

International Energy Agency - Energy Technology Perspectives 2010

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Event Summary

On Thursday, July 1, 2010 the CSIS Energy and National Security Program hosted a panel of experts from the International Energy Agency to explore the key technologies, policies and costs to bring about a global energy revolution. The 2010 Energy Technology Perspectives presents updated scenarios from the present to 2050 which detail the key technologies needed to address energy security and climate change. The panelists and conference attendees were greeted by Frank A. Verrastro, Senior Vice President and Director of the CSIS Energy and National Security Program, who framed the presentation in terms of steps that can be taken to fill the gaps in order to enable technologies as “game changers”. The panel was moderated by Sarah Ladislav, senior fellow in the CSIS Energy and National Security Program.

Nobuo Tanaka, Executive Director of the International Energy Agency, opened the session with an introduction of the IEA’s new publication, Energy Technology Perspectives (ETP) 2010, a report that performs scenario analyses geared towards a “clean, clever and competitive” energy future. Mr. Tanaka emphasized that the current energy system is not sustainable and that there is an urgent need to mitigate CO₂ emissions. He imparted two distinct messages. On a positive note he explained that an energy revolution has already begun, as demonstrated by the increase of private sector and governmental spending on low-carbon technologies/strategies, increased deployment of renewable energy technologies, and funding commitments for CCS demonstration. On a more cautious note, however, he explained that these developments are fragmented and fragile and that these changes must be “locked-in” in order to facilitate a dramatic acceleration of the revolution. Mr. Tanaka noted that more than 3,000 CCS projects, an additional 46GW of solar photovoltaic panels per year, one billion electric vehicles, and significant investment in smart grid technology and rechargeable vehicle technology infrastructure are needed in order to meet the G-8’s stated goal of halving global CO₂ emissions by 2050.

Bo Diczfalussy, Director of Sustainable Energy Policy and Technology, International Energy Agency, outlined the technologies, policies and costs/benefits needed to effect a halving of global 2005 level CO₂ emissions by 2050. The primary scenario developed in the ETP, the Blue Map, calls for a reduction in fossil fuel use from its current level of 81% to 46% in 2050.

Significant additional CO₂ emissions reduction would result from efficiency improvements in all sectors of the economy. Mr. Diczfalusy also highlighted the role, both direct and indirect, that smart grid technology can have on emissions reductions. He calculates the aggregate additional global incremental investment needed for the Blue Map scenario to be \$46 trillion by 2050—roughly 17% more than the additional incremental cost of the baseline scenario.

Mr. Diczfalusy concluded his presentation by detailing the transformation that the US would need to undergo in order to reduce CO₂ emissions by 80% before 2050. In decreasing order of emissions significance he cites: end-use fuel and electricity efficiency, carbon capture and storage, additional renewable deployment, end-use fuel switching, additional nuclear power, power generation efficiency and fuel switching as the primary drivers of decreased CO₂ emissions.