

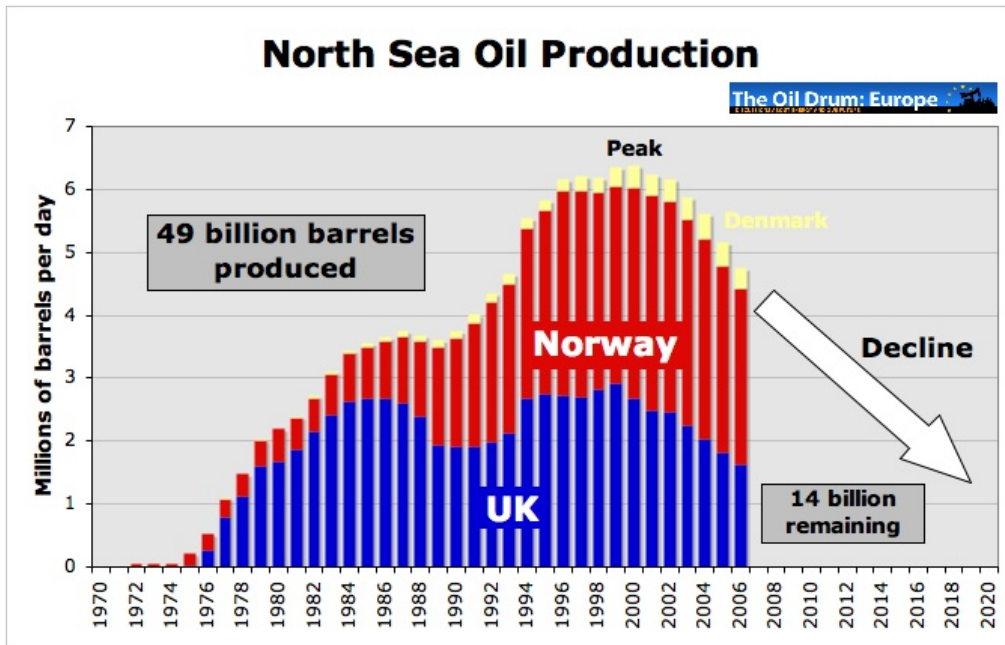


## Why oil costs over \$130 per barrel: the decline of North Sea Oil

Posted by [Euan Mearns](#) on June 9, 2008 - 8:00am in [The Oil Drum: Europe](#)

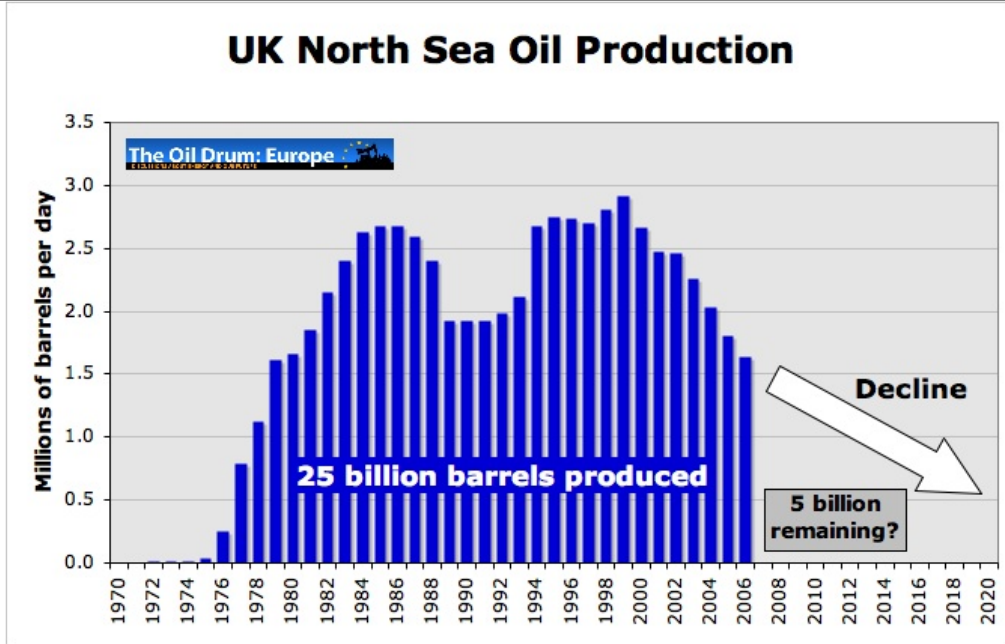
Topic: [Economics/Finance](#)

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Rising North Sea oil production was a significant factor in keeping oil prices under control in the 1970s, 80s and 90s. Production peaked at 6.4 million barrels per day in 2000 and since then, declining North Sea Oil production is one significant reason that oil prices are now rising exponentially.

