

Interview Fatih Birol

'We need to find four new Saudi Arabias'

The latest World Energy Outlook (WEO) from the International Energy Agency is more pessimistic than ever about the world's future oil supplies. 'Even if demand between now and 2030 were to be completely flat, we would need to find four new Saudi Arabias in the next 22 years', says Fatih Birol, the IEA's chief economist and lead author of the influential report, in an interview with EER.

| by Alex Forbes

What are the key messages from the World Energy Outlook 2008?

We are very concerned about future oil supply and whether we will have a climate change agreement in Copenhagen at the end of 2009. The current financial crisis has aggravated both worries. In terms of oil supply, we have looked at the world's 800 top fields – which make up more than three-quarters of global reserves and more than two-thirds of global production – on a field-by-field basis, and we have seen that there is a significant production decline in existing fields. So for future investment we shouldn't only think of how much demand will grow but also by how much we have to increase oil production to compensate for the production decline.

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Even if demand between now and 2030 were to be completely flat, we would need to increase production by 45 million barrels/day (b/d) just to compensate for the decline in existing fields. This would mean finding four new Saudi Arabias in the next 22

years – a big challenge. So on the supply side the main worry is whether we will have sufficient investment in a timely manner. But we also note that there is a sea change under way in the oil industry – that more than 80% of the growth in oil and gas will need to be produced by the national oil companies, which has implications for oil and gas markets.

The financial crisis aggravates our concerns because many investment projects are being cancelled or postponed. So when demand picks up in a few years' time we could well be caught unprepared, which might mean very high prices.

And what about your climate change worries?

No change in current government policies and no Copenhagen agreement, would lead to a temperature rise of about 6° Celsius beyond this century, which would have dramatic effects. We are therefore trying to build a framework to bring together OECD countries, major emitters such as China, India, the Middle East and Russia, as well as other non-OECD countries.

What we have seen is that it would be possible to limit the temperature increase to between 2°C and 3°C. It would be easier to limit it to 3°C – we can definitely do this using mostly existing technologies, such as efficiency, renewables and nuclear. This additional investment would cost us 0.25% of global GDP on an annual basis.



Photo: Alex Forbes

For the more ambitious target of 2°C we would need major new technologies such as carbon capture and storage (CCS) to be ready, and so we would have to make additional investments equal to 0.6% of GDP.

I have two climate change worries. One is on the investment front. Many policies pushed by governments, such as renewables and efficiency policies, may be negatively affected by the economic crisis. The second is that climate change is sliding down the international policy agenda. This is problematic, especially as we approach the Copenhagen meeting.

How do these messages differ from those in last year's WEO?

On oil supply, the role of geology is going to aggravate the investment challenge substantially, mainly because of the decline rates we have been studying. We would like the industry to understand better that the decline rates are a crucial factor of investment decisions, perhaps much more important than demand growth rates. Plus, we have identified that investment frameworks are changing substantially, and are going to be mainly in the hands of the national oil companies in the future. The time of the international oil companies is more or less passé, or will be passé in the next few years.

Secondly, to induce the required investments we will need higher oil prices. What we have discovered is that the cost of producing

the marginal barrel has increased a lot in the last year-and-a-half to about \$80 in some cases.

On the demand side, we say that OECD oil demand has peaked, partly because of economic and demographic reasons but also because in the last year many OECD governments have put policies in place to reduce oil consumption. These range from biofuel policies to efficiency policies in the transportation sector. So almost all the demand growth in the future will come from non-OECD countries, with China responsible for 43% of the growth, and India and the Middle East 20% each.

Another key message in this year's WEO is that the Middle East, which we always considered a production centre, is also becoming a major demand centre, especially for oil and gas, and in turn becoming a significant polluter in terms of carbon dioxide emissions.

And the differences between this year and last year in terms of climate change?

For the first time we have looked at a scenario stabilising greenhouse gas concentration levels at 450 ppm and its cost implications in a detailed manner. It will be expensive, but not out of our reach. But we will not be able to do anything without the key non-OECD countries.

