



press release

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Now or Never - IEA *Energy Technology Perspectives 2008* shows pathways to sustained economic growth based on clean and affordable energy technology

“The world faces the daunting combination of surging energy demand, rising greenhouse gas emissions and tightening resources. A global energy technology revolution is both necessary and achievable; but it will be a tough challenge”, said Nobuo Tanaka, Executive Director of the International Energy Agency (IEA) today in Tokyo, at the launch of the latest edition of *Energy Technology Perspectives (ETP)*.

The Agency’s leading biennial publication responds to the G8 call on the IEA for guidance on how to achieve a clean, clever and competitive energy future. The book is built around three sets of global energy technology scenarios. These are a Baseline (business-as-usual Scenario), a range of ACT Scenarios showing how CO₂ emissions could be brought back to current levels by 2050, and a set of BLUE Scenarios outlining how they could be reduced to 50% below current levels. *ETP 2008* also contains global roadmaps showing how each of 17 key advanced energy technologies would need to be developed and deployed to deliver the ACT or the BLUE outcomes.

Our current path is not sustainable

If governments around the world continue with policies in place to date – the underlying premise in the ETP Baseline scenario to 2050 – CO₂ emissions will rise by 130% and oil demand will rise by 70%. This expansion in oil equals five times today’s production of Saudi Arabia. “Such growth of oil demand raises major concerns regarding energy supply access and investment needs”, said Mr. Tanaka. In the Baseline scenario, the power generation sector accounts for 44% of total global emissions in 2050, followed by industry, transport, the fuel transformation sector and buildings.

“We are very far from sustainable development, despite the widespread recognition of the long-term problem. In fact, CO₂ emissions growth has accelerated considerably in recent years”, Mr. Tanaka said. “Higher oil and gas prices result in a rapid switch to coal. Moreover rapid growth in China and India, both coal-based economies, has also contributed to this deteriorating outlook.”

Step one into a brave new world

“ETP 2008 demonstrates the extent of the challenge to reverse these trends. To bring CO₂ emissions back to current levels in 2050, all options are needed at a cost of up to USD 50/t CO₂”, Mr. Tanaka said. No single form of energy or technology can provide the full solution. Improving energy efficiency is the first step and is very attractive as it results in immediate cost savings. Significantly reducing emissions from power generation is also a key component of emissions stabilisation. But even this is not enough.

Step two: weaning the world off oil

The BLUE Scenarios would provide even deeper cuts. “Emissions halving implies that all options up to a cost of USD 200/t CO₂ will be needed. This is based on a set of optimistic assumptions for technology development. Under less optimistic assumptions, options that would cost up to USD 500/t CO₂ may be needed. Total *additional* investment needs in technology and deployment between now and 2050 would amount to USD 45 trillion, or 1.1% of average annual global GDP over the period”, Mr. Tanaka stressed.

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We would need a virtual decarbonisation of the power sector. Given the growing demand for electricity, this would mean that on average per year 35 coal and 20 gas-fired power plants would have to be fitted with CO₂ capture and storage (CCS) technology, between 2010 and 2050 at a cost of USD 1.5 billion each. Furthermore, we would have to build an additional 32 new nuclear plants each year and wind capacity would have to increase by approximately 17.500 turbines each year. This also implies numerous issues that would need to be overcome, such as the NIMBY-attitude (not in my backyard), the need to boost the numbers of engineering and technical graduates, and to resolve the questions on the availability of sufficient geological formations for captured CO₂ or geologically stable sites for nuclear reactors or waste storage. In addition to all this, we would also have to make an eightfold reduction of the carbon intensity of the transport sector. This represents the most difficult and costly step due to the ongoing rapid demand growth and limited potential based on existing technology.

“There should be no doubt - meeting the target of a 50% cut in emissions represents a formidable challenge. We would require immediate policy action and technological transition on an unprecedented scale. It will essentially require a new global energy revolution which would completely transform the way we produce and use energy”, Mr. Tanaka stressed. “The energy security benefits of such a development, however, would be tremendous. Oil demand by 2050 would be 27% below the level of 2005. Yet massive investments in remaining reserves will be needed to make up for the shortfall as low-reserve provinces are exhausted.”

CO₂ capture and storage, renewables, nuclear energy and energy efficiency - all must play a much more important role. New insights from this study include recognition of the important role for CO₂ capture in industry, the potential for electrification of end-use sectors in combination with CO₂-free electricity, the need for further development of solar electricity, and the importance of second generation biodiesel.

“We need to act now. We need roadmaps that accelerate international technology development and implementation, but that leave room for flexible responses on a country level”, Mr. Tanaka said. This implies additional funds in the order of USD 100-200 billion per year in the coming decade, rising to USD 1-2 trillion in the coming decades. “The IEA and its technology collaboration network are ready to support this change.”

Journalists may obtain review copies of *Energy Technology Perspectives 2008 - Scenarios and Strategies to 2050* from the IEA Communication and Information Office in Paris. E-mail: IEAPressOffice@iea.org

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