

DINNER/DISCUSSION SUMMARY

Is it feasible to define a sustainable transport policy?

Held at The Royal Society on 25th June, 2008

We are grateful to the Technology Strategy Board and the Department for Transport for supporting this event.

- Chair:** **The Earl of Selborne KBE FRS**
Chairman, The Foundation for Science and Technology
- Speakers:** **Professor Brian Collins**
Chief Scientific Adviser, Department for Transport and Department for Business, Enterprise and Regulatory Reform
- Dr Bernie Bulkin**
Chair, Steering Group for Climate Change, Energy and Transport, Sustainable Development Commission
- Ian Dobbs**
Chief Executive, Stagecoach Rail
- Roger Wiltshire**
Secretary General, British Air Transport Association

PROFESSOR COLLINS demonstrated the usage curve that all transport modes - canals, railways, roads, motorways - had shown; sharp growth followed by a flattening as users moved to a new mode. Air and the internet would follow the same pattern. We now, however, needed to learn how to integrate the various modes and understand demand. Transport policy could then be considered in the light of the various modes, their use and the consequences for the environment, the economy and social cohesion. Large scale consultation had just been completed and a White Paper based on its results would be published shortly. While overall the increase in energy use was smaller than the increase in GDP - greater energy intensity - this was not true of transport. Transport policy must take account not only of this demand on fossil fuels, but also changing demography (more old people), the needs of business and the workforce and changing spatial patterns. The biggest factor in car use was commuting, followed by business and shopping. Integrating subsystems into systems through use of technology and information, facilitated easy access to the whole, (London Underground had made a start) and relating systems to each other, was vital. Systems engineering - elucidating demands - analysing trends and patterns - forecasting outcomes which could maximize advantage was essential. Such a process required detailed information maps based on vast quantities of data indicating the players, the modes, the environmental, economic and social outcomes. Only through these means could a sustainable transport policy which met the challenges of climate change, competitiveness and enhancing equality of opportunity be formulated.

DR BULKIN strongly endorsed Professor Collin's emphasis that transport policy must be based on systems engineering. The rise and decline of cities was, in many cases, defined by their ability to handle transport problems and understand their effects. It was important not to commit to specific projects without understanding their consequences - e.g. park and ride schemes which merely shifted congestion; road pricing which increased emissions. A sustainable transport policy was one which not only operated within acceptable environmental limits, but also promoted economic and social goals. He considered high speed rail contained many of the elements which had to go into such a policy and he supported the latest Network Rail suggestions. Capacity must be added to the existing network to meet rising and changing demand. High speed rail

(210 mph) would deliver city centre to city centre travel between virtually all UK cities within 2 1/2 to 3 hours. Spanish experience showed that such a network (comprehensive and not just a spoke-and-hub London oriented network) delivered significant modal change. Such a network also relieved pressure on the existing network enabling increased passenger and freight usage to be accommodated; linked to major hub airports, it would be of great economic benefit. Lighter speed trains (such as the Japanese) would not necessarily produce more Green House Gases (GHGs); but the full environmental benefits would not emerge until electricity production itself was decarbonised.

MR. DOBBS outlined the historical growth of rail usage, peaking during WW2, declining thereafter, but rising since the 1990s. 2007 had record passenger usage, on a network half the size of the 1950s, with increased quality in punctuality and comfort employing the most modern train fleet in Europe. In spite of recent economic problems, public transport use continued to rise and its effectiveness was a high priority in the public mind. Perceptions and expectations about public transport had changed - it used to be a second best option to car, but customers now demanded that it be clean, punctual and increasingly, demonstrated its green credentials. Rail companies could do much to improve their green image by marketing their efforts to reduce waste, conserve energy and train drivers and staff to operate with environmental benefits. There were considerable opportunities to partner with other institutions (such as local authorities over waste) to enhance understanding and produce synergies. But the major restraint was capacity and there was an urgent need to invest in improving the existing network, developing green technology and partnering, as well as delivering major projects.

MR WILTSHIRE outlined the progress which had been made since the UK aviation industry had published its paper on Sustainable Aviation in 2005 and to which 90% of UK carriers were committed. The strategy had covered social, economic and environmental issues, within a global policy framework of stabilizing GHGs. Achievement meant enlarging the EU cap-and-trade emissions system, supporting new technology and using market mechanisms, such as passenger information and offering offsets. Energy efficiency had improved by 50% over 30 years and the target was another 50%. Air travel needed

to be seen in its proper context – e.g. it caused only 2% of emissions; it paid an “environmental” tax of £2bn; it was vital for meeting travel demands and was a world success for UK industry. The industry was well aware of other problems besides GHG emissions such as NO_x emissions, noise and the possible effects of jet trails and cirrus clouds on climate (more research needed to be done on the last). They were working hard to mitigate these.

