

TRANSPORT AND ENERGY

The Challenge of Climate Change



International
Transport
Forum

LEIPZIG 28-30 May 2008

SUMMARIES OF PANELS

The first International Transport Forum was held in Leipzig, Germany from 28-30 May 2008.

Following are brief summaries of each of the panel sessions held during the second day of the International Transport Forum 2008. These summaries are an attempt to highlight the important points made during the panel exchanges. They are not an exhaustive compilation of all comments made by panellists.

They are being made available publicly as one of the outputs of the Forum 2008.

**INTERNATIONAL TRANSPORT FORUM 2008 on
TRANSPORT AND ENERGY: THE CHALLENGE OF CLIMATE CHANGE**

SUMMARIES OF THE MINISTERIAL-INDUSTRY PANEL SESSIONS HELD ON 29 MAY 2008

**I. SUMMARY OF PANEL 1:
PROSPECTS FOR AN ENERGY-EFFICIENT, LOW CARBON FUTURE FOR
TRANSPORT**

A. Participants in the panel

Chair	Camiel Eurlings	Minister of Transport, Netherlands
Rapporteur	Claude Mandil	Former Executive Director, IEA
	Nobuo Tanaka	Executive Director, IEA
	Thomas Enders	CEO, Airbus
	Thierry Morin	CEO, Valeo
	Jack Jacometti	Vice President, Future Fuels, Shell
	Ivan Hodac	Secretary General, ACEA
Minister	Liv Signe Navarsete	Minister of Transport and Communications, Norway

B. Context and objectives of the panel

This first panel was designed to facilitate an exchange among the industry and government panellists on the strategies in place to cope with energy consumption and CO₂ emissions from the transport sector. Discussions focused on the initiatives aimed at improving efficiency and reducing emissions taken by market actors (industry) and in response to the policies and measures adopted by the public authorities (e.g., charging and regulations).

C. Highlights from the exchange

The first part of the panel discussion focussed on assessing the scope and extent of the energy problem for the transport sector; how access to energy for the transport sector can be ensured and improved, and in particular: how transport can reduce its dependence on oil. The discussions were centred on three broad themes: the energy crisis and its implications for transport; the role of technology and in particular, biofuels; and lastly, the role of policy. Emerging early in the discussions as points of consensus were the importance of improving energy efficiency in the short to medium terms, and cooperation among government and industry sectors to develop solutions to move the transport sector toward a low-carbon future.

The Chair, **Minister Eurlings** started off the panel discussion by pointing to rising energy prices, which have broadened awareness of the energy challenge for transport across society. With every citizen feeling the pinch of high energy costs, the political challenge for government to find energy solutions for transport has grown. And along with this energy challenge is the pressure to identify and implement measures to combat transport's contribution to climate change. Solutions to the energy and climate change challenges will only come, he said, through dialogue and initiative across countries.

1. *The Energy Crisis and Transport*

Nobuo Tanaka, Executive Director of the International Energy Agency, called the high oil prices at present the "third oil crisis", pointing out that the current situation is very different in nature to the previous two oil shocks in the 1970s and 1980s in that its principal cause is a huge increase in demand -- particularly within emerging economies such as India and China -- rather than limited supply. Mr. Tanaka noted that due to the low oil prices of the 1990s, energy efficiency efforts, R&D for technologies and investment in energy infrastructure capacity had been inadequate. He appealed to governments to decisively invest in energy infrastructure and take initiative to reduce demand.

Agreeing with Mr. Tanaka, **Jack Jacometti**, Vice President of Shell, underlined the need for a strategic focus at this time on energy efficiency and energy conservation. He pointed out that demand is growing at an increasingly fast pace and supply can not keep up with the rate of growth.

Thomas Enders, CEO of Airbus pointed out that whilst current high oil and kerosene prices do drive new technology development and use, no airline could afford prices beyond 200 dollars per barrel. There is a risk of massive collapse in the aviation sector if prices soar further, he cautioned.

