.42 million barrels per day according to statistics compiled from the Energy Information Administration, the International Energy Agency and the Brazilian ministry of Energy. With 565,000 b/d from the United States, 368,000 b/d from Brazil and 490,000 b/d from other countries.

**Chart 6:** World biofuels production January 2004 - May 2008



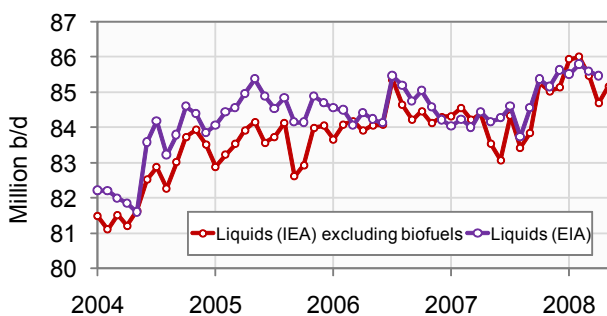
Source: Energy Information Administration, International Energy Agency, Brazilian Ministry of Energy

**Chart 7:** Liquids vs liquids excl. biofuels I Jan. 2004 - May 2008



Source: Energy Information Administration, International Energy Agency, Brazilian Ministry of Energy

**Chart 8:** Liquids vs. liquids excl. biofuels II - Jan. 2004 - May 2008

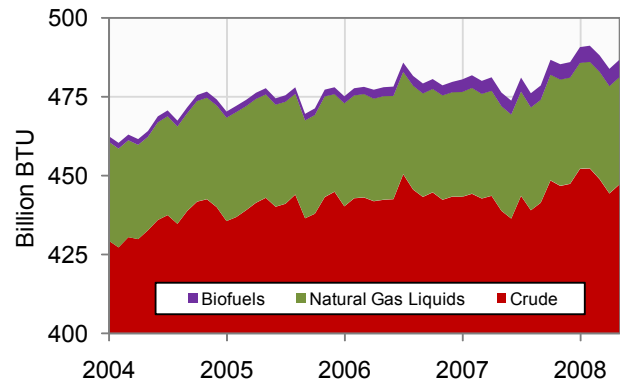


Source: Energy Information Administration, International Energy Agency, Brazilian Ministry of Energy

**World gross & net energy available from liquids**

In oil production statistics the barrel that gets counted is not the barrel that can be used by society. Different types of liquids that are aggregated as total 'oil' production, in the oilwatch monthly defined as total liquids, contain different amounts of energy per barrel. For example, a barrel of crude oil contains approximately 5.8 million BTU while a barrel of natural gas liquids contains 4.2 million BTU. In 2008 11 percent of total liquids production consisted out of natural gas liquids and biofuels. When converting these to their actual energy values we learn that the energy available to society is 3.5% lower than all liquids production statistics counted in barrels suggests. This difference has been rising slightly over time, with 2.5% less energy available to society in 2002 when comparing a barrel to the BTU's in a barrel.

**Chart 9:** Gross Energy available from liquids Jan. 2004 - May 2008

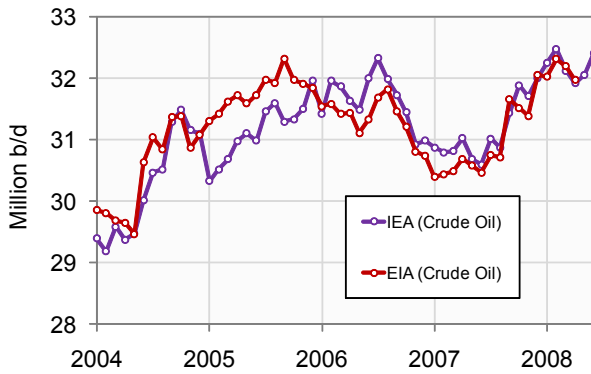


Source: Energy Information Administration, International Energy Agency

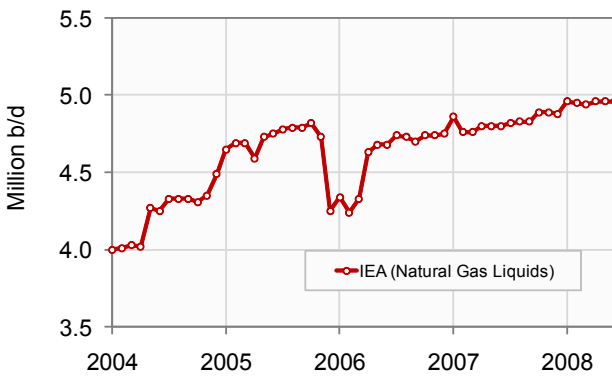
The actual energy available for society to consume is lower than shown in chart 9, however, because an incremental amount is needed to bring the oil out of the ground as the oil industry has to drill deeper at more extreme locations which costs more energy. Next to the additional energy needed in processing oil to deliver a useful product due to a decline in quality from conventional to more unconventional oil. Studies by Professor Charles Hall and his science group at State University New York show that the energy that is necessary to draw a barrel of 159 liters of oil out of the ground from conventional oil has increased from approximately 3 liters of oil equivalent in the beginning of the 1990s to 6 liters of oil equivalent now. It is not known to what percentage this amount of energy comes from oil, gas or coal, the main energy inputs for the oil and gas industry.

**OPEC production status**

Total crude oil production including lease condensates of the OPEC cartel increased by 350,000 b/d to a level of 32.4 million b/d, from May to June, according to the latest available estimate of the IEA. Natural Gas Liquids production remained at a level of 4.96 million b/d from May to June. Average total liquids production in OPEC countries in the first six months of 2008 was 37.15 million b/d, versus 35.96 million b/d in 2007 and 35.71 million b/d in 2006.

**Chart 10: OPEC Crude Oil Production January 2004 - June 2008**


Source: Energy Information Administration & International Energy Agency

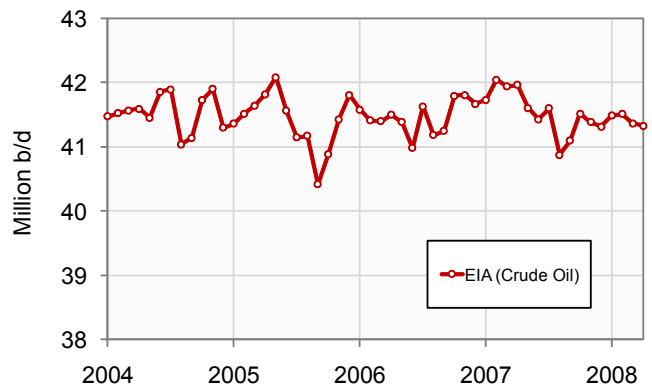
**Chart 11: OPEC Natural Gas Liquids Prod. Jan. 2004 - June 2008**


Source: International Energy Agency

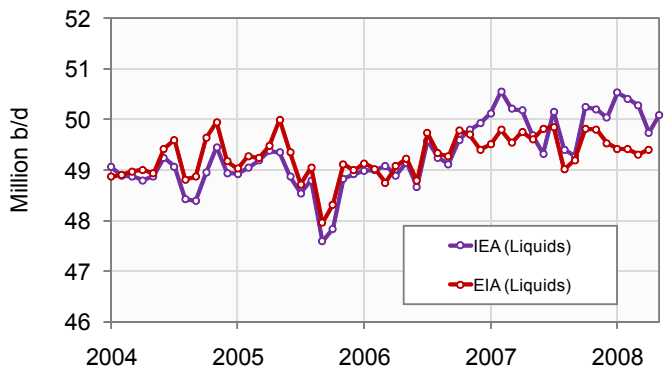
**Non-OPEC production status**

Total crude oil production including lease condensates of non-OPEC declined by 39,000 b/d from March to April to a level of 41.33 million b/d, according to the latest available estimate of the EIA. Average crude oil production of Non-OPEC in the first four months of 2008 was 41.42 million b/d, versus 41.58 million b/d in 2007 and 41.46 million b/d in 2006.

Total non-OPEC liquids production increased by 90,000 b/d to a level of 49.33 million b/d from April to May, according to the latest figures of the IEA. Average total liquids production of non-OPEC in the first five months of 2008 was 49.66 million b/d, versus 49.45 million b/d in 2007 and 49.29 million b/d in 2008.

**Chart 12: Non-OPEC Crude Oil Production Jan. 2004 - April 2008**


Source: Energy Information Administration

**Chart 13: Non-OPEC Liquids Production Jan. 2004 - May 2008**


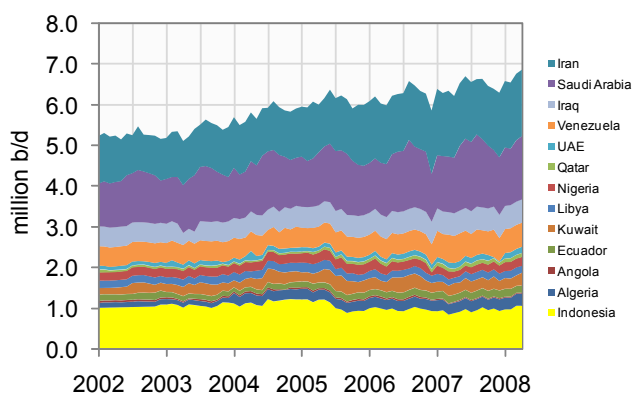
Source: International Energy Agency & Energy Information Administration

**OPEC liquids demand developments**

In 2002 OPEC-12 (excluding Iraq) consumed 5.26 million b/d according to the JODI database. Since then, demand has increased by 1.2 million b/d to 6.46 million b/d in 2007. The increase was mainly caused by higher consumption in Iran and Saudi Arabia, which increased by 476,000 and 357,000 b/d between respectively 2002 and 2007.

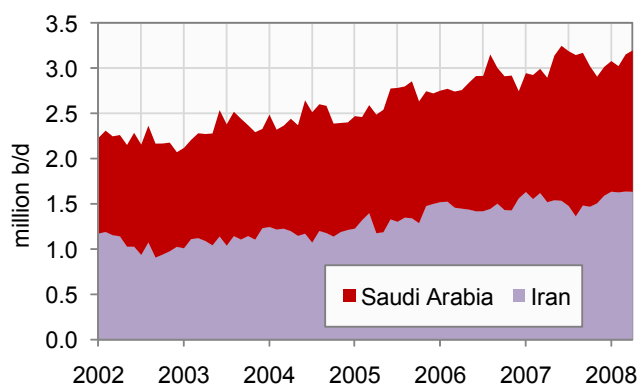
In 2008 this pace of growth appears to continue. Consumption in Saudi-Arabia in the four months of 2008 was 1.48 million b/d and 1.63 million b/d in Iran. Consumption in the first four months of 2007 in Saudi Arabia was 1.36 million b/d and 1.58 million b/d in Iran.

**Chart 14:** OPEC-13 Liquids Demand January 2002 - April 2008



Source: JODI Database

**Chart 15:** Iran & S. Arabia Liquids Demand Jan. 2002 - April 2008

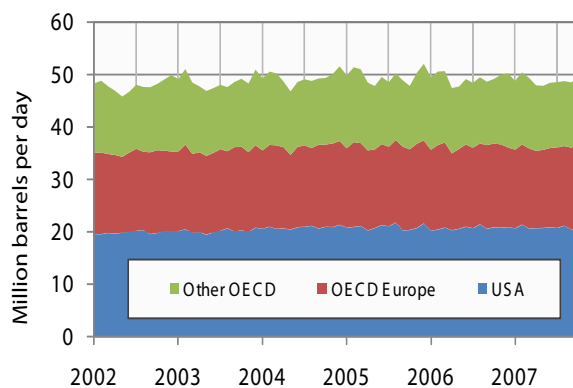


Source: JODI Database

**Non-OPEC liquids demand developments**

OECD liquids demand in recent years has started to decline according to the latest Energy Information Administration figures. In 2005 the OECD group of countries consumed on average of 49.67 million b/d, which declined to 49.25 million b/d in 2006. Of the total OECD decline in consumption in 2006, 196,000 b/d came from the US and 238,000 b/d from other OECD countries. While consumption in OECD Europe increased by 13,000 b/d in 2006. In 2007, OECD consumption declined further by 203,000 b/d to an average of 49.05 million b/d. This decline was mainly caused by a consumption decline of 257,000 b/d in OECD Europe and less importantly a decline of 74,000 b/d in other OECD countries except the United States. In the United States demand growth rebounded, leading to an average increase in consumption of 129,000 b/d in 2007.

