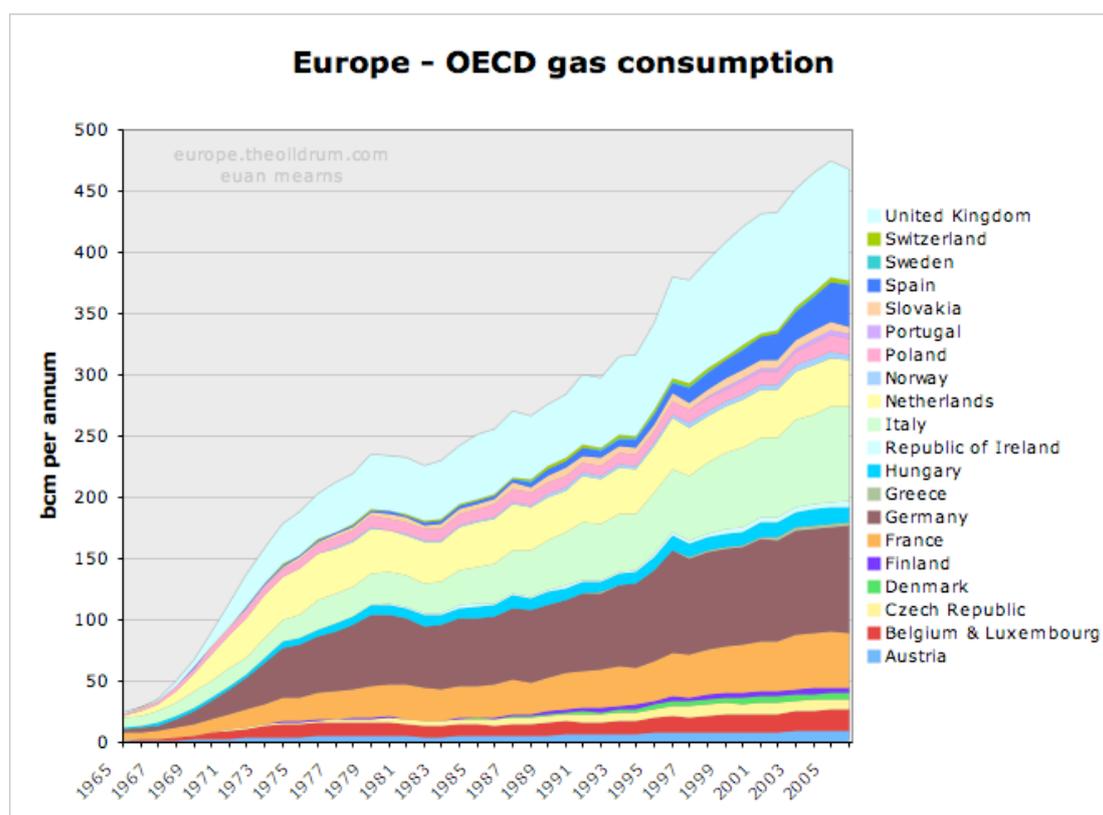


European Gas Security

Extended abstract of presentation to be delivered to ASPO Italy, Turin 3rd May 2008

Euan Mearns BSc PhD
Editor The Oil Drum Europe

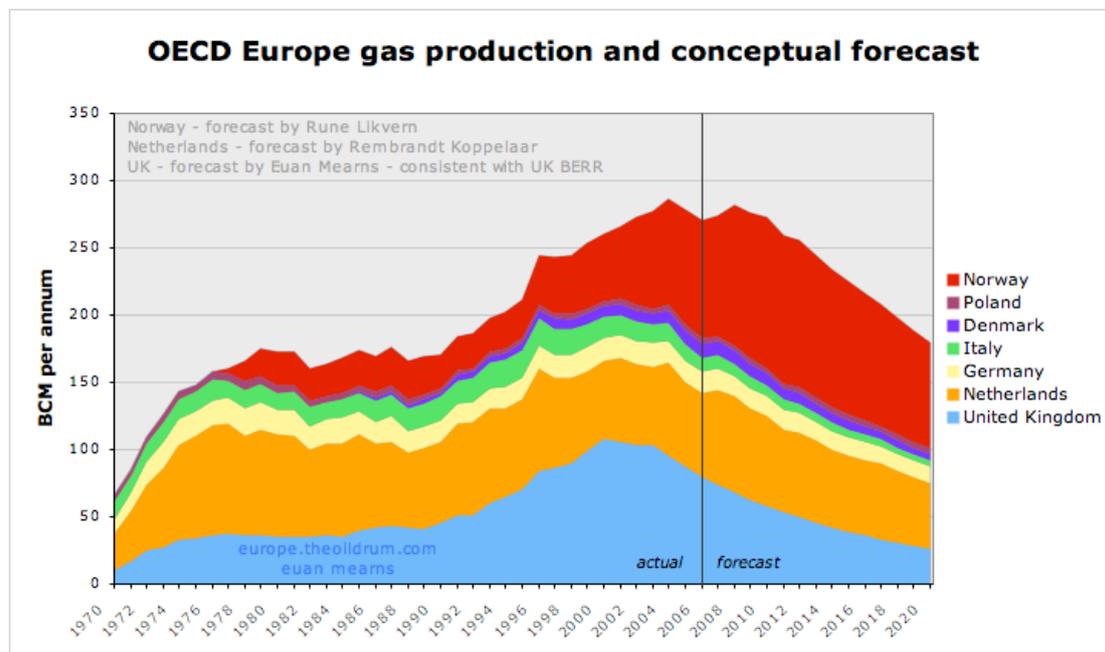
The role of natural gas in the fossil fuel (FF) energy mix of OECD Europe has grown rapidly in the period since 1965 (when BP records began) from 2.4% to over 29% today. Gas consumption has grown from 25 billion cubic meters (BCM) per annum in 1965 to over 450 BCM per annum.