2. *Is Technology the Answer?*

With regard to technological advances, each member of the panel stressed that high oil prices have served to draw attention to the importance of energy efficiency on the one hand and need to explore and bring on line alternative energy sources on the other.

Referring to a recent IEA publication entitled "Energy Technology Perspectives", which proposes strategies for reducing CO₂ emissions by half by 2050, **Nobuo Tanaka** highlighted the prospects for a carbon-free transport sector. This vision is based on carbon-free electricity, hydrogen fuel cells or electric vehicles or a combination of both, he said, as well as plug-in hybrids and a second generation of biofuels. The Executive Director of the IEA described energy efficiency as the first initiative to be taken, as it allows for relatively quick and cost-effective progress. In his opinion, fuel efficiency standards should be mandatory for the transport sector. Other short-to-medium term measures include use of efficient tyres and ecodriving, he said. But to achieve the longer-term goal of halving CO₂ emissions by 2050, decarbonisation of the whole power generation sector is needed, he said, and this will be achieved through carbon capture and storage, as well as significant increases in nuclear, wind, and solar power. To bring about a necessary "energy revolution", considerable public investment in energy infrastructure will be required he said. In this respect, the IEA estimates among others, the need for 55 coal and gas-fired power plants with carbon capture and storage capacity; 32 nuclear reactors; 17 000 windmills and 200 million square metres of solar panels every year.

After pointing to advances in aviation's use of alternative fuels – including recent experimental flights operating on gas to liquid fuel and fuel cells -- **Thomas Enders** highlighted the significant progress in energy efficiency in the aviation sector, with average kerosene consumption per passenger per 100 kilometres dropping since the mid-1980s from about 8 litres to currently almost 5 litres; the Airbus A380 works even below 3 litres, he said. Mr Enders also noted that aircrafts produced today are emitting roughly 70 per cent less CO₂ than 35 years ago, “but we think we need to do more,” he said.

Focussing on alternative energy sources and particularly on second generation biofuels, **Jack Jacometti** emphasised that their development is extremely important and needs to be take place in a totally responsible and “holistic” way, with all factors considered including land use and societal impacts.

Ivan Hodac, Secretary General of the European Car Manufacturers Association (ACEA) agreed, calling for the development of global standards and sustainability criteria for second generation biofuels. He noted the industry's commitment for all cars to be able to drive on ethanol by 2010, and further commitments in this area for 2015.

Signalling the respective roles of the public and private sectors, **Thierry Morin**, CEO of Valeo, underlined the necessity of sustainable and coordinated political and scientific programmes, pointing to the difficulty for industry when approaches toward certain technologies change every three or four years. He noted in addition, that 4 million tons of carbon could be saved each year, if cars in France were equipped with start/stop systems such as that produced by his company. But cars with energy-efficient technology need to remain affordable at the same time, Hodac remarked.

3. *Where can Policy help?*

The comments of panellists clearly revealed that there is no single solution for bringing about a reduction of emissions, and that an integrated approach is essential.

Liv Signe Navarsete, Norway's Minister of Transport and Communications, highlighted the major task it is to bring the results from research and development into practice in society and into people's everyday lives. This often necessitates bold action from decision-makers, she said, with policy decisions which might not be popular at first, but necessary in the long run. Therefore — and this point was generally agreed within the panel — regulations and taxes are sometimes necessary, but also needed are incentives which will encourage people and the industry to make the right choices.

Politicians have the responsibility, she asserted, to set targets and convince people of the necessity for a change in lifestyle and consumption patterns, particularly in the more developed parts of the world. Minister Navarsete described effective carbon price signals as essential, emphasizing that politicians all over the world have to find ways to make environmentally sound behaviour attractive, for instance by massive development of public transport. At the same time, environmentally bad behaviour needs to be made less attractive, through, for instance, higher taxes on high-emission vehicles, congestion charges in cities, or restrictive parking policy.

Nobuo Tanaka pointed to the need for consistency in policies in order to avoid the problem of very different and misleading messages being sent to producers and consumers.