### The UK



Crude oil, condensate and natural gas liquids (C+C+NGL) production. Source [BP statistical review of world energy](#) published 2007 with data up to 2006.

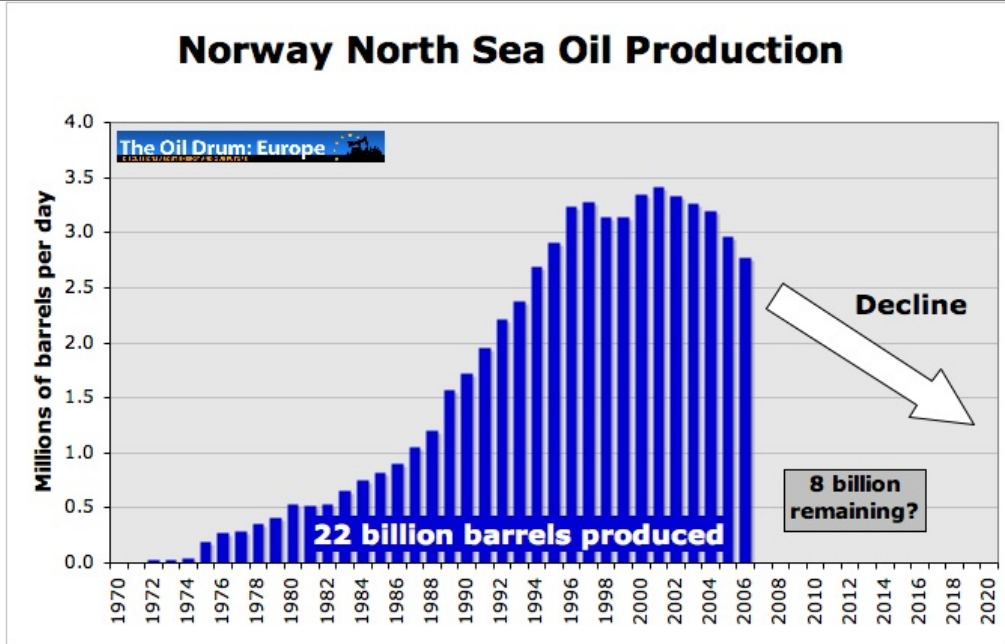
- UK oil production has two peaks and it is vitally important to understand that the reason for peak 1 in 1986 and peak 2 in 1999 are quite different, since many observers seem to think that production may begin to rise again as it did in the early 90s..
- Rising North Sea Oil production contributed to the oil price crash of 1986. Deferred investment resulting from this is the principal reason for decline in 1987. This was made worse by the Piper Alpha oil rig explosion of 1988. These are above ground factors.
- The all time high of 2.9 million bpd was reached in 1999. Decline that began in 2000 is caused by resource depletion and exhaustion of reservoir energy. It is no longer possible to bring on new small fields fast enough to compensate for natural decline and the trend that has now existed for 8 years will likely continue down as indicated.

### From riches to rags

- The UK was an oil exporting country from 1980 to 2005. This had significant positive impact upon the trade balance. In 2006 production dropped below consumption levels and the UK once again became an oil importing country and will be an oil importer from now on.
- High prices will cause consumption to fall through conservation and pricing poor people out of the energy market. Thus it is difficult to forecast what the future consumption, production and price curves will look like. But by way of example, importing 200,000 bpd at \$138 per barrel will add \$10 billion per annum to the trade deficit.

Throughout this article referring to the North Sea is a simplification. Whilst most UK oil production does come from the North Sea, there are significant fields off south England, in the Irish Sea and on the Atlantic margin, west of Shetland. Norway also has significant production from the Atlantic margin off mid and north Norway. The data from these regions are all lumped together.