**Chart 16:** OECD Liquids Demand Jan. 2002 - November 2007

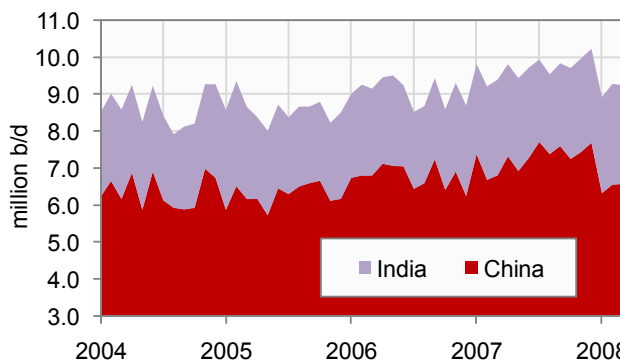


Source: Energy Information Administration

In the first four months of 2008 Chinese oil consumption was 6.51 million b/d according to the JODI database. These figures are much lower than the average 2007 consumption of 7.29 million b/d, making it likely that there is a significant error in the datasource. China consumed on average 6.27 million b/d in 2005, growing to 6.78 million b/d in 2006 and 7.29 million b/d in 2007.

Consumption in India was 2.67 million b/d in the first three months of 2008, versus an average of 2.43 million b/d in 2007 and 2.29 million b/d in 2006.

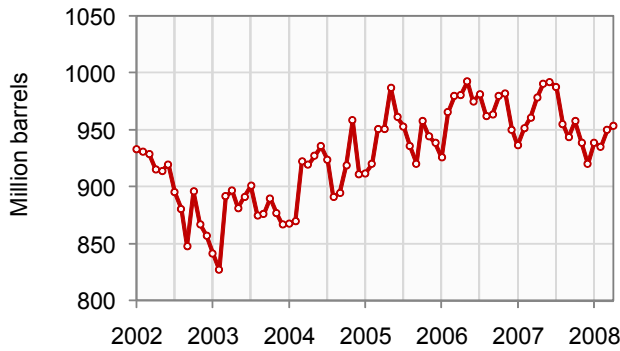
**Chart 17:** India & China Liquids Demand Jan. 2002 - April 2008



Source: JODI Database

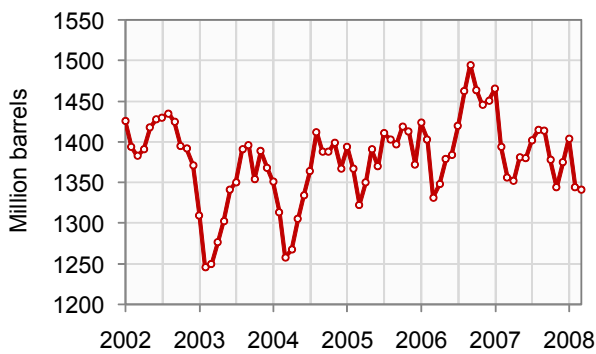
**Crude oil and oil product stocks status**

Industrial inventories of crude oil in the OECD increased in March to a level of 948 million barrels from 941 million barrels in February according to IEA statistics.

**Chart 18: OECD Crude Oil Stocks January 2002 - April 2008**


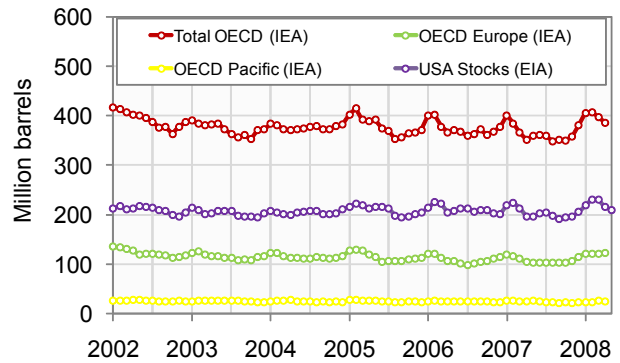
Source: International Energy Agency

Total product stocks in the OECD were 1336 million barrels in March 2008, slightly lower than the five year average of 1376 million barrels.

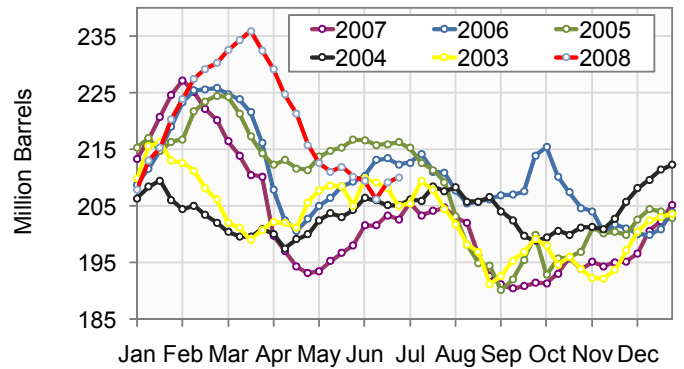
**Chart 19: OECD Product Stocks January 2002 - April 2008**


Source: International Energy Agency

Gasoline stocks in the OECD declined by 9 million to level of 398 million barrels from February to March. More recent data from the EIA shows that gasoline stocks in the USA declined by 15 million barrels per day in April to a level of 215 million barrels.

**Chart 20: OECD Motor Gasoline Stocks Jan. 2002 - May 2008**


Source: International Energy Agency & Energy Information Administration

**Chart 21: USA Motor Gasoline Stocks January 2002 - May 2008**


Source: Energy Information Administration

**World Crude Oil Export Status**

The series was derived by subtracting the consumption of oil products, refinery fuel and direct crude oil sales from liquids production in producer countries. Data comes from the Joint Oil Data Initiative (JODI) for demand and the International Energy Agency (IEA) and Energy Information Agency (EIA) for supply. Biofuels are not included in consumption data but are included in production data. Because biofuels are not identified in the production data it is not possible to separate this flow. Given that net energy biofuel production has increased by approximately 50,000 to 100,000 b/d annually in recent years, the series is slightly optimistic.

This method gives a crude approximation of the export market because it assumes that all producers refine their own oil products to satisfy internal market needs. In reality not all oil producers have their own refineries to meet internal product demand. Therefore, more crude will be exported to foreign countries where it is refined into usable products. These usable products are then imported back to the country where the crude oil came from. To derive precise export statistics one would need to combine four components for each individual oil producing country: 1) crude oil export flows, 2) crude oil import flows, 3) total product export flows, 4) total product import flows. Statistics that show only crude oil exports or total product imports on an aggregate basis only reveal one component of the equation, and cannot be taken at face value.

Unfortunately, data on all four components is not readily available for countries outside the OECD. At the moment the statistics shown are purely based on the method of subtracting the consumption of oil products, refinery fuel and direct crude oil sales from liquids production in producer countries, unless otherwise noted.

From 2005 to 2006, worldwide liquids production increased by nearly 1 million b/d from 84.1 million b/d in 2005 to 85 million b/d in 2006 according to the IEA. Our proxy-exports database, which uses the methodology outlined above, shows that annual worldwide exports are roughly in the order of 46.3 million b/d, 47.5 million b/d, 47.4 and 47.3 million b/d and in 2004, 2005, 2006 and 2007 respectively. In the first four months of 2008 average world exports amounted to 47.76 million b/d.

**Chart 22:** World Liquids Exports Estimate Jan. 2002 - April 2008



Source: derived from the IEA, EIA and JODI Database

In the first four months of 2008 average non-OPEC exports were estimated to be 17.48 million b/d. A proxy estimation of exports for 2003 gives a figure of 17.42 million b/d, increasing to 17.93 million b/d in 2004 and subsequently declining to 17.75 million b/d in 2005 and 17.68 million b/d in 2006. In 2007 non-OPEC exports increased to 17.89 million b/d.

**Chart 23:** Non-OPEC Liquids Exports January 2002 - April 2008



Source: derived from the IEA, EIA and JODI Database

A proxy estimation of exports for OPEC 13 (including Iraq) for 2004 gives a figure of 28.37 million b/d in 2004, increasing to 29.60 million b/d in 2005, 29.76 million b/d in 2006 and declining to 29.46 million b/d in 2007. In the first four months of 2008 OPEC exports amounted to an average level of 30.28 million b/d.

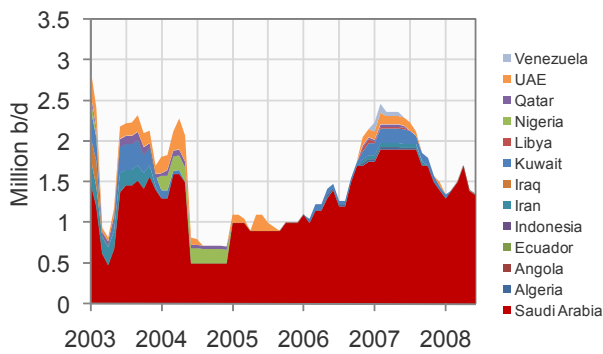
**Chart 24:** OPEC Liquids Exports January 2002 - April 2008



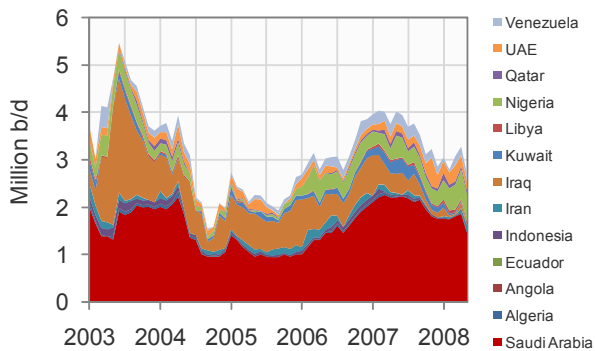
Source: derived from the IEA, EIA and JODI Database

**OPEC Spare Capacity**

Total OPEC spare production capacity declined to 1.35 million b/d in June from a level of 1.4 million b/d in May according to the Energy Information Administration. Saudi Arabia being the sole country occupying the total amount of spare capacity left. According to the International Energy Agency total effective spare capacity (excluding Indonesia, Iraq, Venezuela and Nigeria) stands at 1.96 million b/d in May from a level of 2.33 million b/d in April. Estimating Saudi Arabia to be capable of producing an additional 1.45 million b/d within 90 days and Iran, Libya, Qatar and the United Arab Emirates another 0.51 million b/d.