Concerning taxation, **Ivan Hodac** suggested that fiscal tools should be reviewed in order to ensure that car usage, and not ownership, is the target of the tax. He expressed his view that CO₂-related taxation both for fuel and cars would solve many problems. This taxation has to be harmonised across the EU and beyond, he said. Mr. Hodac also recommended support for eco-driving, noting that significant amounts of CO₂ could be saved by teaching people how to drive more efficiently. Furthermore, global regulation, in his view, is important, as it enables fair competition and ensures that manufacturers can reap the economic benefit of their efforts.

4. Global Cooperation is Key

All panellists agreed that global cooperation across industry and governments is a key factor in finding lasting solutions to the transport and energy problem and rising CO₂ emissions from the sector.

Jack Jacometti, for instance, outlined an energy scenario by Shell called "blue prints", which is based on more-effective cooperation between industry, governments, foundations, and NGOs. Only this blue print scenario founded on broad cooperation among all stakeholders results in an acceptable future, he said.

Ivan Hodac emphasized that where industry is concerned, effective regulation and a level-playing field are necessary. Globally active industries require globally agreed policy actions, he said.

Minister Navarsete agreed, specifying that regulations for global industries must take into account a global playing field. This is especially the case, she said for the car industry. And in this respect, both short and long-term targets are needed she said.

Addressing a global emissions trading system, Minister Navarsete suggested including aviation and shipping in such a system. **Thomas Enders** and other speakers underlined, however, that, if aviation were to be subjected to emissions trading -- in addition to already existing burdens on airlines such as high kerosene prices -- then the trading system would have to be both global in scope and deemed fair by industry.

Acknowledging emissions as part of a wider problem in aviation, the Airbus CEO called for more efficient infrastructure as well as a single air traffic management system for all of Europe, asserting that this could reduce CO₂ emissions per flight by at least 10%.

The aviation industry in his view needs to intensify its strategies in fields such as technology and operational measures, he said, including, for instance, better routes and optimal altitudes for more efficiency.

D. Rapporteur's Summary

Summarizing the discussion, the former Executive Director of the International Energy Agency and Panel Rapporteur **Claude Mandil** highlighted the agreement among panel members that the challenges of transport, energy and climate change are both enormous and urgent. Panellists were unanimously of the opinion, he said, that the present oil crisis is mainly driven by demand and not by supply, which means that of all available tools, energy efficiency improvement is the most important and urgent to be implemented. There was a very strong

agreement in the panel as well that the solutions need to be global and integrated, he said, as well as consensus on the need for both market mechanisms and regulation, including incentives for research and development. Innovation in business models and behaviour was also seen as essential, Mandil noted. As this will be very costly, least cost options should be applied first.

**II. SUMMARY OF PANEL 2:
INTRODUCING ENERGY-EFFICIENT TRANSPORT TECHNOLOGIES**

A. Participants in the panel

Chair	Wolfgang Tiefensee	Minister of Transport, Germany
Rapporteur	Julia King	Aston University
	Peter Augustsson	Former CEO, Saab
	Thierry Morin	CEO, Valeo
	Spyros Polemis	Chairman International Chamber of Shipping
	Hartmut Mehdorn	CEO, Deutsche Bahn
	Hans-Jorg Grundmann	CEO Mobility, Siemens
Ministry representative	Tyler Duvall	Assistant Secretary, U.S. Department of Transportation

B. Context and objectives of the panel

This second panel session focused on strategies for and problems involved in bringing fuel efficient transport technologies to markets: this included examination of the factors of successful market penetration, barriers to implementation, and how to overcome them. The respective roles of government and the private sector were highlighted, with particular focus on governmental support for research and innovation on the one hand and a sufficient institutional framework for transforming technology over time on the other hand.

C. Highlights from the exchange

The discussion was opened by German Federal Minister of Transport **Wolfgang Tiefensee**, who posed some of the most pressing questions concerning the introduction of energy-efficient transport technologies: where is the greatest potential for success? How can we pave a way for these technologies in order to ensure that they reach the consumer quicker than they do to date? What instruments can we use? Does it make sense to set objectives for CO₂ reduction or efficiency gains?

