

**Ministerial Conference on Global Environment and Energy in
Transport
Tokyo, 14-16 January
Keynote Speech by Nobuo Tanaka, Executive Director,
International Energy Agency**

[SLIDE 1]

Distinguished Ministers, ladies and gentlemen, it is a great honour to have been invited to participate in this important event, and I would like to thank the Japanese Government for the opportunity. The transportation sector has a vital and growing role to play in addressing current energy and environment challenges worldwide. And so it is indeed timely that we are gathered here for this Ministerial conference. In the next few minutes, I would like to share with you some key IEA findings on the status of and prospects for the global energy sector, including in particular, for transportation.

[SLIDE 2]

The latest edition of the IEA's *World Energy Outlook* (or '*WEO*'), released last November, highlights that without new policies in place, global primary energy demand will increase by 45% from 2006 levels by 2030. This would put global energy-related CO₂ emissions at 40.6 Gt in 2030, with an annual growth rate of 1.6%. Such a trajectory puts the world on track for a long-term concentration of greenhouse

gases in the atmosphere of over 750 ppm of CO₂. This would correspond with a longer-term average temperature increase of 6 degrees Celsius. As you all well know, this is clearly unsustainable, environmentally, socially and economically, and we can and must seek to address this.

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One central area where more coordinated action will be needed is transportation. Our *World Energy Outlook 2008* indicates that around three-quarters of the projected increase in global oil demand to 2030 will come from the transport sector. In the OECD, oil use will fall in all sectors except transport (where it will essentially remain flat). And in non-OECD countries, transport will be the biggest contributor to growth in oil demand. As a result, the transportation sector will account for 57% of global primary oil consumption in 2030, compared with 52% now and 38% in 1980.

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The IEA is undertaking a wide range of activities to respond to global energy and environment challenges. This includes our annual *World Energy Outlook* publication. In particular, the *WEO 2008* considered climate-policy frameworks for moving the world to two lower emissions scenarios by 2030:

- the 550 Scenario - where greenhouse gases would stabilise at 550 ppm of CO₂-equivalent, implying a temperature increase of 3°C; and
- the 450 Scenario - with a stabilisation of 450 ppm and a temperature increase of around 2°C. This second scenario is consistent with reducing global GHG emissions by 50% from current levels by 2050.

In considering options in each case, we focused on actions in the energy sector. This graph shows the trajectory for energy-related CO₂ emissions to 2030 in the business as usual and climate policy scenarios. Assuming 3.3% global GDP growth to 2030 (as in the Reference Scenario), we would have to reduce emissions from a projected 40.6 Gt in 2030 to 33 Gt in the 550 ppm scenario and to 26 Gt in the 450 ppm scenario.

As such, the two low emissions scenarios require a transformation of the energy sector. Measures in three areas in particular will be vital: 1) energy efficiency; 2) carbon capture and storage; and 3) a change to the energy mix, particularly through the use of renewable and nuclear energy. Improved energy efficiency makes the biggest contribution to lowering emissions in both scenarios as shown here, comprising 54% in the 450ppm scenario.

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Given the importance of end-use energy efficiency, the IEA has also developed a set of 25 energy efficiency policy recommendations across seven priority areas. If implemented globally, these recommendations could save around 8.2 Gt of CO₂ per year by 2030. This is greater than the current energy-related CO₂ emissions from the USA and Japan combined. The transport sector must play an important role here: four of the 25 recommendations concern the transport sector. These include the introduction and strengthening of mandatory fuel efficiency standards for Light-duty Vehicles.

The triple-win potential of energy efficiency -- higher economic performance, higher energy security and less climate change -- leads to three recommendations: implement, implement, implement. In this regard, the IEA applauds the G8 Leaders for agreeing in Hokkaido to maximise their domestic implementation of the 25 recommendations as well as the work of a great many other countries in the realm of energy efficiency.

[SLIDE 6]

The transport sector plays an important role in the climate policy scenarios in our *WEO 2008*. In both the 550 and 450 scenarios, we assume international sectoral agreements in road transport would be adopted. At present, the average fuel economy and CO₂ emissions

for new LDVs vary widely between countries, depending on the average size, performance efficiency and fuel mix of vehicles. In the 550 Scenario, for example, we assume that OECD+ countries would set the highest standard, reaching an average fleet efficiency of 106 grams of CO₂ per km in 2030 - an improvement of 34% over their current fleet efficiency. But it is also assumed that other countries, including developing countries, would improve their CO₂ intensity under such a sectoral agreement, although not to the same degree as OECD+ countries.

