

**Written Testimony of Dr. Fatih Birol
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**Subcommittee on Energy and Mineral Resources Oversight Hearing on:
“Energy Outlooks, and the Role of Federal Onshore and Offshore Resources in
Meeting Future Energy Demand,”**

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Chairman Costa, members of the committee, thank you for the opportunity to appear before you today to discuss the views of the International Energy Agency (IEA) on the outlook for global energy markets over the medium and longer-term. My name is Fatih Birol and I am the Chief Economist and the Director of the office responsible for the economic analysis of energy policy at the IEA.

By way of background, the IEA is an intergovernmental organisation which acts as an advisor to 28 member countries including the United States in their effort to ensure reliable, affordable and clean energy for their citizens. Founded during the oil crisis of 1973-74, the IEA's initial role was to co-ordinate measures in times of oil supply emergencies. As energy markets have changed, so has the IEA. Its mandate now incorporates work on climate change-policies, market reform, energy-technology collaboration and outreach to the rest of the world, especially major consumers and producers of energy including China, India, Russia and the OPEC countries.

Last November, the IEA released the 2008 edition of its *World Energy Outlook (WEO-2008)*. The report concludes that it is not an exaggeration to claim that the future of human prosperity depends on how successfully we tackle the twin energy challenges facing us today: securing the supply of reliable and affordable energy; and effecting a rapid transformation to a low-carbon, efficient and environmentally benign system of energy supply. Current trends in energy supply and consumption point to rising imports of oil and gas into OECD regions and developing Asia while the growing concentration of production in an ever smaller number of countries threatens to increase our vulnerability to supply disruptions and sharp price hikes. And, in the absence of stronger policy action, rising consumption of fossil energy will

drive up inexorably emissions and atmospheric concentrations of greenhouse gases, putting the world on track for an eventual global temperature increase of up to 6°C.

The report provides a more detailed assessment of oil-supply prospects than has ever before been released by the IEA. In a Reference Scenario, in which government policies are assumed to be unchanged, oil demand continues to grow strongly over the medium and longer-term. All of the projected increase is expected to come from non-OECD countries, led by China, India and the Middle East. The bulk of the increase in supply is expected to come from OPEC countries, their collective share rising from 41% today to 51% in 2030. Production has already peaked in most non-OPEC countries and will peak in most of the others before long. With respect to the United States, in the absence of a change in policy, we expect it to be importing around 12 mb/d of oil by 2030, only slightly down on current levels.

These trends point to a sea change in the structure of the upstream oil and gas industry. The international oil companies, which have traditionally dominated the sector, will be increasingly squeezed by the growing power of the national companies and by dwindling reserves and production in accessible mature basins outside OPEC countries. The challenges confronting the oil sector will be further exacerbated by the prospect of accelerating declines in production at individual oilfields. Based on the *WEO-2008*'s detailed field-by-field analysis of the historical production trends of almost 800 of the world's oilfields – the most comprehensive study of its kind ever made public – we expect decline rates to accelerate significantly. Declines are fastest at oilfields in non-OPEC countries, including Mexico – a key supplier of crude oil to the United States.

Our analysis demonstrates that projections of oil supply are far more sensitive to assumptions about decline rates than to the rate of growth in oil demand. For instance, even if global oil demand was to remain flat until 2030, some 45 mb/d of additional gross capacity — the equivalent of over four times the current capacity of Saudi Arabia — would need to be brought on stream simply to offset declining production at existing fields.

The world's total endowment of oil is large enough to support the projected growth in output. The immediate risk to supply, however, is a lack of investment where it is needed. There remains a real possibility that under-investment will cause an oil-supply crunch in the medium term. More immediately, the credit crisis and deepening economic downturn is leading to a scaling back of all types of investment in most countries along the oil supply chain. While demand is also falling with the economic slump, there is a danger that investment in the coming months and years is reduced too much, leading to a shortage of capacity and another spike in prices several years later when the economy is on the road to recovery, due to the long lead times in completing large upstream and refining projects.

Although the trends that I have outlined are a cause for serious concern, they are not written in stone. Indeed there is much that can and is being done in many parts of the world to address the twin energy-related threats. In the past, the IEA has noted that very significant room remains to increase fuel-efficiency standards for trucks and cars in the United States, which would immediately contribute to energy and environmental security. In this respect, the new American Recovery and Reinvestment Act, with its strong focus on reducing fossil fuel dependence and greenhouse gas emissions by pursuing more aggressive demand-side and clean energy policies, is to be commended. Indeed we believe it makes good sense to exploit the opportunity of the financial and economic crisis to effect a shift in investment to low-carbon technologies. For example, the \$95 billion that the IEA estimates the United States must invest each year in the power sector to move onto a pathway consistent with limiting the increase in the average global temperature to 2⁰C would also create jobs and enhance energy security.

Consideration could also now be given to taking advantage of the recent slide in the world oil price to review gasoline and diesel taxes and thereby "lock-in" the efficiency gains that resulted from last year's price surge. Similarly, I believe efforts to maximize the production of the United State's domestic oil and natural gas resource – including through an expansion of drilling on the Offshore Continental Shelf which is thought to contain significant amounts of recoverable resources – could form a crucial part of a comprehensive strategy to enhance the nation's energy security.

However, at the global level, the only possible solution to a long-term sustainable future is to strive for an energy mix that uses all options simultaneously. We need to combine greater energy efficiency improvements with more renewables and more nuclear. We must seek to minimise our dependence on fossil fuels while recognising that they will need to continue to make a significant contribution to meeting our energy needs for several decades to come: it is not realistic to expect low-carbon technologies to replace fossil energy overnight.

It is also imperative that international collaboration on energy policy is enhanced. Perhaps the best demonstration of this on the climate change front is that even if all OECD Member countries were to immediately reduce their CO₂ emissions to zero, we would still not be on a sustainable path unless non-OECD countries such as China, India and Russia were also to curb their emissions. IEA countries must also work with non-Members to address energy security, because all countries trade oil in an interconnected global market. Even if the United States were to succeed in lowering its oil imports in the coming years, increasing import dependency in other major consuming regions – notably China and India – would still mean that any oil supply disruption anywhere in the world would result in severe knock-on effects for the US market.

Mr. Chairman, and members of the Subcommittee, this completes my statement. I would be happy to take any questions you may have.