Even if OECD economies were to crash tomorrow, even if

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their CO₂ emissions were to be zero for 25 years, if non-OECD continued their policies we could not reach the 450 ppm level in 2030. So we have built a hybrid framework to bring the different policies of the countries together. We look at three options: cap-and-trade; international sectoral agreements and national policies and measures, especially by the poor developing countries. We have provided this hybrid framework within both our 450 ppm and 550 ppm policy scenarios.

A key technology element in climate change is carbon capture and storage. There are many who are sceptical that it will be feasible from a cost point of view. What's your conclusion about its economic viability?

It would be naïve to say that we can take for granted that CCS will be ready by about 2020. We need to make major efforts to bring the cost down, and to find solutions to problems such as the legal framework and the issue of leakage. Moreover, the power plants equipped with CCS need to be built in China and India, countries which in general are looking for the least-cost option.

We've seen a new president elected in the US, Barack Obama, who seems to be taking a much greener view of energy policy than the previous incumbent. How does that change your optimism or pessimism about climate change negotiations?

When you look at our 450 ppm policy scenario, and when you look at the Obama-Biden New Energy for America Plan, they marry very well. He is pushing renewable energy and efficiency, and putting emphasis on new technologies. But for me it goes beyond that. The fact that the US will be at the table in Copenhagen with a president who puts climate change as one of his key priorities is very good news.

Staying with Copenhagen, we're asking the developing countries, particularly the major emitters such as China and India, to take action when – as they have rightly argued – it's the OECD economies that are responsible for most of the extra CO₂ up there in the atmosphere. How optimistic are you, given that political challenge, that agreement can be reached as early as 2009?

I cannot say that I can take it for granted that we are going to reach agreement. If the economic crisis persists or deepens, this will make life much more difficult in Copenhagen. Secondly, while noting that the bulk of the emissions since the industrial revolution have come from OECD countries, I hope that the non-OECD countries, such as China and India, will move in the right direction.

China is especially important. It plays a big role in international energy security, in the United Nations, and in the World Trade Organisation. Being a major global power requires some action on the global issues. We should also not forget that the adverse impact of climate change will be felt by all nations alike; rich or poor, developed or developing.

A key uncertainty that everyone faces is this economic crisis. You seem to assume that things will settle down by maybe 2010. On what do you base that assumption?

We think that demand could rebound around 2010/11, mainly because emerging economies such as China, India and Middle East could play a role as a floor to the current economic recession. China has reserves of more than \$2 trillion, a substantial surplus in the national accounts, and the government seems to be very keen to keep the economy growing. The Middle East is still growing. However, their economies will certainly be affected by spill-over effects.

We also hope that in this slow-down phase, the financial expansion policies of the OECD countries will be more effective than before. I believe that in this recession we woke up earlier than we have in the past. This may help the recession to be short-lived, perhaps one-and-a-half to two years. This is what we hope but it is still a big uncertainty.

What are the key messages to policy-makers that come out of the report with respect to energy security and climate change?

In terms of energy security, my biggest concern is that the investments will not take place as they were planned. This may create a big headache when demand picks up. Secondly, there have been many new policy initiatives within the last year or so to promote renewable energies, and to promote efficiency, especially in the OECD countries. With lower prices and the weaker economy I would like to remind policy-makers that if we don't keep pushing those things we can never address our longer term objectives such as energy security and climate change. Thirdly, when we talk about energy security we shouldn't think only of oil but also natural gas. The growing concentration of production of natural gas and the moves in terms of the gas OPEC are issues we should watch closely.

In terms of climate change, I have two messages to give policy-makers, especially for the OECD countries. One of them is: please do not back-track on climate change-related interests – don't let climate change slide in the policy agenda. Secondly, try to find ways to encourage the non-OECD countries to be active and constructive partners in Copenhagen. ■