**Chart 25:** EIA OPEC Spare Capacity Jan. 2003 - June 2008


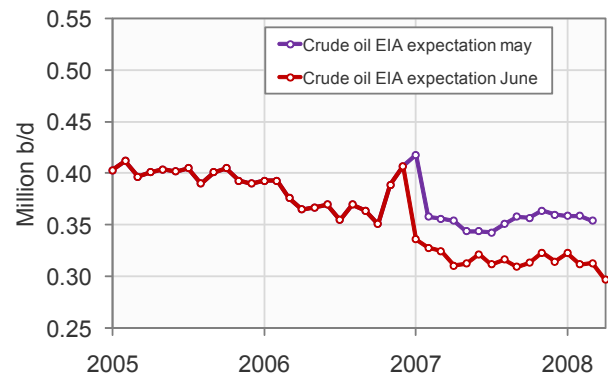
Source: Energy Information Administration

**Chart 26:** IEA OPEC Spare Capacity Jan. 2003 - May 2008


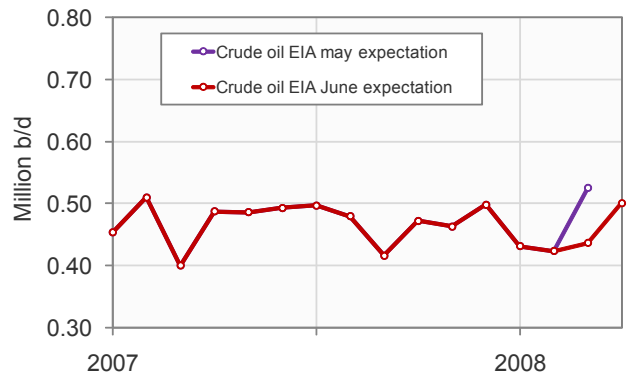
Source: International Energy Agency

**EIA Production Revisions**

The Energy information Administration revised historical production estimates for Yemen downwards by 40,000 barrels per day from January 2007 to April 2008. Total world oil production figures for March 2008 were revised downwards from 85.73 to 85.60 million barrels per day. World crude oil production figures for March 2008 were revised downwards from 74.49 to 74.35 million barrels per day. The biggest part of this revision arose from Australian crude production in March 2008, which was first noted at 525,000 barrels per day, but is now seen by the EIA as 436,000 barrels per day.

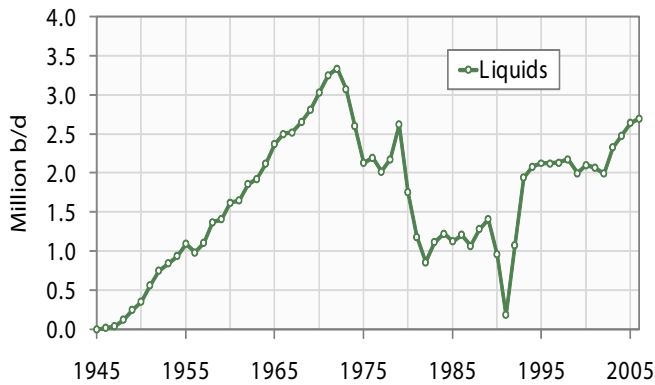
**Chart 27:** Yemen crude oil production Jan. 2005 - April 2008


Source: Energy Information Administration

**Chart 28:** Australia crude oil production Jan. 2007 - April 2008


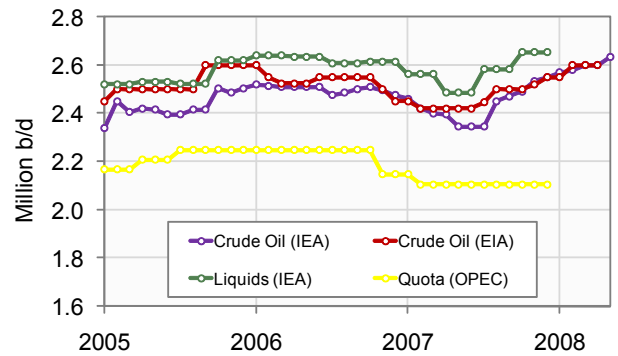
Source: Energy Information Administration

**Chart 29:** Kuwait Production 1945 - 2006



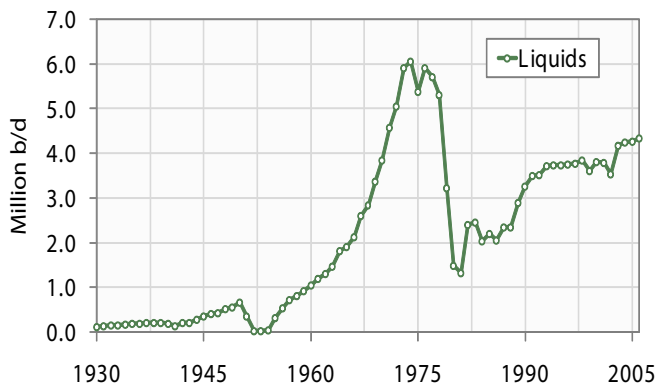
Source: ASPO Ireland & BP Statistical Review

**Chart 30:** Kuwait Production January 2005 - May 2008



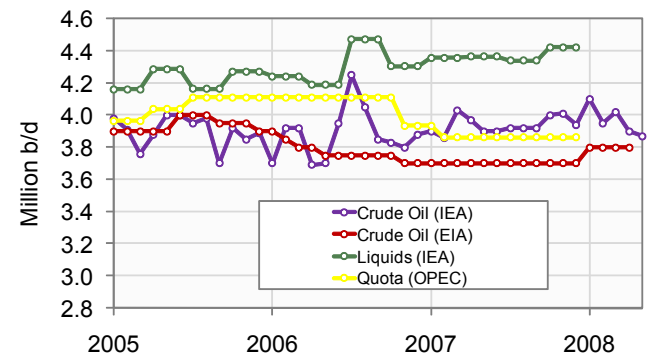
Source: Energy Information Administration & International Energy Agency

**Chart 31:** Iran Production 1930 - 2006



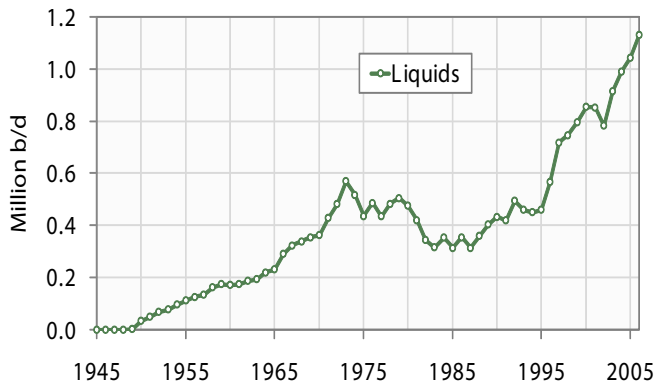
Source: ASPO Ireland & BP Statistical Review

**Chart 32:** Iran Production January 2005 - May 2008



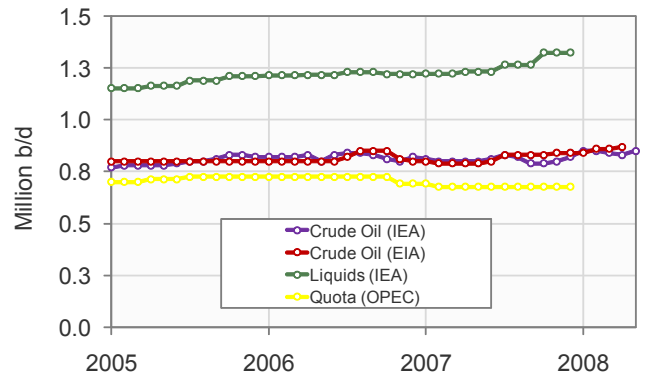
Source: Energy Information Administration & International Energy Agency

**Chart 33:** Qatar Production 1945 - 2006

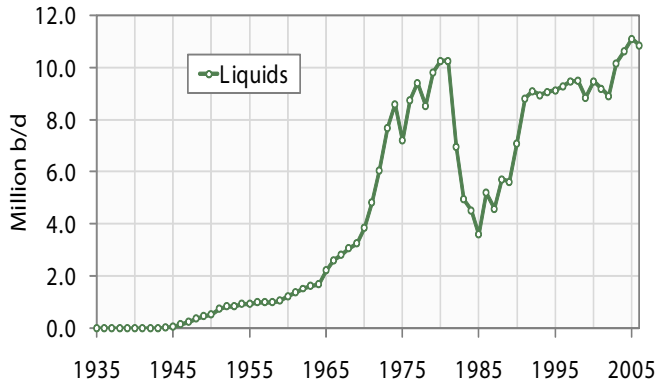


Source: ASPO Ireland & BP Statistical Review

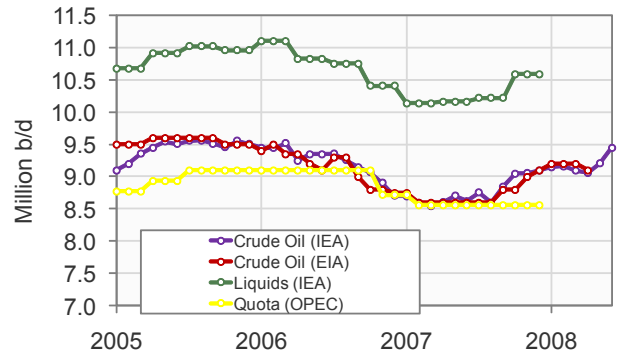
**Chart 34:** Qatar Production January 2005 - May 2008



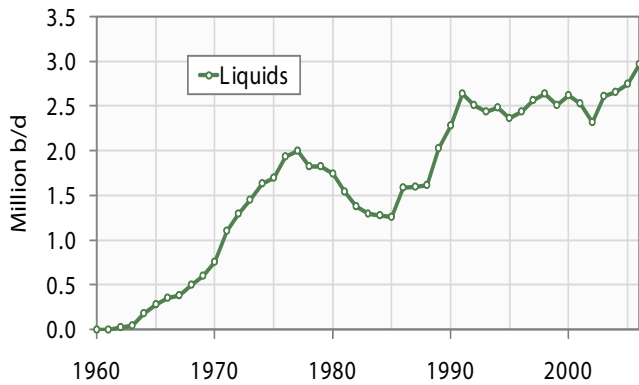
Source: Energy Information Administration & International Energy Agency

**Chart 35: Saudi Arabia Production 1935 - 2006**


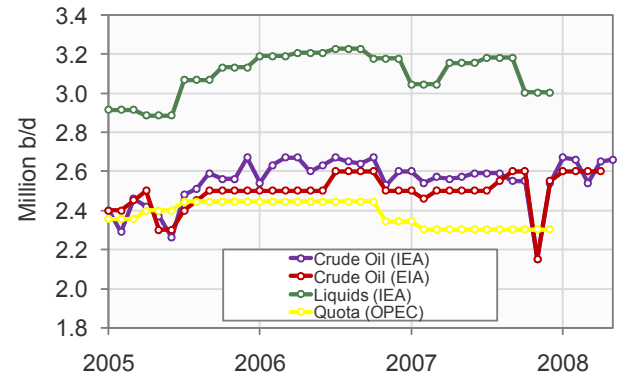
Source: ASPO Ireland &amp; BP Statistical Review

**Chart 36: Saudi Arabia Production January 2005 - June 2008**


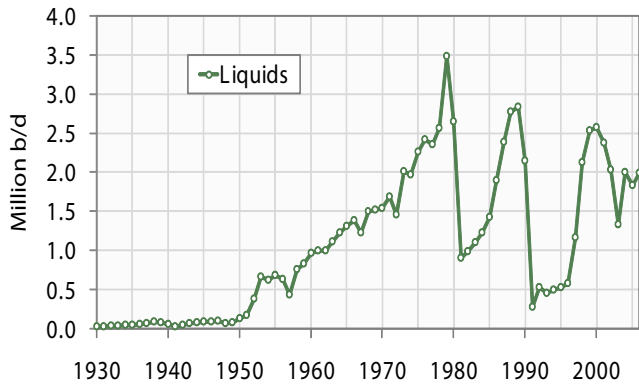
Source: Energy Information Administration &amp; International Energy Agency