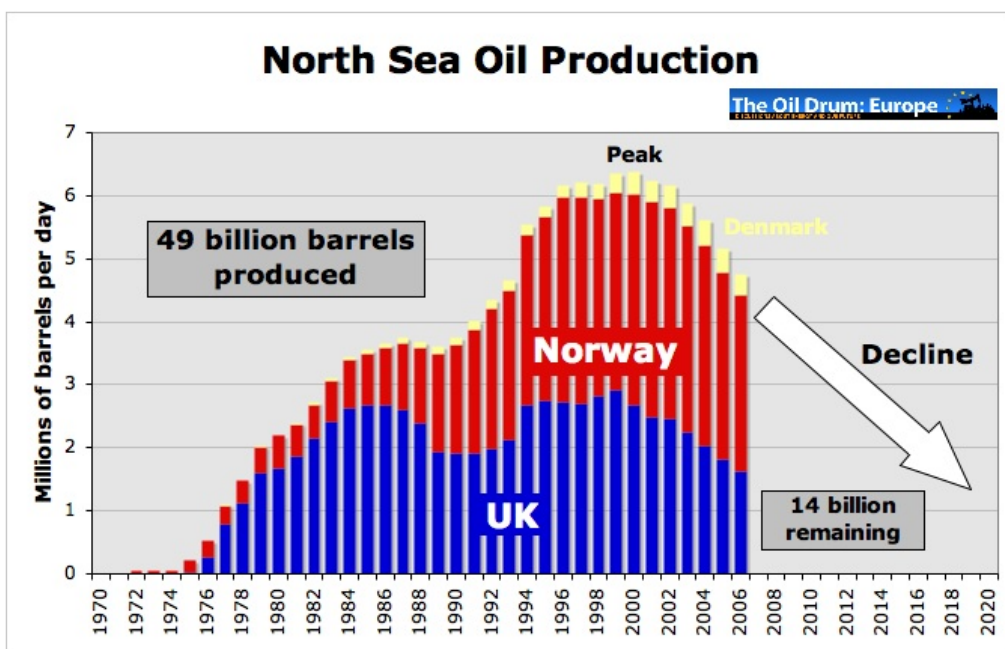
### Norway



Crude oil, condensate and natural gas liquids (C+C+NGL) production. Source [BP statistical review of world energy](#) published 2007 with data up to 2006.

- Norwegian oil production is shaping up to have a classic Hubbert bell shape curve.
- Production peaked in 2001 at 3.4 million bpd.
- As in the UK, the majority of Norway's giant world class fields have been developed and are in decline. The oil is gone. Smaller fields being developed now are not large enough to compensate for decline which will likely continue as indicated.
- Norway with a population of only 4.6 million, exports most of its oil. These exports are falling
- With a vast continental shelf that extends along the Atlantic margin and into the Barents Sea, the prospect of new discoveries are much better in Norway than in the UK.

## The North Sea



Crude oil, condensate and natural gas liquids (C+C+NGL) production. Source [BP statistical](#)

- Adding the small amount of production from Denmark to that for Norway and the UK provides this integrated picture for North Sea Oil production.
- Production peaked at 6.4 million bpd in 2000 and decline will likely continue as indicated.
- With falling North Sea oil production Europe will have to import more oil each year in competition with other regions (the USA and China) from a decreasing number of countries that actually have oil for export. **This is one of the main reasons that the oil price is rising exponentially.**