As shown in this graph, even greater CO₂ savings in the transport sector are achieved in OECD+ countries and Other Major Economies in the 450 Policy Scenario through the strengthening of such international sectoral agreements in the transportation sector. Faster deployment of new technology benefits all countries, bringing the sector's CO₂ emissions in 2030 to 7.8 Gt. This represents total savings of 1.1 Gt over the Reference Scenario.

[SLIDE 7]

A halving of emissions worldwide by 2050 would be an extremely challenging target. Especially when looking beyond 2030, it will not be possible to achieve such a target simply with the technologies that are available today. The transport sector in particular will require new solutions.

Our publication, *Energy Technology Perspective 2008* (or 'ETP') indicates that in all sectors new technologies will be needed to bring the costs of the low-carbon transition down further. In its BLUE scenario where emissions are to be reduced by 50% compared to 2005 levels, measures with a cost up to USD 200/t CO₂ must be considered. This cost could rise up to USD 500/t CO₂, if less progress is made in terms of cost reduction for new technologies, notably in the transport sector, such as for electric and fuel cell vehicles.

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One piece of good news is that, as far as energy efficiency is concerned, there are plenty of existing, cost effective technologies available to improve end-use energy efficiency. For example, the IEA estimates that if strong enough measures were implemented globally, the fuel economy for new LDVs could be improved by 50% by about 2030 at low or possibly negative cost to consumers (taking into account the value of fuel savings). Such a doubling of the fuel economy for LDVs could dramatically cut the need to move toward unconventional oil supplies.

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In this regard, the IEA, International Transport Forum, United Nations Environment Programme and FIA Foundation will, on 4 March,

launch a 'Global Fuel Economy Initiative'. The overall objective of this initiative is to make cars 50% more fuel efficient by 2050 worldwide to cut oil consumption and CO2 emissions.

The initiative will feature four key elements:

- data development and analysis of fuel economy potentials by country and region;
- support for national and regional policy-making efforts;
- outreach to stakeholders (e.g. vehicle manufacturers); and
- information campaigns around the world to educate consumers and stakeholders.

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Improving end-use energy efficiency will not - alone - be sufficient to make lower greenhouse gas scenarios a reality. Fundamental change is needed for all transport modes and in all regions. We need a TRANSPORT REVOLUTION.

This graph shows projected LDV sales and stock share in the case of a 50% emissions reduction by 2050. We have 3 basic low CO2 options:

- (1) First, due to declining battery costs and rapidly improving performance, electric powered vehicles have re-emerged as an important option. Plug-in hybrids are attractive because

they do not require so much battery storage and provide a potentially important transition strategy.

- (2) Second, we have the option of hydrogen fuel cell vehicles. However, it may still take one to two decades to overcome fuel cell complexities and costs.
- (3) Third, advanced 2nd generation bio-fuels could play a significant role within the limits of available resources, such as the amount of land available for their production. It seems likely that the use of these fuels could grow rapidly after 2015 as the cost of producing these fuels decreases.

We need to invest in all of these technologies NOW to ensure sufficient gains - or more precisely reductions - in the future.

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To conclude: without further policy interventions, oil use in many countries will increase significantly to 2050. It appears reasonable to aim for an average 50% reduction in all vehicle energy intensity globally by 2050. But we will need better data on baseline values and current trends in individual countries if we are to achieve this. And, if very low greenhouse gas scenarios are to become a reality, other emissions reductions in the transport sector will be needed. For this, we must identify information gaps, optimal policy instruments and the roles and responsibilities of different actors.

Of course, we are now facing very trying economic conditions globally. But it is the IEA's view that the present economic worries do not excuse back-tracking or delays in taking action to address energy and climate change challenges. Our analysis clearly shows that the cost of action will simply increase the longer it is delayed. Moreover, current economic stimulus packages provide an excellent opportunity to ensure greener, more sustainable growth in the energy sector - both through upfront measures with impacts in the near term, and longer term investment decisions. For this reason, the IEA has been proposing a 'Clean Energy New Deal' for some months now. Only through a combination of upfront measures and careful, longer-term planning - including in the transportation sector - will we be able to ensure the cleaner, more secure energy future that we all need.

Thank you and I look forward fruitful discussions over the coming two days.