

## World Energy Outlook 2008: The Road to Copenhagen

Informal workshop co-hosted by the International Energy Agency and the Ministry of Foreign Affairs of Denmark – Copenhagen, 17 April 2008

### Background

The *World Energy Outlook* provides a rigorous analytical framework for energy policy makers and the energy industry, based on robust quantitative analysis. The *World Energy Outlook 2008* will include an in-depth assessment of climate change, in addition to providing a new set of long-term energy projections incorporating the latest data and policies. It responds to the need for analysis of post-2012 architecture and scenarios and will offer an important input to global climate negotiations, as well as valuable insights into energy policy and technological responses to the climate challenge.

This **workshop** is a vital element of the *World Energy Outlook 2008* process, helping to shape the key messages of the study. The *World Energy Outlook 2008* will in turn feed into the UNFCCC process, providing an energy sector perspective and an analytical overview of post-2012 proposals – distilling the key choices for policy-makers.

*World Energy Outlook 2007* shows that if governments around the world stick with *current* policies – the underlying premise of the **Reference Scenario** – the world's energy needs would be well over 50% higher in 2030 than today, with developing countries contributing 74% of that increase. Fossil fuels continue to dominate, accounting for 84% of the overall increase. Energy-related emissions of CO<sub>2</sub> jump 57% to reach 42 Gt in 2030, a trend which would eventually result in an average temperature increase of up to 6°C relative to pre-industrial levels.

Even if governments around the world were to implement all the policies that they are *considering* today – as we assume in the *World Energy Outlook 2007*'s **Alternative Policy Scenario** – the world's energy demand and related emissions in 2030 would still be one-quarter above current levels in 2030. Assuming continued reductions after 2030, those projections are consistent with stabilisation of CO<sub>2</sub>-equivalent concentration at about 550 parts per million. According to the IPCC, this trend would put the world on course for an increase in average temperature of around 3°C.

In order to limit the increase in average global temperatures to a maximum of 2.4°C, the concentration of greenhouse gases in the atmosphere would need to be stabilised at around 450 ppm. To achieve this, CO<sub>2</sub> emissions would need to peak by 2015 at the latest and to fall between 50% and 85% below 2000 levels by 2050. In a “**450 Stabilisation Case**”, which describes a notional pathway to achieving this outcome, global energy-related CO<sub>2</sub> emissions need to fall to around 23 Gt by 2030. Exceptionally quick and vigorous policy action by all countries and unprecedented technological advances would be needed to make this case a reality.

It is in this context that the *World Energy Outlook 2008* will focus on climate change and post-2012 frameworks. It will examine the climate impacts of updated versions of the existing World Energy Model scenarios and will also analyse new frameworks for various stabilisation levels. Non-CO<sub>2</sub> greenhouse gases will be incorporated, in co-operation with the OECD and the United States EPA. The work will assess the merits of **cap-and-trade systems, sectoral approaches** and **hybrid options**, and it will examine how best to involve developing countries. The implications for the energy sector and for financing will be described, as well as the co-benefits of mitigation for energy security and local pollution. Other issues to be examined are the impact of delayed action, the demographics of energy infrastructure and the role of cities in energy and CO<sub>2</sub> abatement. The study aims to provide a rigorous yet operational analytical framework for policy makers and industry. It will be a key document in the context of negotiations at COP-14 in Poznan, Poland in December 2008 as well as at COP-15 in Copenhagen, Denmark in 2009.

## Objectives and Scope of the Meeting

This workshop of policy makers and high-level experts is intended to provide an opportunity for the IEA to seek views and information on climate change analysis, modelling and post-2012 frameworks from policymakers, industry and other stakeholders. The meeting will be informal in nature and will be held according to the Chatham House Rule.<sup>1</sup>

### Future Architecture: Which Scenarios to Inform Decision-Making Through 2009

- Should the time horizon be 2020 or 2030? (What is needed by the policy, industry and finance communities?) What about beyond 2030?
- What stabilisation levels should be analysed? 450 ppm, 550, 650? Is there a danger of presenting too many scenarios?
- How should developing countries participate in an international agreement? Should they have differentiated responsibility which would increase over time?
- Should overshooting, i.e. following an emissions path that allows concentrations to rise beyond the above stabilisation levels, with the aim of eventually bringing them back down to the target level, be considered?
- Is covering cap-and-trade, sectoral and hybrid approaches enough? Or would that leave out any realistic policy options?
- How can co-benefits of energy security and local pollution be quantified?
- What kind of energy and other indicators would be of use?
- How can technology be transferred to developing countries?

### Implications for Finance

- What kind of financial and investment analysis would be of interest?
- What key obstacles does the current architecture present to the business and financial sectors in tackling climate change?
- Which measures (carbon pricing, carbon emissions/intensity commitments, subsidies, etc.) will enhance investment in climate change technology and infrastructure?

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<sup>1</sup> "When a meeting, or part thereof, is held under the Chatham House Rule, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed."

- What mechanisms would help developing countries with investment in clean technologies and is foreign direct investment necessary?
- What should be the balance between differentiating emissions reduction commitments and encouraging financial and technology transfer in order to achieve a fair and efficient global system?

#### **Implications for Industry and the Energy Sector**

- What sectors and regions should a cap-and-trade, sectoral or hybrid system cover?
- Under a sectoral approach, how should sectoral and regional allocations be determined?
- What forms of sectoral agreement should be modelled (mandates, efficiency standards etc.) and how can these be designed to be most effective?
- What are the advantages and disadvantages of each post-2012 framework from a business competitiveness point of view?

On 1 August 2008, draft chapters will be sent to experts for peer review, and the *World Energy Outlook 2008* will be officially launched on **12 November 2008** in London.