**Chart 37: UAE Production 1960 - 2006**


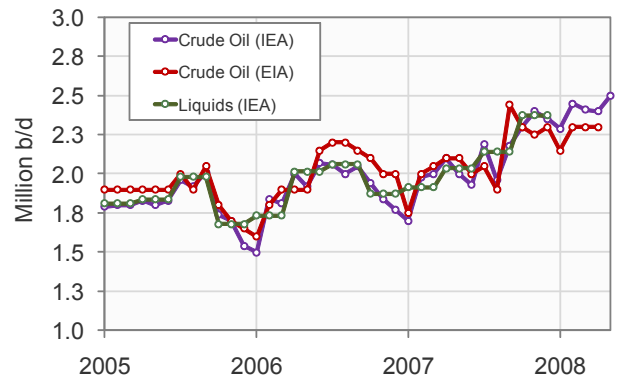
Source: ASPO Ireland &amp; BP Statistical Review

**Chart 38: UAE Production January 2005 - May 2008**


Source: Energy Information Administration &amp; International Energy Agency

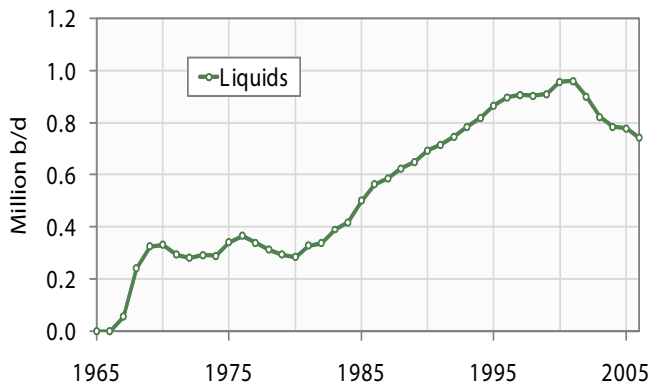
**Chart 39: Iraq Production 1930 - 2006**


Source: ASPO Ireland &amp; BP Statistical Review

**Chart 40: Iraq Production January 2005 - May 2008**


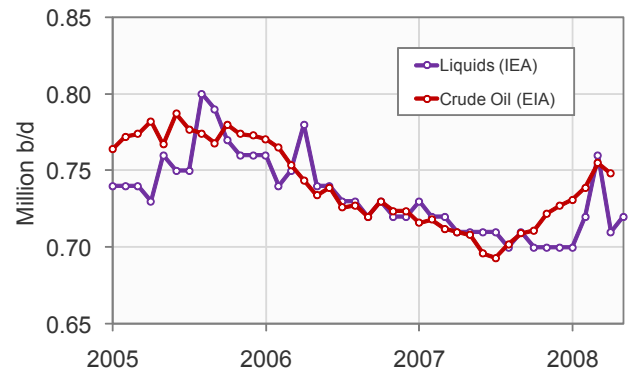
Source: Energy Information Administration &amp; International Energy Agency

**Chart 41:** Oman Production 1965 - 2006



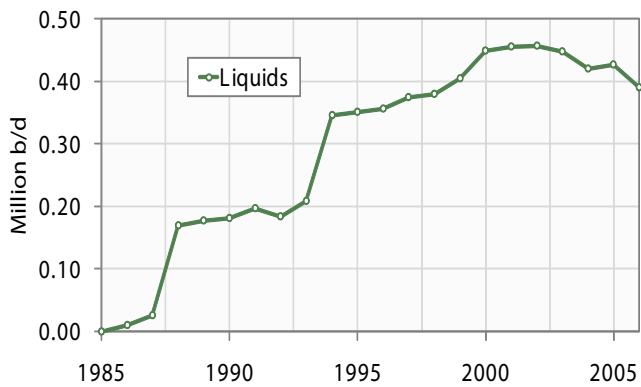
Source: Energy Information Administration & International Energy Agency

**Chart 42:** Oman Production January 2005 - May 2008



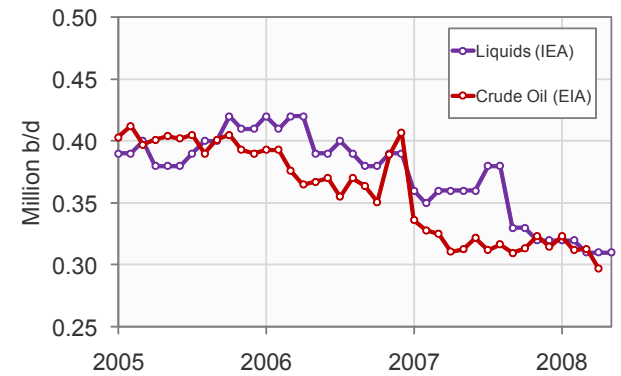
Source: Energy Information Administration & International Energy Agency

**Chart 43:** Yemen Production 1985 - 2006



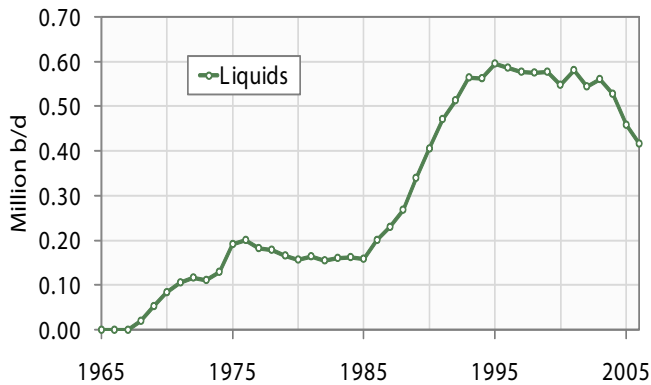
Source: Energy Information Administration & International Energy Agency

**Chart 44:** Yemen Production January 2005 - May 2008



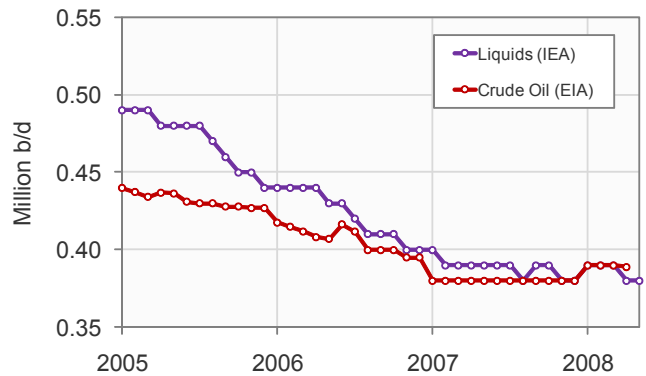
Source: Energy Information Administration & International Energy Agency

**Chart 45:** Syria Production 1965 - 2006

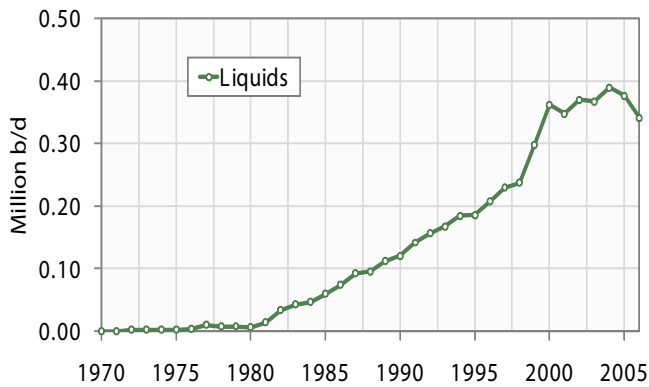


Source: Energy Information Administration & International Energy Agency

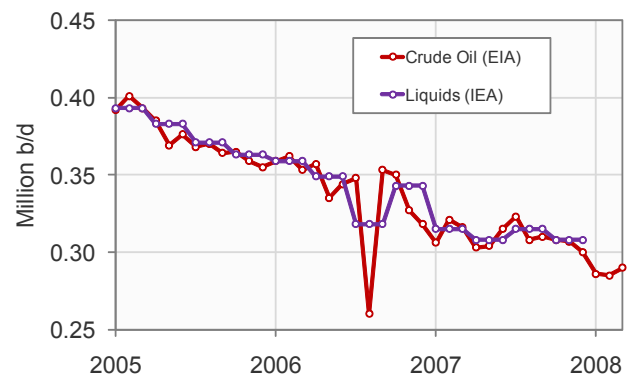
**Chart 46:** Syria Production January 2005 - May 2008



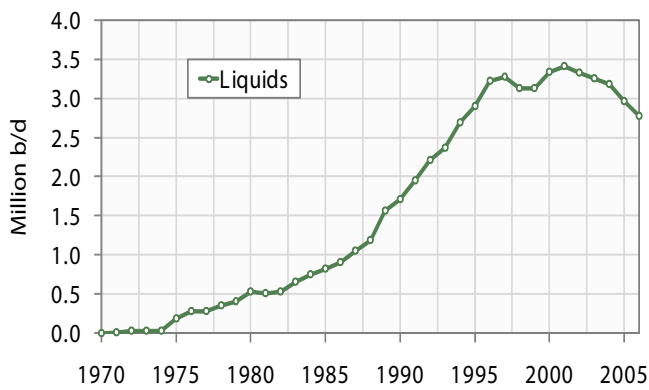
Source: Energy Information Administration & International Energy Agency

**Chart 47: Denmark Production 1970 - 2006**


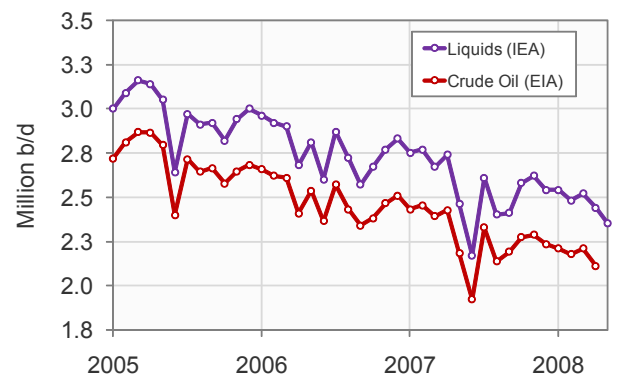
Source: ASPO Ireland &amp; BP Statistical Review

**Chart 48: Denmark Production January 2005 - April 2008**


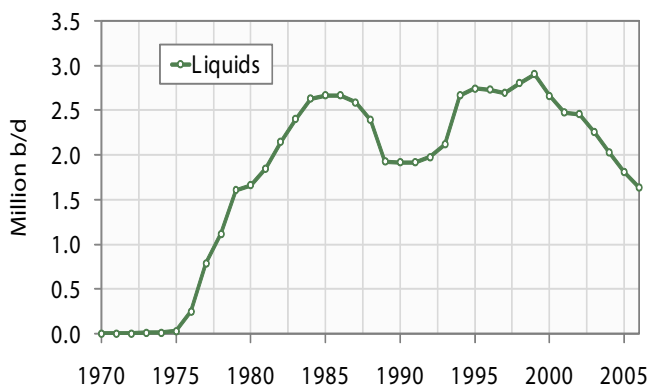
Source: Energy Information Administration &amp; International Energy Agency

**Chart 49: Norway Production 1970 - 2006**


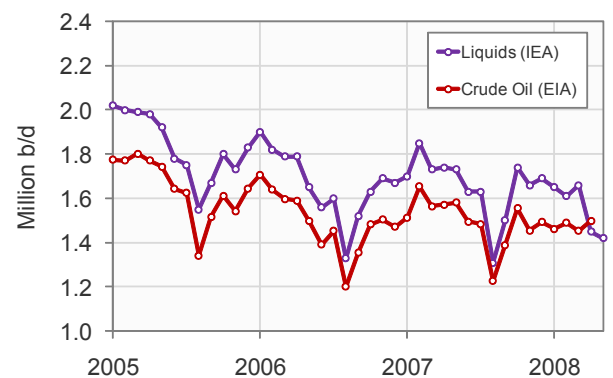
Source: ASPO Ireland &amp; BP Statistical Review