This expansion of natural gas consumption was made possible by (indeed caused by) the discovery of large supplies of natural gas in the North Sea. These indigenous supplies of gas were however supplemented by abundant supplies of gas available on Europe's borders in particular from Russia to the East and Africa, especially Algeria, to the South.

Natural gas is seen as a clean burning fossil fuel. Coal, which it largely displaced, produced soot, smog and acid rain. Natural gas was a clean high tech fuel with none of these pollution problems. The dash for gas was initially in domestic home heating, where it displaced town gas (made from coal) and coal burning fires. It also became the heating fuel of choice for industry and commerce. Since 1990 it has also been used increasingly in power generation – again displacing old inefficient, polluting coal fired plant.

It is fair to say that Europe has become addicted to natural gas and now faces a problem since there are clear signs that this energy source, which once flowed freely from beneath the waters of the North Sea, is beginning to decline.



The security of European gas supplies can be examined at three levels of decreasing security:

1. Indigenous supplies
2. Contiguous import supplies, e.g. Russia
3. LNG imports

OECD Europe has three main indigenous suppliers of gas – Holland, the UK and Norway, with lesser amounts produced by Denmark, Italy, Germany and Poland. Dutch gas production is regulated, peaked in 1975 and looks set to fall steadily in future. UK gas production peaked in 2001, and is in steady decline. Norwegian gas production looks set to peak around 2009 and declining supplies of gas from Norway will have a profound effect upon the European gas market.

Many observers hope that Russia will increase gas supplies to Europe, assuming huge resources in much the same way that OPEC is seen to have huge reserves of oil. Russia has been a reliable supplier of gas, even throughout the cold war, but will be unable to supply gas that it does not have. Over two thirds of Russian production is consumed domestically meaning that the one third that is exported is exposed to any down turn in Russian production or increase in Russian consumption. The super giant Russian gas fields of Urengoy, Yamburg and Medvezhye are all in decline and new field developments that Russia has in progress (Bovanenko, Rusanovskoye and Shtockman et al) will at best compensate for that decline. It is considered unlikely that Russia could increase supplies to Europe and we will be fortunate if current supplies are maintained for another decade.

Gas exports to Europe from North Africa (Algeria, Libya and Egypt) are currently expanding through pipeline and LNG. These gas exports are expected to peak around 2015. In particular, rapidly expanding gas production in Egypt is increasingly being consumed at home.

Japan and South Korea have been importing liquefied natural gas (LNG) for decades but this market is just in the process of globalising as European and North American indigenous supplies run down. Cold weather this year in North America and East Asia has led to record prices paid for LNG cargos.

Many countries are counting on LNG imports for future energy supplies and both LNG export and import facilities are being constructed at record speed. There is a global imbalance between export (liquefaction) and import (re-gasification) facilities with the latter approximately double the former and this situation looks set to persist. The bottom line is that global supply of LNG will be unable to meet demand – hence escalating prices.

The vast majority of natural gas and LNG is consumed in the northern hemisphere. Demand is cyclic, rising significantly in the winter months. This means that global demand is skewed heavily towards the northern hemisphere winter. This has always presented a supply problem that is countered by gas storage that is filled during the summer months for use in winter. However, winter demand is also met by cycling indigenous supply. As indigenous supplies run down, ability to meet winter demand in this way is impaired hence more gas storage will have to be built. Filling storage is set to place greater strain on summer supplies and eventually the cyclic demand for gas will disappear when increased demand in summer to fill storage matches the seasonal increase to combat cold winter conditions.

Natural gas prices look set to continue their meteoric rise as many wealthy countries that have become strategically dependent upon gas (domestic central heating and power generation are non-negotiable services) out bid each other for inadequate supplies of LNG. This situation is made worse by the fact that historic supplies are based on long term contracts struck at low price and as these contracts expire, cheap contract prices will be supplanted by high and rising spot prices.

Where will this end? It is near impossible to forecast and national governments will rely upon market forces to determine the outcome. Rising gas prices will reduce demand and will most likely create energy poverty throughout low-income groups in Europe. There is also the ever present threat of geo-political instability on Europe's borders as poorer countries are outbid for gas supplies and have to go without. Jean Laherrere has forecast a peak in global gas supplies in 2029. Thereafter, most countries that import gas will have to make do with less.

Whilst national governments will be unable to forecast gas supply and demand in detail they do need to recognise the severity of the energy supply problem that lies ahead. In so doing, governments and the EU Commission need to provide a legislative framework to tackle this problem – with some urgency!

In summary, Europe is in the peak zone for indigenous gas supplies and will therefore become increasingly reliant upon imports. Current gas imports to the OECD Europe

stand at 197 BCM (billion cubic metres) per annum. If business as usual growth in demand is assumed then gas imports look set to rise to 492 BCM per annum by 2020. It is considered highly unlikely that exporting countries can meet that growth and high gas prices will reduce demand and ration supplies.