Rapporteur **Julia King** of Aston University summarised discussions held at the Forum workshop on Advances in Energy-efficient Transport Technologies held the previous day, stating that there had been cautious optimism among workshop participants: an improvement of around 30% in car efficiency was considered realistic in the short term by developing and optimising

existing conventional technologies. But in order to achieve this, she noted, the historic trend of offsetting efficiency improvements through performance and feature creep has to be avoided in future. According to Professor King's summary, there will be a significant development in the market for plug-in hybrids by 2030 and for electric vehicles by 2050.

1. *Automotive Technologies*

US Assistant Secretary for Transportation **Tyler Duvall** and **Peter Augustsson**, former CEO of Saab, both agreed that a significant part of the solution to the transport and CO₂ problem is linked to technological development. Mr. Augustsson pointed to the importance of vehicle weight reduction, but signalled the accompanying higher vehicle costs as a major challenge to the automotive sector. He noted, however, that customers who have once bought an environmentally friendly car will not go back to buying more polluting cars. Furthermore, many technologies could be introduced on the basis of state-of-the-art combustion engines, he said, and therefore these and also fuels need further development.

Concerning conditions for the industry when it comes to investing in technology development, **Peter Augustsson** and **Thierry Morin**, CEO of Valeo, both called for firmer steps by policy-makers to produce guidelines that do not distort competition — a view expressed by many on the panel and among Forum participants.

Mr. Morin stated that he does not believe the full hybrid to be profitable. Instead he recommends looking for alternatives between the full hybrid and the current internal combustion engine. The CEO of Valeo put forward the microhybrid as an example, which starts the car each time that it is needed and recharges the battery when it is not. Morin called this technology especially promising in city traffic, as opposed to combustion engines which, he said, have demonstrated only a small portion of their potential efficiency.

Referring to government intervention, **Tyler Duvall** cautioned against regulating performance, but supported instead setting incentives based on a specific objective, which in this case is fuel economy and emissions mitigation. With the technology currently available, he said, the car market in the United States must substantially improve fuel economy instead of favouring performance. Mr. Duvall additionally noted a change in US driver behaviour observed since the price of oil has increased. "We have reached a tipping point," Mr. Duvall said.

2. *Railway Technologies*

Hans-Jörg Grundmann, CEO of Siemens Mobility, pointed to the potential of tram systems, citing developments in the United States in particular, and calling the tram a modern and economical means of mass transport with a promising future. Mr. Grundmann explained that combining modern mass transport with demand management policies such as congestion charges can bring about a significant reduction in emissions; he mentioned London as a good example, where 125 000 tons of CO₂ are saved each year due to the city's charging scheme.

Minister Tiefensee steered the discussion to international rail transport, pointing to the difficulties in finding a modus operandi in particular with regard to available capacity and cross-border traffic. Neighbouring railway systems need to interface much better than road carriers do, he said. But international experience to date demonstrates that railway systems do not work together very well, he said, and are still excessively oriented towards their national borders. In

future, Minister Tiefensee said, harmonisation of signals and driving permits is necessary, as well as a European control system.

Comparing rail and motor vehicles, **Hartmut Mehdorn**, CEO of Deutsche Bahn, stressed the significantly longer investment cycles of rail, with the life expectancy of trains reaching at least 25 to 30 years. Along with technological innovation, Mehdorn said, more efficient use of rail infrastructure was necessary, as was accelerating the entire logistical process.

The CEO of Deutsche Bahn outlined the commitment of all European rail operators — “although some still have to be pushed” — to reducing their emissions by 20-25%. Referring to Germany, he listed several approaches in use, including power recycling brake systems, training for engine drivers in eco-driving as well as incentives for and monitoring of environmentally aware drivers.

He also underlined the necessity for rail to attract more attention from university and research institutions through funding of research, such as the aerospace and automotive industries do. “Once the money is there, ideas will be born,” Mr Mehdorn, said.

Regarding prospects for use of fuel cells for rail, everything tested to date has turned out to be either too small or not robust enough for rail, Mr. Mehdorn said. Therefore, the exchange of research and experience with other industries is important. Mr. Mehdorn further called for an integrated and strategic master plan for logistics in Europe including road, rail and air transport.