**Chart 50: Norway Production January 2005 - May 2008**


Source: Energy Information Administration &amp; International Energy Agency

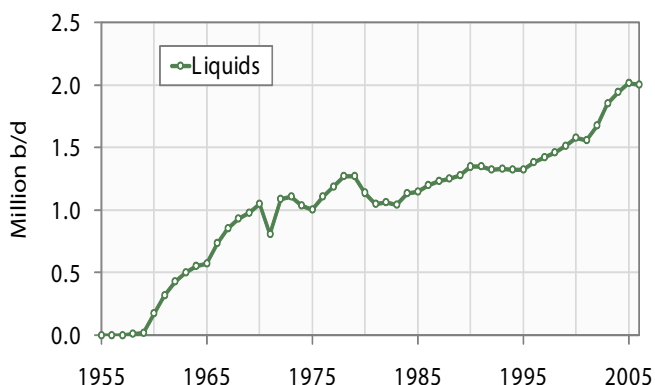
**Chart 51: United Kingdom Production 1970 - 2006**


Source: ASPO Ireland &amp; BP Statistical Review

**Chart 52: United Kingdom Production Jan. 2005 - May 2008**


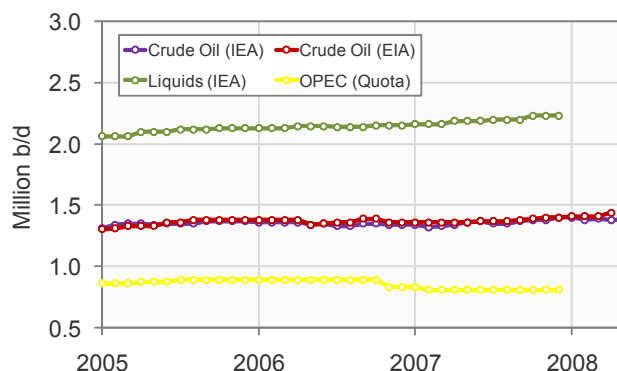
Source: Energy Information Administration &amp; International Energy Agency

**Chart 53:** Algeria Production 1955 - 2006



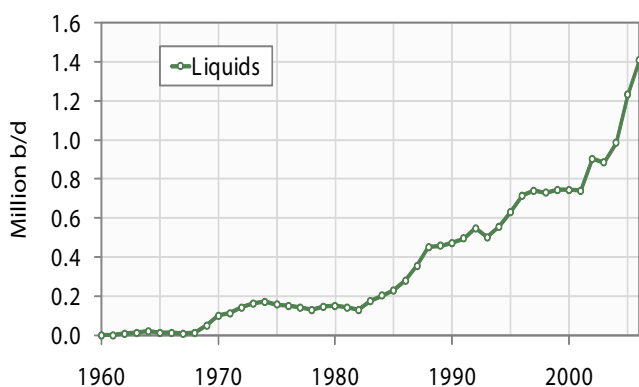
Source: ASPO Ireland & BP Statistical Review

**Chart 54:** Algeria Production January 2005 - May 2008



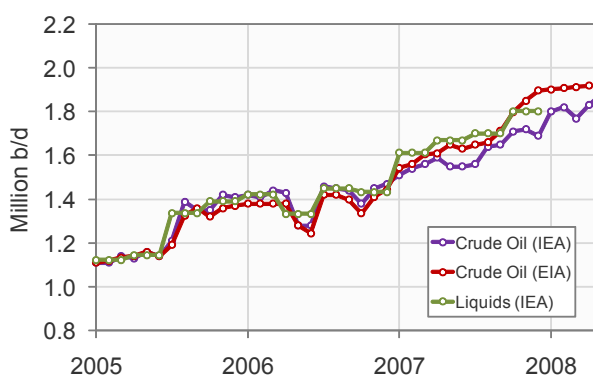
Source: Energy Information Administration & International Energy Agency

**Chart 55:** Angola Production 1960 - 2006



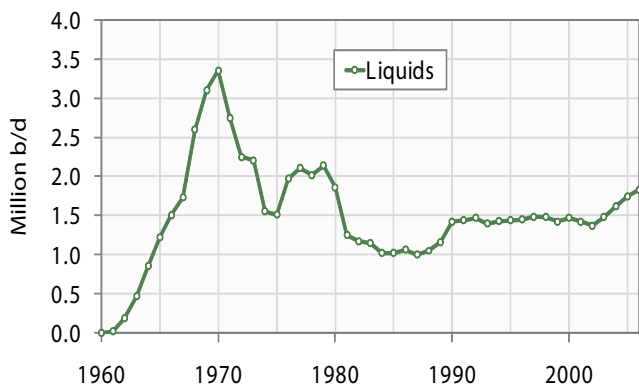
Source: ASPO Ireland & BP Statistical Review

**Chart 56:** Angola Production January 2005 - May 2008



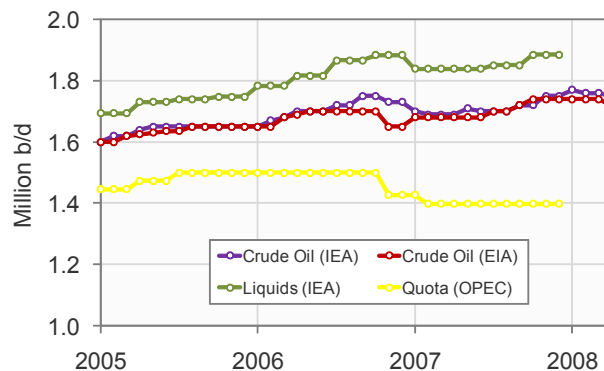
Source: Energy Information Administration & International Energy Agency

**Chart 57:** Libya Production 1970 - 2006

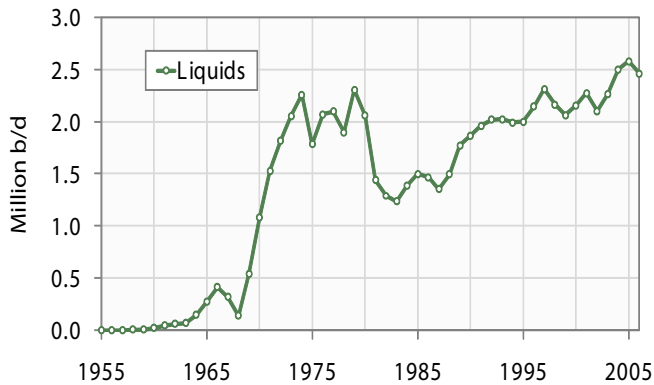


Source: ASPO Ireland & BP Statistical Review

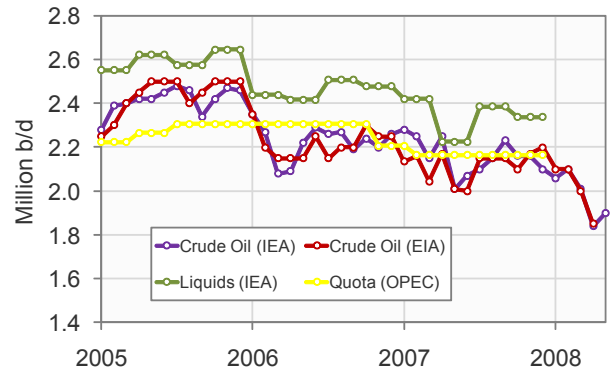
**Chart 58:** Libya Production January 2005 - May 2008



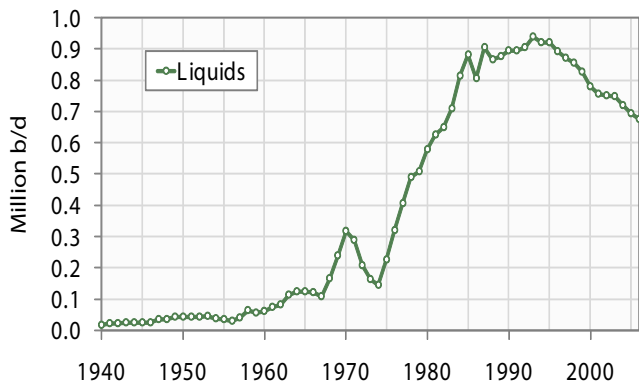
Source: Energy Information Administration & International Energy Agency

**Chart 59: Nigeria Production 1955 - 2006**


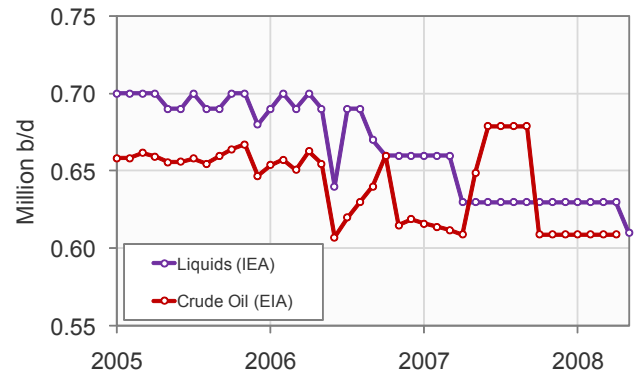
Source: ASPO Ireland &amp; BP Statistical Review

**Chart 60: Nigeria Production January 2005 - May 2008**


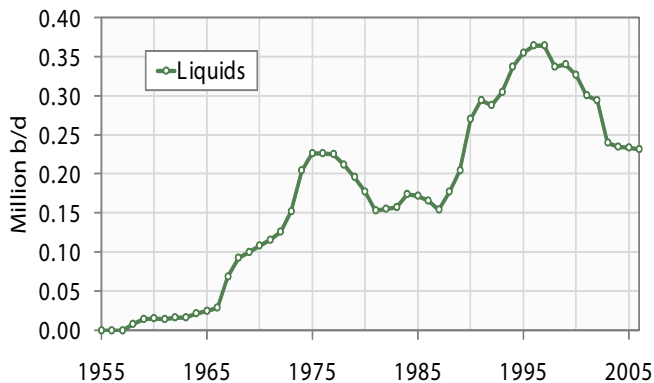
Source: Energy Information Administration &amp; International Energy Agency

**Chart 61: Egypt Production 1940 - 2006**


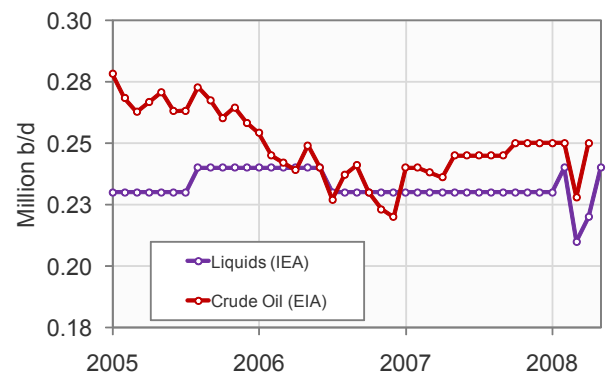
Source: ASPO Ireland &amp; BP Statistical Review

**Chart 62: Egypt Production January 2005 - May 2008**


Source: Energy Information Administration &amp; International Energy Agency

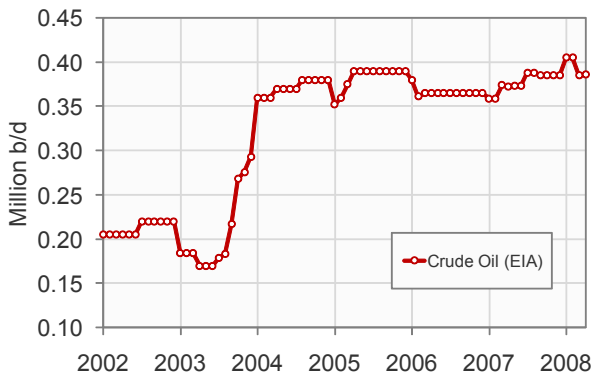
**Chart 63: Gabon Production 1955 - 2006**