Speakers in the subsequent discussion, while sympathizing with Professor Collins on his inability to disclose the arguments and conclusions of the forthcoming Green Paper, endorsed his concept of a sustainable transport policy which integrated modes and was based on systems engineering which tried to understand demand, analyse options and consider outcomes across a matrix of objectives - environmental, economic and social. But there was some concern that insufficient emphasis had been put on the need for integrating transport policy with land use and planning. Already, to a large extent, existing land use governed the use of transport modes - car journeys to the supermarket, or to the station car park, because there was little alternative in suburban living. Could existing patterns of development be tweaked to use public transport more effectively and car usage reduced? What about new developments? For example, there seemed to have been no regard for transport usage in setting the new Ecotowns. Moreover, there seemed to be little connection between transport policy and other Government social policies. If rural post offices were to be closed and local hospitals shut, there would inevitably be more car usage and increased problems for the poor and deprived. Scotland might have lessons for the UK in its more coherent land use and transport policies. It would be possible, for example, to encourage the growth of smaller centres of employment, rather than the huge centres such as Canary Wharf and the City, so reducing the problems of peak hour overload. A particular problem was the effect of the carriage of imports from ports to industrial and commercial centres. At present, the great bulk of container imports came into three ports, which put great strain on both road and rail links. It was important that other ports should be developed or improved which could handle some of the traffic and reduce journey times. This was feasible and coastal shipping was increasing, but the investment required was large, many of the ports were privately owned and it was doubtful whether there was enthusiasm by private investors to make the investment.

Speakers also raised issues over the effect of fuel prices and taxation. Environmentally, it must be good if higher fuel costs reduced consumption. But it was becoming more and more apparent that the effect of price rises hit the poor, those who lived in rural areas, or who needed to use car or van transport particularly hard. Did the government have any suggestions for mitigating the differential effects of high fuel prices? If fuel prices were already high, it became politically much more difficult to tax vehicle use either through fuel or other taxes. Would hypothecating a fuel tax for environmental or other beneficial uses modify people's reluctance to pay? Would resistance decline if the tax were committed to environmental improvements or a specific social benefit? But this was a fantasy given the Treasury's fundamental objection to hypothecation. The government should be much more robust in persuading people to take more responsibility for their fuel costs by, e.g. more careful driving and sensible use of the internet for shopping and business. Observing speed limits would be a start; but the government was inconsistent - the distance notices on the M25 still assumed that traffic moved at 70mph between junctions; the Post Office still wasted many parcel delivery journeys because they would not deliver on Saturdays. Little mention had been made of the possibility of successful electric cars, but there had recently been a step change in their use and technology. Project Better Place had committed to investment which would enable Denmark, Israel and Singapore to rely on electrically driven cars.

Speakers had major concerns over priorities and timescale. It was vital both to improve the existing infrastructure and to plan for major projects within a defined timescale. The fear was that the public finances would not accommodate both and it was always tempting for Ministers to announce major eye-catching projects, rather than focus on small improvements which could be done quickly. It was argued that the usage of the existing infrastructure could be significantly enhanced without major and lengthy physical work principally by better real time information which enables travellers to plan journeys, avoid disruptions and understand the effects of their own behaviour. If passengers at Clapham Junction - where at present it took three trains to clear the platforms at peak hour - knew more precisely which train was best and less crowded, they might alter their own travel pattern; on the motorway, signs about jams and informing drivers about the effects of speed on flow patterns were effective.

Behavioural change was crucial to reducing car usage and encouraging people to use public transport. A significant inducement was - as Mr. Dobbs had said - to publicize the green initiatives public transport companies were undertaking, such as reducing waste and also to give travellers a sense that they had a part in any environmental actions. (It appeared that Glaswegians responded enthusiastically to the news that their buses were fuelled with “chip fat”.) A hopeful factor was the enthusiasm of young people for work which had environmental benefit; for example, because nuclear was now seen as a valuable source of non-fossil fuel, young people who would earlier have scorned the subject, now wished to study and learn about opportunities in the nuclear sector.

Finally, while speakers endorsed the view that environmental, social and economic objectives must be pursued simultaneously in developing a transport strategy, there was an underlying scepticism that this could be achieved without significant compromises. The media could help in installing a sense of realism, but not at the expense of spreading such gloom about the prospects of improvement, that people gave up hope.

Sir Geoffrey Chipperfield KCB

Presentations from the meeting are on the Foundation web site at www.foundation.org.uk.

British Air Transport Association:

www.bata.uk.com

Department for Transport:

www.dft.gov.uk

The Energy Technologies Institute:

www.energytechnologies.co.uk

Ford Motors:

www.ford.co.uk

GM Europe:

www.gmeurope.info/social_media_newsroom

Lotus Cars:

www.grouplotus.com

Network Rail:

www.networkrail.co.uk

Nissan UK:

www.nissan.co.uk

Research Councils UK:

www.rcuk.ac.uk

Stagecoach Group:

www.stagecoach.com

Sustainable Development Commission:

www.sd-commission.org.uk

Technology Strategy Board:

www.innovateuk.org

Toyota GB:

www.toyota.co.uk

Virgin Rail:

www.virgintrains.co.uk



Technical Specification

Engine:	Supercharged 1.8 litre VTL-I Air/air intercooler
Max Power:	270 bhp (201 kW / 273 PS) at 8000 rpm
Max Torque:	184 lbft (260 Nm) at 5500 rpm
0-60 mph:	0-60 mph: 3.88 seconds (0-100 km/h: 4.1 seconds)
Max speed:	158 mph (255 km/h)
Fuel:	Any mixture of Petrol, Bioethanol E85 or Methanol
Gearbox:	C64 six-speed gearbox Torsen type LSD
Vehicle mass (unladen):	930kg

270E
TRI-FUEL

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Lotus Cars kindly displayed a tri-fuel vehicle at the meeting. This vehicle runs on one fuel tank from a blend of neat methanol, ethanol or normal petrol.