3. Shipping Technologies

The Chairman of the International Chamber of Shipping (ICS) **Spyros Polemis** addressed Ministers of Transport, requesting more consultation with industry in order to develop more effective regulations. Calling shipping the most global industry, carrying more than 90% of the world’s goods, he highlighted the need for global solutions in order to avoid distortion in competition. He predicted that in today’s economy, regions such as Europe risk losing shipping altogether.

Mr. Polemis also described shipping as by far the most carbon-efficient form of commercial transport, especially after undergoing a “quiet revolution” with improvements in efficiency of almost 20% over the last few years through engine and ship design modifications.

According to Mr. Polemis the industry will remain reliant on fossil fuels in the medium term; immediate efforts to reduce CO₂ emissions have therefore focused on reducing fuel consumption. Longer-term energy alternatives have not been forgotten, however. But renewable energy sources have not proven practical to date for providing sufficient power for ship operations, he said, and fuel cells are currently too limited in range to offer a viable short-term solution.

Referring to the impact of lower speeds on emissions reduction, the ICS Chairman asserted that further detailed studies are necessary before deeming this a viable measure.

D. Rapporteur's Summary

Panel Rapporteur **Julia King**, Vice Chancellor of Aston University, summarised the discussions, stressing that a very strong message had been sent to governments, and Ministers of Transport in particular to ensure an open transport system across modes in Europe – particularly an open European sky.

A further message to politicians, she noted, was the general acceptance of regulations by industry, as long as these respect competition and are developed in cooperation with industry.

Concerning innovation, Ms. King pointed out that in addition to development of new technologies, conventional automotive engines should not be forgotten, as innovation still has potential to bring about significant improvements in that area. Furthermore, Professor King noted, there is much potential benefit in technology spill-over among the different transport modes, which could result in interesting new opportunities.

Innovation concerns not only technologies, she said, but operations and infrastructure as well. Efficient movement among modes is a good way to make use of both the CO₂-effective and cost-effective modes.

In order to accomplish all these goals, Professor King said, young people must be inspired and convinced to work in these transport areas and across all of the sectors.

III. SUMMARY OF PANEL 3: IMPLEMENTING INTEGRATED POLICIES AND PLANNING

A. Participants in the panel

Chair	Moritz Leuenberger	Minister of Transport, Switzerland
Rapporteur	Werner Rothengatter	Karlsruhe University
	Scott Price	CEO DHL Express Europe
	André Navarri	President Bombardier Transportation
	Klaus Axelsen	Group VP, A.P. Moeller-Maersk A/S
	Joakim Larsson	Vice-Mayor Stockholm, Sweden
	Peter Hendy	Commission on Integrated Transport, United Kingdom

B. Context and objectives of the panel

This panel session served as a platform for representatives of government and industry to discuss the possibilities and limitations of transport policy in meeting the energy and climate change challenges of the transport sector. The panel reviewed the policy experience to date particularly as concerns economic and regulatory instruments. The debate included discussion on who actually controls transport activity – politicians or business, and touched on the pros and cons of regulations and other types of policy incentive as means of moving the general public towards more sustainable travel behaviour.

C. Highlights from the exchange

Swiss Minister of Transport **Moritz Leuenberger** opened the session by asking panellists ‘who actually controls mobility policy — politicians or the business sector?’ He pointed out that travel behaviour and mobility are largely driven by the automotive industry, with the government in a more-reactive role -- called upon to fund and provide the necessary infrastructure.

1. *Drivers of Mobility Demand*

Panel Rapporteur Werner Rothengatter noted that influencing the desire of people to travel is difficult to change via policy, whilst choice of transportation mode and destination can be more readily influenced. If costs of car travel are made to increase, he explained, and if a sufficient variety of mobility services is provided, people will then be more susceptible to behaviour change.