Source: ASPO Ireland &amp; BP Statistical Review

**Chart 64: Gabon Production January 2005 - May 2008**


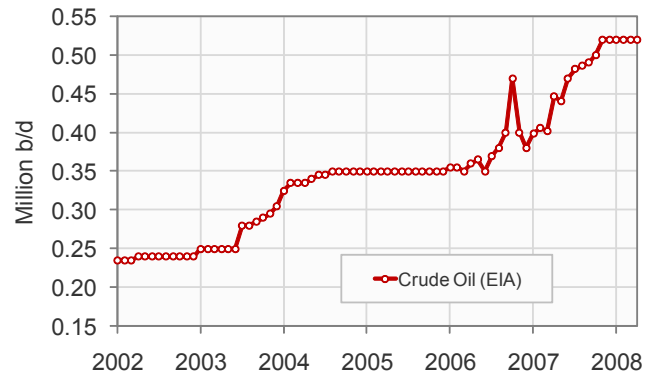
Source: Energy Information Administration &amp; International Energy Agency

**Chart 65:** Equatorial Guinea Production Jan. 2002 - April 2008



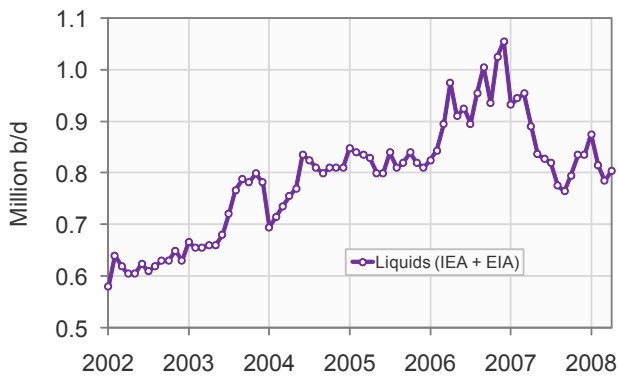
Source: Energy Information Administration

**Chart 66:** Sudan Production January 2002 - April 2008

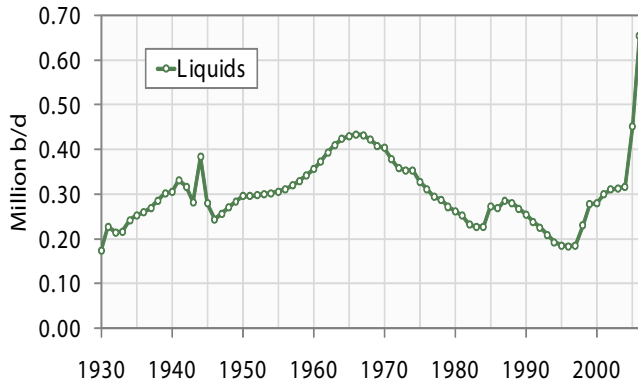


Source: Energy Information Administration

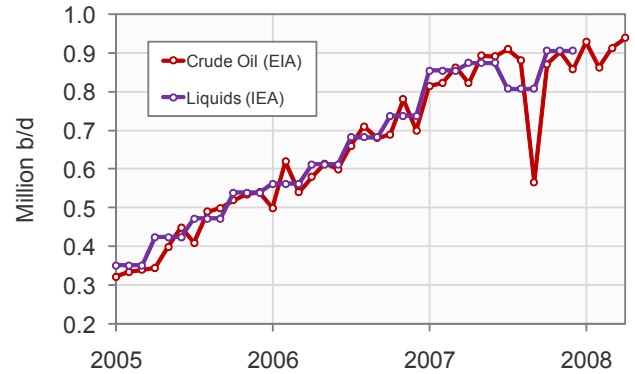
**Chart 67:** Other Africa Production January 2002 - April 2008



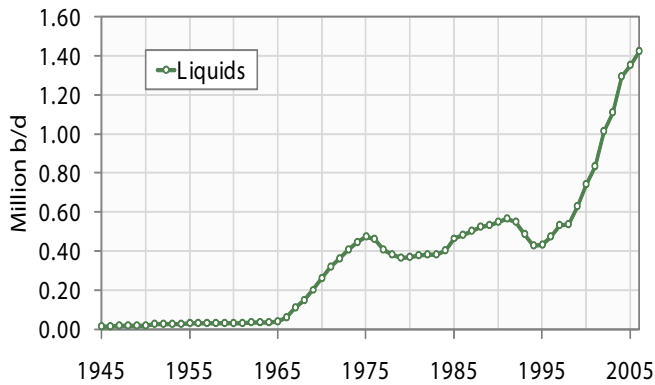
Source: Energy Information Administration & International Energy Agency

**Chart 68:** Azerbaijan Production 1930 - 2006


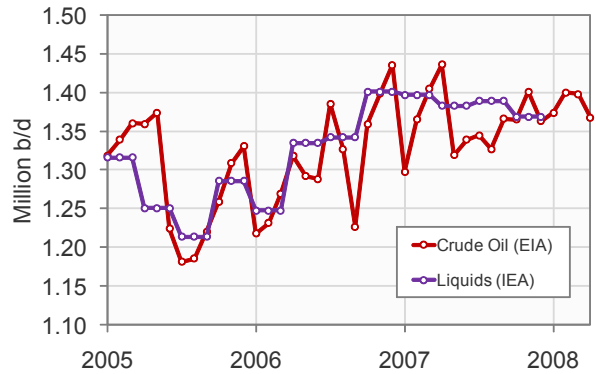
Source: ASPO Ireland &amp; BP Statistical Review

**Chart 69:** Azerbaijan Production January 2005 - April 2008


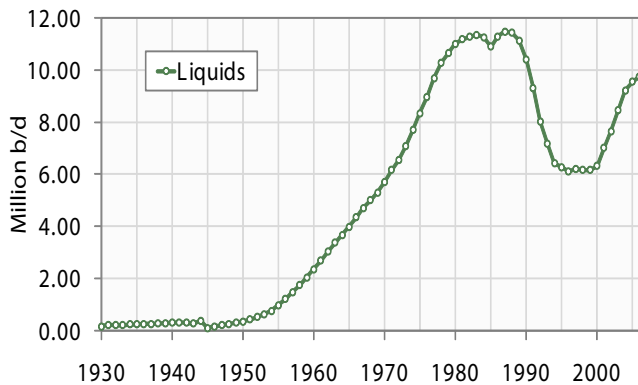
Source: Energy Information Administration &amp; International Energy Agency

**Chart 70:** Kazakhstan Production 1940 - 2006


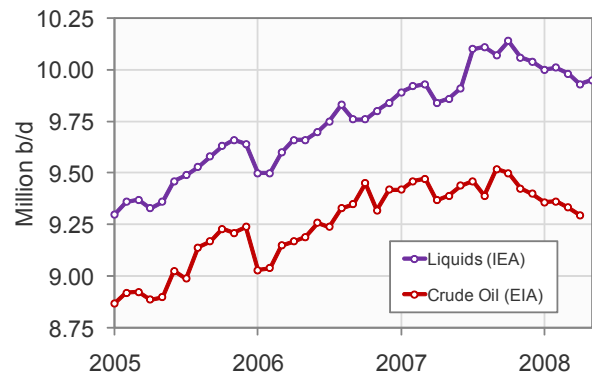
Source: ASPO Ireland &amp; BP Statistical Review

**Chart 71:** Kazakhstan Production January 2005 - April 2008


Source: Energy Information Administration &amp; International Energy Agency

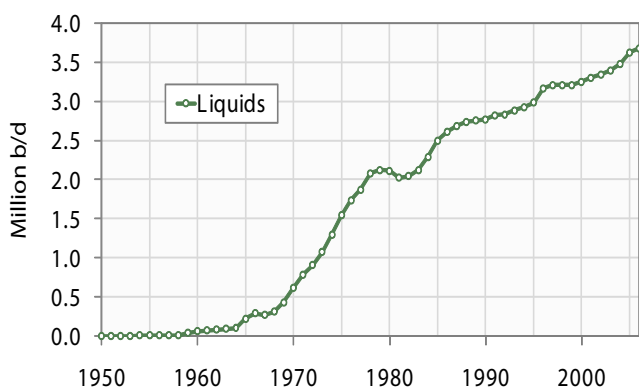
**Chart 72:** Russia Production 1955 - 2006


Source: ASPO Ireland &amp; BP Statistical Review

**Chart 73:** Russia Production January 2005 - May 2008


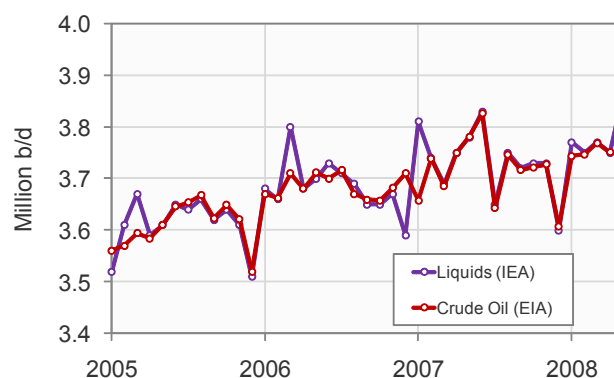
Source: Energy Information Administration &amp; International Energy Agency

**Chart 74:** China Production 1950 - 2006



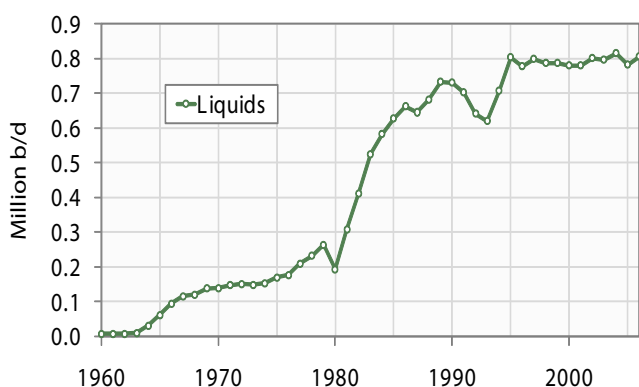
Source: ASPO Ireland & BP Statistical Review

**Chart 75:** China Production January 2005 - May 2008



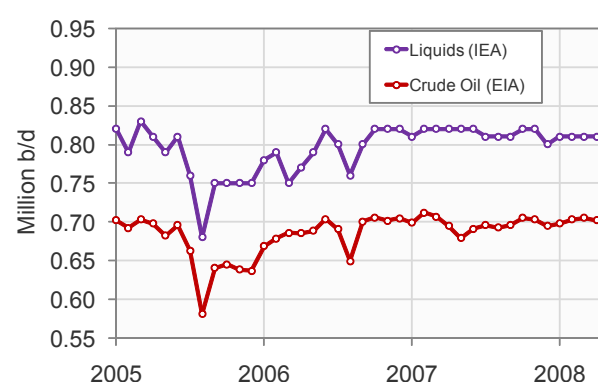
Source: Energy Information Administration & International Energy Agency

