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Warning: Oil supplies are running out fast

By Steve Connor, Science Editor

Catastrophic shortfalls threaten economic recovery, says world's top energy economist

The world is heading for a catastrophic energy crunch that could cripple a global economic recovery because most of the major oil fields in the world have passed their peak production, a leading energy economist has warned.

Higher oil prices brought on by a rapid increase in demand and a stagnation, or even decline, in supply could blow any recovery off course, said Dr Fatih Birol, the chief economist at the respected International Energy Agency (IEA) in Paris, which is charged with the task of assessing future energy supplies by OECD countries.

In an interview with The Independent, Dr Birol said that the public and many governments appeared to be oblivious to the fact that the oil on which modern civilisation depends is running out far faster than previously predicted and that global production is likely to peak in about 10 years – at least a decade earlier than most governments had estimated.

But the first detailed assessment of more than 800 oil fields in the world, covering three quarters of global reserves, has found that most of the biggest fields have already peaked and that the rate of decline in oil production is now running at nearly twice the pace as calculated just two years ago. On top of this, there is a problem of chronic under-investment by oil-producing countries, a feature that is set to result in an "oil crunch" within the next five years which will jeopardise any hope of a recovery from the present global economic recession, he said.

In a stark warning to Britain and the other Western powers, Dr Birol said that the market power of the very few oil-producing countries that hold substantial reserves of oil – mostly in the Middle East – would increase rapidly as the oil crisis begins to grip after 2010.

"One day we will run out of oil, it is not today or tomorrow, but one day we will run out of oil and we have to leave oil before oil leaves us, and we have to prepare ourselves for that day," Dr Birol said. "The earlier we start, the better, because all of our economic and social system is based on oil, so to change from that will take a lot of time and a lot of money and we should take this issue very seriously," he said.

"The market power of the very few oil-producing countries, mainly in the Middle East, will increase very quickly. They already have about 40 per cent share of the oil market and this will increase much more strongly in the future," he said.

There is now a real risk of a crunch in the oil supply after next year when demand picks up because not enough is being done to build up new supplies of oil to compensate for the rapid decline in existing fields.

The IEA estimates that the decline in oil production in existing fields is now running at 6.7 per cent a year compared to the 3.7 per cent decline it had estimated in 2007, which it now acknowledges to be wrong.

"If we see a tightness of the markets, people in the street will see it in terms of higher prices, much higher than we see now. It will have an impact on the economy, definitely, especially if we see this tightness in the markets in the next few years," Dr Birol said.

"It will be especially important because the global economy will still be very fragile, very vulnerable. Many people think there will be a recovery in a few years' time but it will be a slow recovery and a fragile recovery and we will have the risk that the recovery will be strangled with higher oil prices," he told The Independent.

In its first-ever assessment of the world's major oil fields, the IEA concluded that the global energy system was at a crossroads and that consumption of oil was "patently unsustainable", with expected demand far outstripping supply.

Oil production has already peaked in non-Opec countries and the era of cheap oil has come to an end, it warned.

In most fields, oil production has now peaked, which means that other sources of supply have to be found to meet existing demand.

Even if demand remained steady, the world would have to find the equivalent of four Saudi Arabias to maintain production, and six Saudi Arabias if it is to keep up with the expected increase in demand between now and 2030, Dr Birol said.

"It's a big challenge in terms of the geology, in terms of the investment and in terms of the geopolitics. So this is a big risk and it's mainly because of the rates of the declining oil fields," he said.

"Many governments now are more and more aware that at least the day of cheap and easy oil is over... [however] I'm not very optimistic about governments being aware of the difficulties we may face in the oil supply," he said.

Environmentalists fear that as supplies of conventional oil run out, governments will be forced to exploit even dirtier alternatives, such as the massive reserves of tar sands in Alberta, Canada, which would be immensely damaging to the environment because of the amount of energy needed to recover a barrel of tar-sand oil compared to the energy needed to collect the same amount of crude oil.

"Just because oil is running out faster than we have collectively assumed, does not mean the pressure is off on climate change," said Jeremy Leggett, a former oil-industry consultant and now a green entrepreneur with Solar Century.

"Shell and others want to turn to tar, and extract oil from coal. But these are very carbon-intensive processes, and will deepen the climate problem," Dr Leggett said.

"What we need to do is accelerate the mobilisation of renewables, energy efficiency and alternative transport.

"We have to do this for global warming reasons anyway, but the imminent energy crisis redoubles the imperative," he said.

Oil: An unclear future

***Why is oil so important as an energy source?**

Crude oil has been critical for economic development and the smooth functioning of almost every aspect of society. Agriculture and food production is heavily dependent on oil for fuel and fertilisers. In the US, for instance, it takes the direct and indirect use of about six barrels of oil to raise one beef steer. It is the basis of most transport systems. Oil is also crucial to the drugs and chemicals industries and is a strategic asset for the military.

***How are oil reserves estimated?**

The amount of oil recoverable is always going to be an assessment subject to the vagaries of economics – which determines the price of the oil and whether it is worth the costs of pumping it out –and technology, which determines how easy it is to discover and recover. Probable reserves have a better than 50 per cent chance of getting oil out. Possible reserves have less than 50 per cent chance.

***Why is there such disagreement over oil reserves?**

All numbers tend to be informed estimates. Different experts make different assumptions so it is under- standable that they can come to different conclusions. Some countries see the size of their oilfields as a national security issue and do not want to provide accurate information. Another problem concerns how fast oil production is declining in fields that are past their peak production. The rate of decline can vary from field to field and this affects calculations on the size of the reserves. A further factor is the expected size of future demand for oil.

***What is "peak oil" and when will it be reached?**

This is the point when the maximum rate at which oil is extracted reaches a peak because of technical and geological constraints, with global production going into decline from then on. The UK Government, along with many other governments, has believed that peak oil will not occur until well into the 21st Century, at least not until after 2030. The International Energy Agency believes peak oil will come perhaps by 2020. But it also believes that we are heading for an even earlier "oil crunch" because demand after 2010 is likely to exceed dwindling supplies.

***With global warming, why should we be worried about peak oil?**

There are large reserves of non-conventional oil, such as the tar sands of Canada. But this oil is dirty and will produce vast amounts of carbon dioxide which will make a nonsense of any climate change agreement. Another problem concerns how fast oil production is declining in fields that are past their peak production. The rate of decline can vary from field to field and this affects calculations on the size of the reserves. If we are not adequately prepared for peak oil, global warming could become far worse than expected.

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