André Navarri, President of Bombardier Transportation expressed his view that governments can and should influence behaviour and demand. Despite the growth in car numbers in countries like China, for example, there still exist opportunities to influence travel behaviour, and investments in mass transit are “massive” in China, he said.

Mr. Navarri further noted the success of France’s TGV as a positive result of government intervention, demonstrating that politicians can influence the way people and goods are moved. In addition, he noted, France is currently deploying the biggest fleet of regional trains in an effort to encourage regional modal shift to rail.

Peter Hendy called any suggestion that governments only follow industry’s lead entirely false, at least as concerns urban transport. Mr. Hendy argued that there is virtually no developed city in the world in which the provision of public transport is a commercial initiative on its own account. Instead, the development of cities — where half of the world’s population lives — is in his opinion dependent on adequate mass transit, which in general is by nature neither successfully financed nor operated privately without some sort of public intervention. Furthermore, Hendy argued, there is no commercial interest, for example, in promoting walking, and therefore it is left to governments to persuade drivers to leave their car in the garage more often and walk instead.

Referring to congestion charging and improvement of bus services such as those in London, the Commissioner on Integrated Transport spoke in clear favour of this type of incentive. In the case of measures such as congestion charging, he said, government’s support for public awareness and education concerning the measure is a precondition for its potential success in altering everyday travel behaviour.

Because people need to be able to work where they live, **Joakim Larsson**, Vice Mayor of Stockholm, insisted on land use and city planning in addition to public transport as key factor in reducing CO₂ emissions. He noted the integrated nature of Stockholm’s transport strategy, which takes infrastructure, city planning, and cleaner vehicles into consideration together. In line with this integrated approach, Stockholm has also successfully introduced a congestion charge, he said, which has helped increase the number of people choosing public transport over private cars by at least 20%.

2. *Limits of Government Intervention*

Pointing to the limits of government’s role, **Klaus Axelsen**, Group Vice President of A.P. Moeller-Maersk, stated that political action should not govern demand, as supply and demand together serve as a natural regulator. Attempts to regulate on a large scale have never been successful, he said. He did not, however, rule out the potential benefits of governance on smaller scales, for example for transport in and around cities and as a source of incentive for more sustainable travel behaviour. Wherever regulations are necessary, though, Mr. Axelsen said they should be global and neutral in nature in order to avoid distortion of competition.

He noted as well that raising awareness of the importance of energy efficiency is not only the responsibility of politicians, but also of industry, which must play a role here as well. In this respect, his company is planning to launch a massive energy-efficiency campaign targeting all employees, he said.

Mr. Axelsen cautioned against considering transport distance alone when choosing which modes to promote for certain types of freight transport. Decision-makers must take into account the total life cycle of products with regard to their CO₂ footprint, he said.

Agreeing with Mr. Axelsen, DHL Express Europe's CEO **Scott Price** referred to the impact of current high oil prices, urging governments to rely on market mechanisms and avoid attempting to control supply and demand macro-economically. As an example of the way markets regulate, he cited the rush to China five to seven years ago of all the major corporations due to wage arbitrage. With oil prices now as high as 150 dollars per barrel, however, the scenario has changed in such a way, that the costs of transport are higher than the wage arbitrage, he said. And as a result of this change in market prices, corporations are reconsidering their location choices.

In Mr. Price's view, the appropriate roles for government include motivating sustainable transport and travel choices through cooperation with industry and fiscal and other incentives; providing infrastructure and public transportation, and improving public awareness.

D. Rapporteur's Summary

In his summary of the panel discussions, Werner Rothengatter stressed the need for individual country policy approaches to influence travel and transport demand, pointing out that an appropriate mix of policies and measures must be defined for each country.

He asserted that the desire for mobility and the benefit provided by international exchange cannot be influenced by government. However, the way mobility and logistics are carried out can. Mr. Rothengatter further called attention to the general dilemma in governance between ensuring that social and environmental needs are met on the one hand, and economic growth on the other.

In this context, he also highlighted the fact that people who are affected by pricing systems or other political instruments are also voters, and therefore in a position to put pressure on politicians. This means, he said, that environmentally friendly behaviour has to pay off in the long run.