**Chart 76:** India Production 1960 - 2006



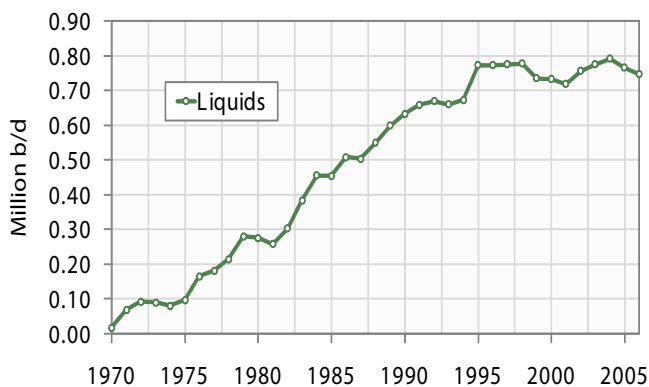
Source: ASPO Ireland & BP Statistical Review

**Chart 77:** India Production January 2005 - May 2008



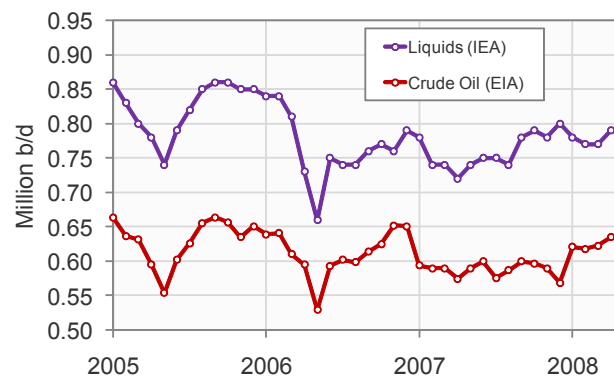
Source: Energy Information Administration & International Energy Agency

**Chart 78:** Malaysia Production 1955 - 2006

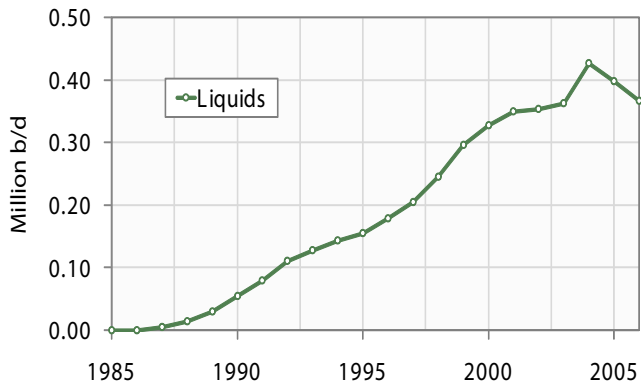


Source: ASPO Ireland & BP Statistical Review

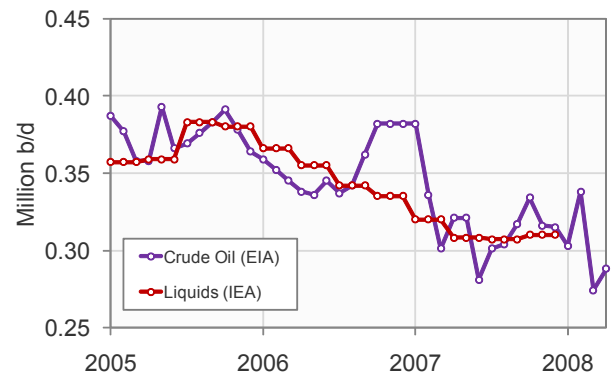
**Chart 79:** Malaysia Production January 2005 - May 2008



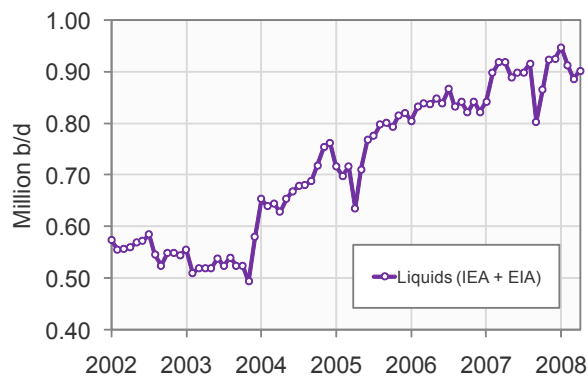
Source: Energy Information Administration & International Energy Agency

**Chart 80:** Vietnam Production 1955 - 2006


Source: ASPO Ireland & BP Statistical Review

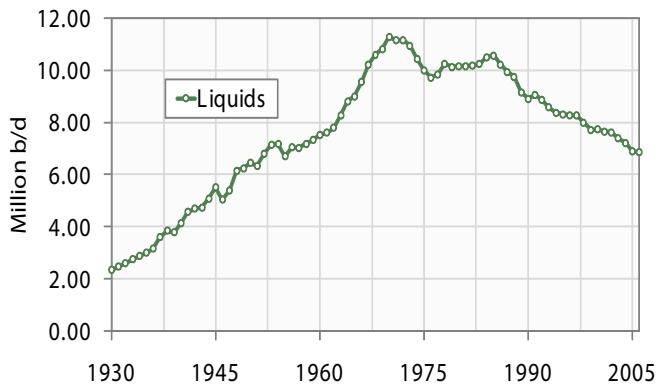
**Chart 81:** Vietnam Production January 2005 - April 2008


Source: Energy Information Administration & International Energy Agency

**Chart 82:** Other Asia Production January 2002 - April 2008


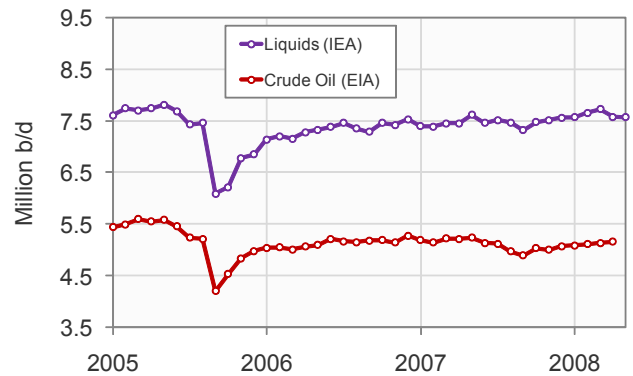
Source: Energy Information Administration & International Energy Agency

**Chart 83:** United States Production 1930 - 2006



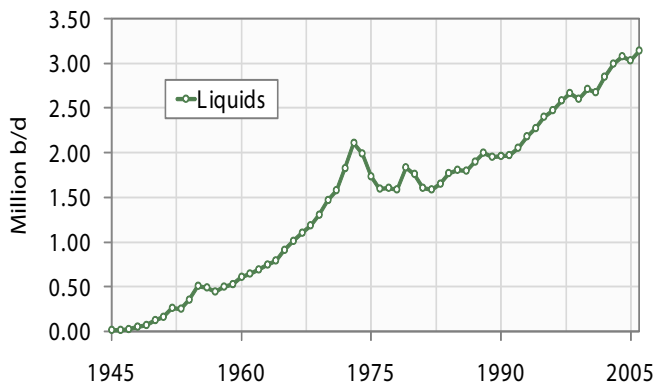
Source: ASPO Ireland & BP Statistical Review

**Chart 84:** United States Production January 2005 - May 2008



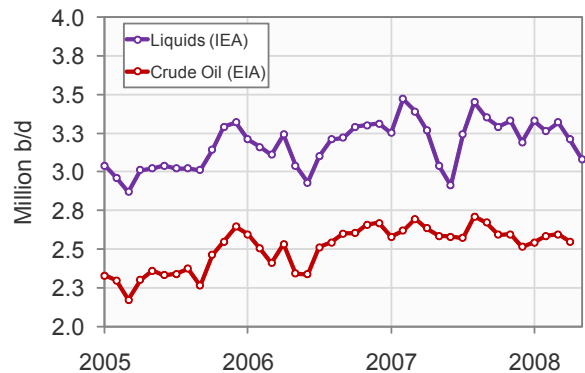
Source: Energy Information Administration & International Energy Agency

**Chart 85:** Canada Production 1945 - 2006



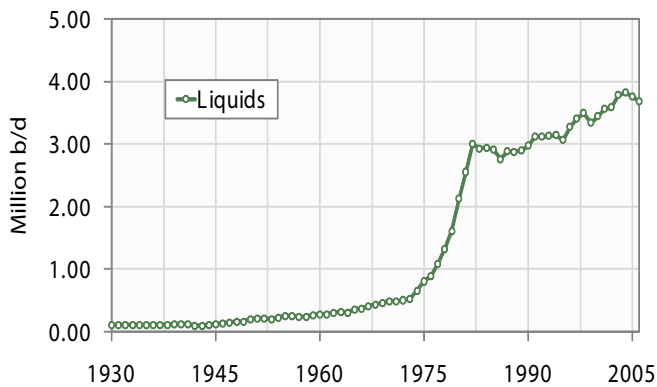
Source: ASPO Ireland & BP Statistical Review

**Chart 86:** Canada Production January 2005 - May 2008



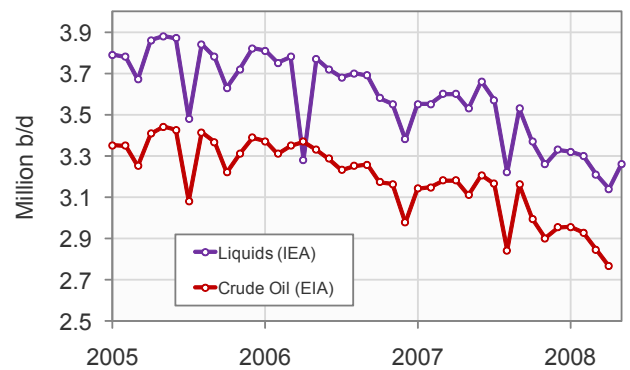
Source: Energy Information Administration & International Energy Agency

**Chart 87:** Mexico Production 1930 - 2006

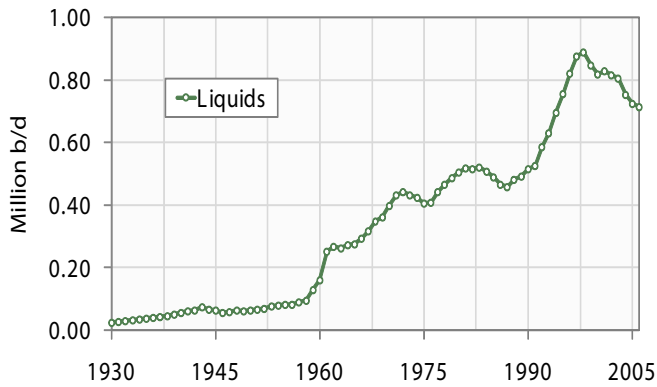


Source: ASPO Ireland & BP Statistical Review

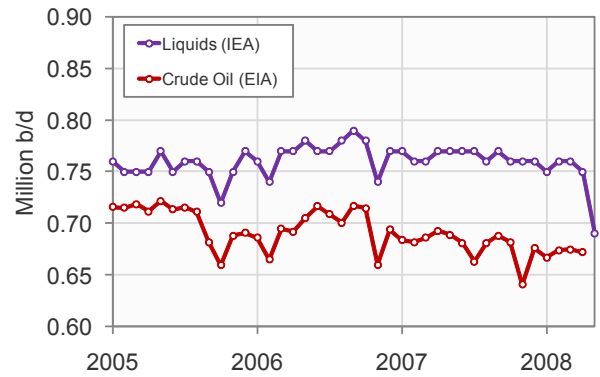
**Chart 88:** Mexico Production January 2005 - May 2008



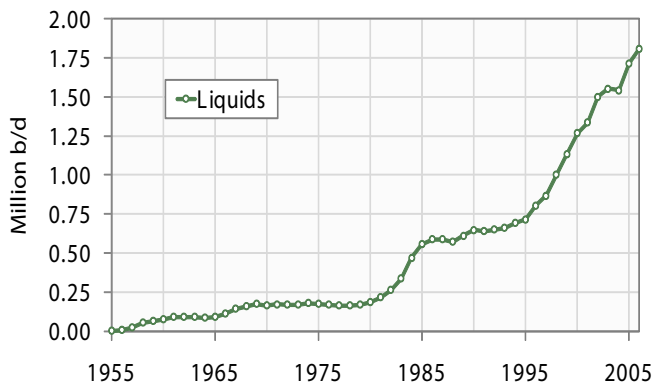
Source: Energy Information Administration & International Energy Agency