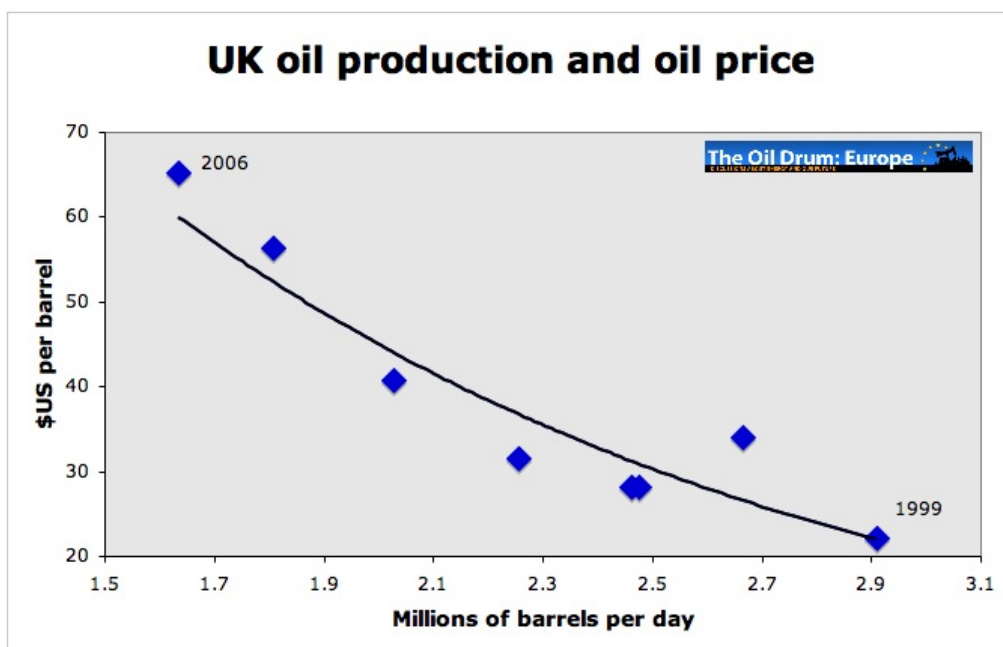
**A note on reserves figures** The remaining reserves figures reported above are for the discovered and developed resource. There may be some incremental growth in these numbers with new discoveries and deployment of Enhanced Oil Recovery (EOR) technologies. These are unlikely to make a huge difference, even if an additional 10 billion barrels are produced between 2030 and 2050. What matters are declining flow rates now that will likely persist for the foreseeable future.

## Technology

Horizontal drilling, 3D seismic and dynamically positioned production ships have been deployed for over a decade. The incremental oil these technologies produce are embedded in the production data. Simply continuing to do what you are already doing will not change the decline trends.

The one technology that is not widely deployed that would add some incremental oil is [CO<sub>2</sub> miscible gas flooding of reservoirs](#). This would not change the picture very much but would reduce the decline rate and extend field life. The North Sea desperately needs this technology deployed. The UK government failed to support the flagship [BP Boddam - Miller scheme](#) and the Miller Field is now shut down. Indifference and ignorance on the part of the British and other OECD governments is another reason the oil price is rising exponentially.

## Economists



*Steadily rising oil price since 1999 has had little discernible impact upon declining UK oil*

**production. Where economists want to see a positive correlation between production and price the reality in a post peak oil world is the exact opposite - a negative correlation.** Annual oil price and production data from the [BP statistical review of world energy](#)

There are many economists involved in running UK and European government agencies. Classical economics thinking is that high price will stimulate production and reduce consumption providing an amiable equilibrium between supply and demand.

In natural resource exploitation this rule works during the exploration and production build up where high price may stimulate fruitful exploration effort and new field development projects. However, once past peak, these rules break down and do not apply. It seems there are no economists around that understand this simple point. Once a resource is gone, used up, no amount of money in the world will bring it back. Economists who advise that production will somehow do a U-turn as prices rise are doing untold harm. This false hope, optimistic message grasped by politicians, is blocking the action required to mitigate for peak oil. This is another reason oil now costs over \$130 per barrel. Vigorous expansion of all viable alternative energy sources may reduce demand for oil and that will bring down the oil price.

High price may slow the decline of the North Sea a bit but it cannot invent fields to be discovered or alter the rules of reservoir physics that dictate decline. Since high price will not stimulate much new production in mature provinces like the North Sea the only route available is demand destruction. The oil price will stop rising when gasoline gets too expensive and we stop using it.

### **31 Billion barrels per year**

With production running at 86 million barrels per day, that means we are consuming 31 billion barrels of oil every year. It is a sobering thought that by the time the Sun sets upon the whole of the North Sea, it will have produced enough oil to fuel planet Earth for just 2 years. To keep the oil party going we need to discover a "new North Sea" every two years and the last time we managed that rate of discovery was in the late 1980s, 20 years ago. We have been living off savings since then, and the bank balance is running down. It is not possible to get an oil overdraft or to create an energy instrument to magic oil and energy out of nothing. There is no choice other than to reduce our oil consumption and it is much better that we do this in a controlled way than to let high energy prices and inflation rip through our economies - which is exactly what is happening now.



*The Brent Field. One of the UK's largest producers of oil and gas. Field operator Shell are [in discussion with the UK government about decommissioning this icon of the North Sea](#). Image from [Oil Rig Photos](#)*

More detailed analysis can be found in the following articles:

[EU oil imports set to grow by 29% by 2012](#)

[The architecture of UK offshore oil production in relation to future production models](#)

[UK Energy Security](#)



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