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Recent policy moves a start, but much stronger action is needed to accelerate the transformation of the global energy system, says the IEA's latest *World Energy Outlook*

"The Copenhagen Accord and the agreement among G20 countries to phase out subsidies are important steps forward. But, these moves still fall a very long way short of what is required to set us on the path to a truly sustainable energy system", said Nobuo Tanaka, Executive Director of the International Energy Agency today in London at the launch of the latest edition of the IEA's annual *World Energy Outlook (WEO)*.

"The energy world is facing unprecedented uncertainty", Mr Tanaka said. The strength of the economic recovery holds the key to how energy markets will evolve over the next few years. But *WEO-2010* demonstrates that it is what governments do, and how that action affects technology, the price of energy services and end-user behaviour, that will shape the future of energy in the longer term. "We need to use energy more efficiently and we need to wean ourselves off fossil fuels by adopting technologies that leave a much smaller carbon footprint".

The central scenario in this year's *Outlook* – the New Policies Scenario – takes account of the broad policy commitments and plans that have been announced by countries around the world. "We have taken governments at their word, in assuming that they will actually implement the policies and measures, albeit in a cautious manner, to ensure that the goals they have set are met" said Mr Tanaka. In that scenario, world primary energy demand increases by 36% between 2008 and 2035, or 1.2% per year on average. The assumed policies make a tangible difference to energy trends: demand grew by 2% per year over the previous 27-year period.

In the New Policies Scenario, Non-OECD countries account for 93% of the projected increase in world primary energy demand. China – which IEA preliminary data suggests overtook the United States in 2009 to become the world's largest energy user despite its low per capita energy use – contributes 36% to the projected growth in global energy use. "It is hard to overstate the growing importance of China in global energy. How the country responds to the threats to global energy security and climate posed by rising fossil-fuel use will have far-reaching consequences for the rest of the world", Mr Tanaka added. China is at the forefront of efforts to increase the share of new low-carbon energy technologies, including alternative vehicles, which will help to drive down their costs through faster rates of technology learning and economies of scale, and boost their deployment worldwide.

Globally, fossil fuels remain dominant over the *Outlook* period in the New Policies Scenario, though their share of the overall energy mix falls in favour of renewable energy sources and nuclear power. Oil nonetheless remains the leading fuel in the energy mix by 2035, followed by coal. Of the three fossil fuels, gas consumption grows most rapidly, its share of total energy use almost reaching that of coal.

The oil price is set to rise, reflecting the growing insensitivity of both demand and supply to price. In the New Policies Scenario, the average IEA crude oil price rises from just over $60 in 2009 to $113 per barrel (in year-2009 dollars) in 2035. Oil demand continues to grow steadily, reaching about 99 million barrels per day (mb/d) by 2035 — 15 mb/d higher than in 2009. All of the net growth comes from non-OECD countries, almost half from China alone; demand in the OECD actually falls, by over 6 mb/d. Crude oil output reaches an undulating plateau of just under 69 mb/d by 2020 while production of natural gas liquids (NGLs) and unconventional oil – notably Canadian oil sands – grows

strongly. OPEC countries account for a growing share of global production, with the biggest increases coming from Saudi Arabia and Iraq. Production in and exports of oil (and gas) from the Caspian region also grow substantially.

"Renewable energy can play a central role in reducing carbon-dioxide emissions and diversifying energy supplies, but only if strong and sustained support is made available", Mr. Tanaka said. In the New Policies Scenario, government intervention in support of renewables (electricity from renewables and biofuels) increases from $57 billion in 2009 to $205 billion (in 2009 dollars) by 2035. The share of modern renewable energy sources, including sustainable hydro, wind, solar, geothermal, modern biomass and marine energy, in global primary energy use triples between 2008 and 2035 and their combined share in total primary energy demand increases from 7% to 14%.

The energy trends envisioned in the New Policies Scenario imply that national commitments to reduce greenhouse-gas emissions, while expected to have some impact, are collectively inadequate to meet the Copenhagen Accord's overall goal of holding the global temperature increase to below 2°C. Rising demand for fossil fuels would continue to drive up energy-related carbon-dioxide (CO_2) emissions through to 2035, making it all but impossible to achieve the 2°C goal, as the required reductions in emissions after 2020 would be too steep. The New Policy Scenario trends are in line with stabilising the concentration of greenhouse gases at over 650 parts per million (ppm) of CO_2-equivalent (eq), resulting in a likely temperature rise of more than 3.5°C in the long term.

In order to have a reasonable chance of achieving the goal, the concentration of greenhouse gases would probably need to be stabilised at a level no higher than 450 ppm CO_2-eq. The 450 Scenario describes how the energy sector could evolve were this objective to be achieved. It assumes implementation of measures to realise the more ambitious end of target ranges announced under the Copenhagen Accord and more rapid implementation of the removal of fossil-fuel subsidies agreed by the G-20 than assumed in the New Policies Scenario. This action brings about a much faster transformation of the global energy system and a correspondingly faster slowdown in global CO_2 emissions. For example, oil demand peaks just before 2020 at 88 mb/d, only 4 mb/d above current levels, and declines to 81 mb/d in 2035. Coal demand peaks before 2020. Demand for gas also reaches a peak before the end of the 2020s. Renewables and nuclear double their current combined share to 38% in 2035.

A lack of ambition in the Copenhagen Accord pledges has increased our estimated cost of reaching the 2°C goal by $1 trillion and undoubtedly made it less likely that the goal will actually be achieved. Doing so would require a phenomenal policy push by governments around the world. The technology exists today to enable such a change, but the required rate of technological transformation would be unprecedented. "The message here is clear. We must act now to ensure that climate commitments are interpreted in the strongest way possible and that much stronger commitments are adopted and taken up after 2020, if not before. Otherwise, the 2°C goal could be out of reach for good", Mr Tanaka said.

In analysis that builds on the IEA's ongoing work for the G-20, *WEO-2010* reveals that fossil-fuel subsidies amounted to $312 billion in 2009. "Getting the prices right, by eliminating fossil-fuel subsidies, is the single most effective measure to cut energy demand in countries where they persist, while bringing other immediate economic benefits", said Mr Tanaka.

Journalists may obtain review copies of ***WEO-2010*** from the IEA Communication and Information Office in Paris. Contact: IEAPressOffice@iea.org.

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