**Chart 89: Argentina Production 1930 - 2006**


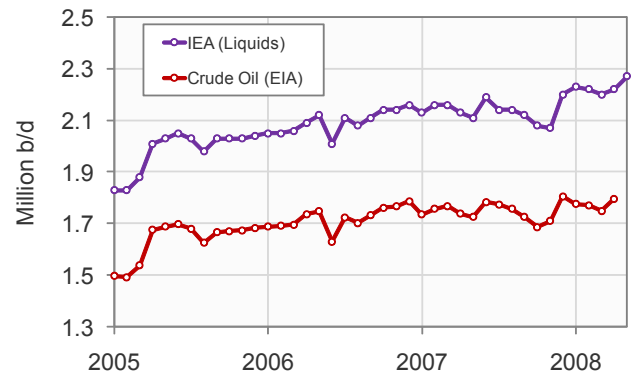
Source: ASPO Ireland &amp; BP Statistical Review

**Chart 90: Argentina Production January 2005 - May 2008**


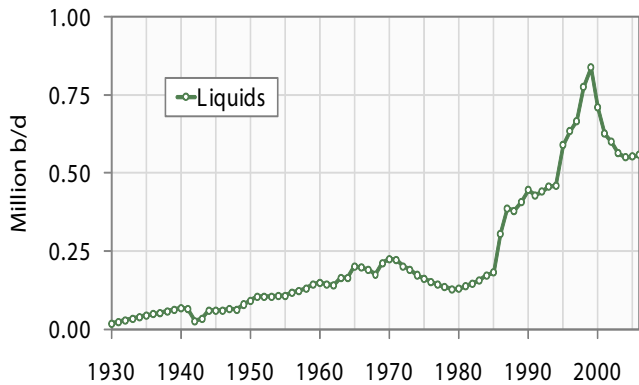
Source: Energy Information Administration &amp; International Energy Agency

**Chart 91: Brazil Production 1955 - 2006**


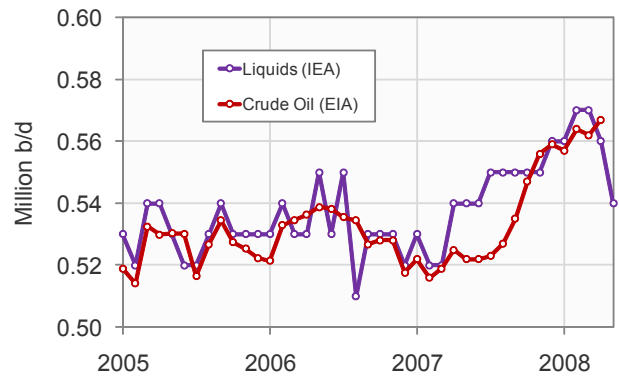
Source: ASPO Ireland &amp; BP Statistical Review

**Chart 92: Brazil Production January 2005 - May 2008**


Source: Energy Information Administration &amp; International Energy Agency

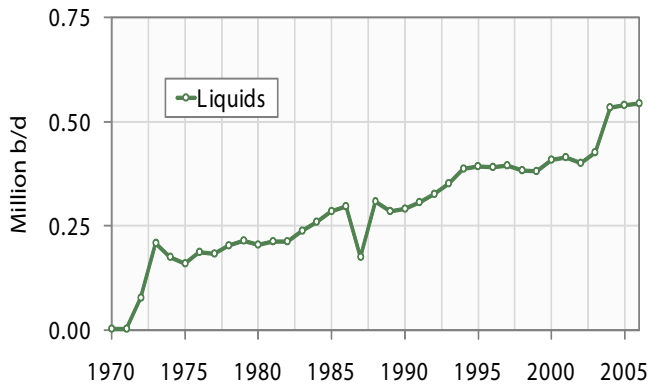
**Chart 93: Colombia Production 1930 - 2006**


Source: ASPO Ireland &amp; BP Statistical Review

**Chart 94: Colombia Production January 2005 - May 2008**


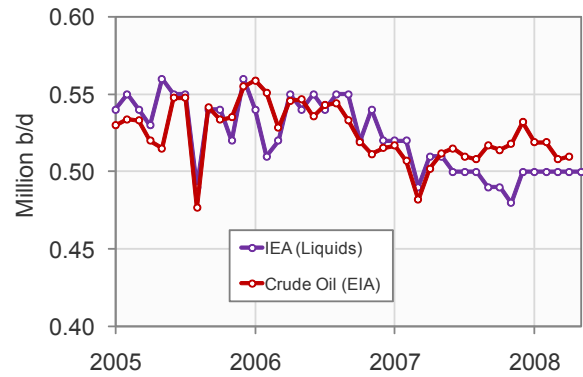
Source: Energy Information Administration &amp; International Energy Agency

**Chart 95:** Ecuador Production 1970 - 2006



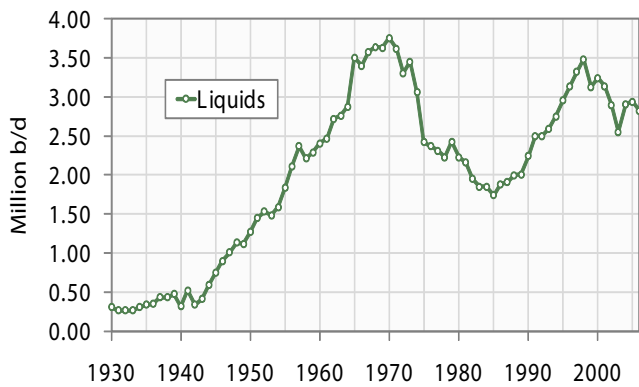
Source: ASPO Ireland & BP Statistical Review

**Chart 96:** Ecuador Production January 2005 - May 2008



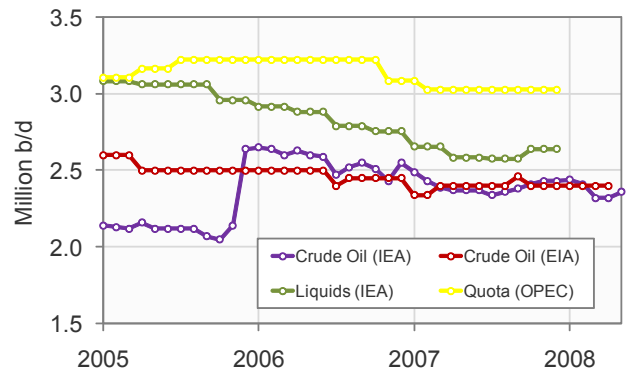
Source: Energy Information Administration & International Energy Agency

**Chart 97:** Venezuela Production 1930 - 2006



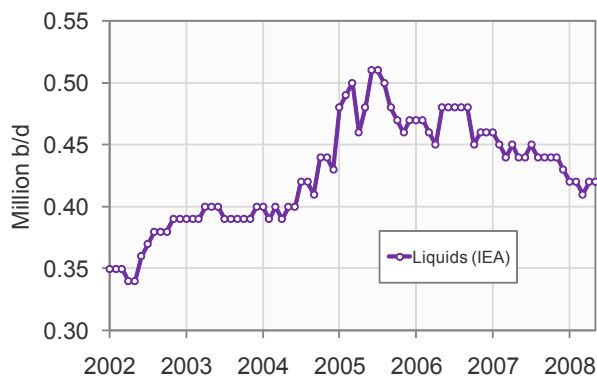
Source: ASPO Ireland & BP Statistical Review

**Chart 98:** Venezuela Production Jan. 2005 - May 2008

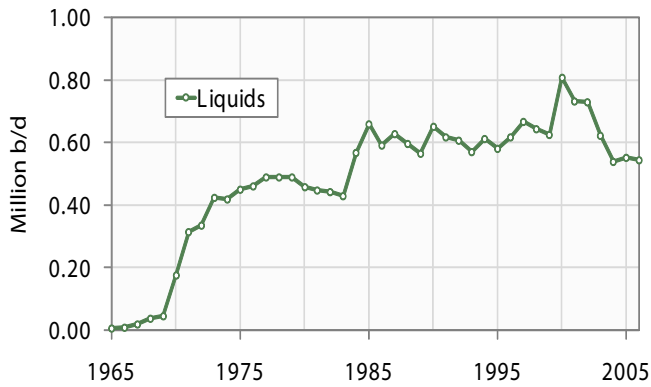


Source: Energy Information Administration & International Energy Agency

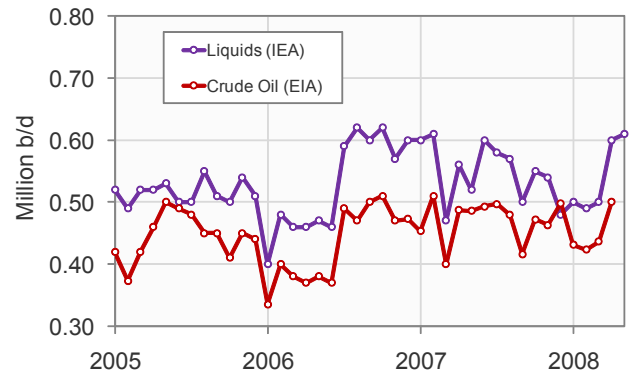
**Chart 99:** Other S. America Production Jan. 2002 - May 2008



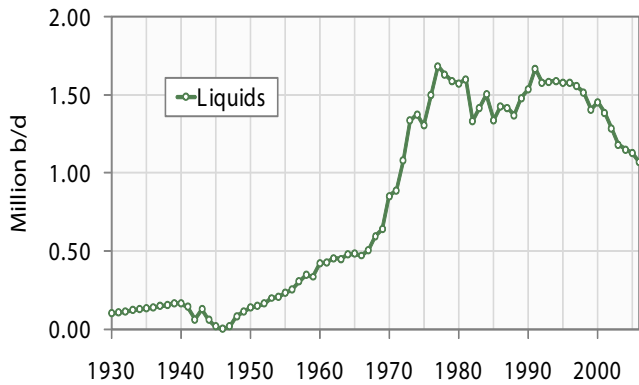
Source: International Energy Agency

**Chart 100: Australia Production 1970 - 2006**


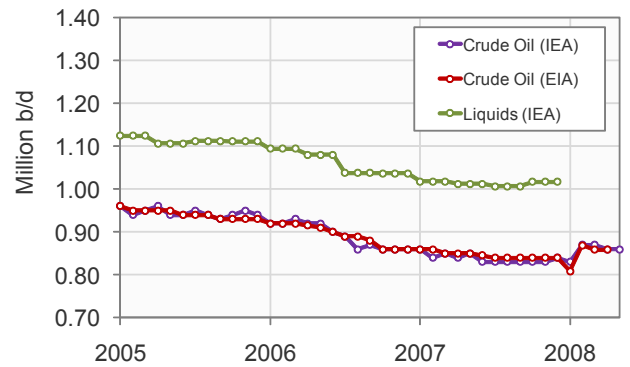
Source: ASPO Ireland &amp; BP Statistical Review

**Chart 101: Australia Production January 2005 - May 2008**


Source: Energy Information Administration &amp; International Energy Agency

**Chart 102: Indonesia Production 1930 - 2006**


Source: ASPO Ireland &amp; BP Statistical Review

**Chart 103: Indonesia Production January 2005 - May 2008**


Source: Energy Information Administration &amp; International Energy Agency