Environment and Energy

ATOC's view

• ATOC members are fully committed to minimising the environmental impact of their operations and to maintaining rail's environmental lead over other modes of transport. Central to this is action on energy consumption and associated carbon dioxide emissions.

• Rail's impact goes wider and TOCs are also taking steps to manage railway noise, air and soil pollution, water usage and waste.

• Rail is part of the solution to reducing overall CO_2 emissions. Mode shift to rail from more carbon intensive modes can deliver a net reduction in total transport emissions.

• Operators are working hard to reduce rail's own carbon footprint further through a range of energy saving initiatives. However, there is a limit to what can be achieved in the short-medium term given low asset turnover and rising demand for rail services.

• ATOC believes that electrification can contribute to significant reductions in rail's carbon footprint while delivering more capacity, reduced journey times and improved train reliability.

• ATOC work for Greengauge 21 demonstrates that modern, energy efficient high speed trains can provide a competitive, low carbon alternative to domestic air and car travel for intercity journeys.

Background and key issues

• Rail emits less than 1% of total UK CO_2 and has a demonstrably lower carbon footprint compared to both car and air: on average rail produces around half the CO_2/passenger km of car travel and about a quarter that of domestic air travel.

• Planned growth in services will most likely lead to an overall increase in rail CO_2 emissions in the short to medium term. However we believe a 50% reduction in carbon dioxide emissions is possible in the longer term, building on recent progress in reducing the carbon impact of rail through electrification, the use of greener, cleaner fuels and delivering further energy efficiency improvements.

• Importantly, while rail's emissions are projected to grow, where some or all of the anticipated growth in demand comes from more carbon intensive modes such as car and air, this should contribute to net reductions in UK transport emissions.

• Looking ahead, electrification will provide significant reductions in rail emissions. Electric trains are currently some 25-30% more carbon efficient compared to diesel trains and could become ultra-low carbon if Government plans to decarbonise electricity generation are fulfilled. Electrification will also deliver faster journey times and more capacity, both of which would help to attract people from other, more carbon-intensive modes.

• In this context ATOC welcomes the Government's commitment to electrify both the Great Western Main Line (GWML) and Liverpool-Manchester via Chat Moss route but believes there is also scope for further small-scale electrification schemes which would cover an additional 400 route miles.

Relevant ATOC activity

• TOCs are implementing a wide range of measures to reduce energy consumption and CO_2 emissions. This makes good business sense – it reduces costs – and delivers against wider UK commitments to reduce carbon emissions. Measures include:

○ *Deployment of regenerative braking:* Brake regeneration allows electric trains to return energy used under braking to either the grid or other trains in the same geographic region. 'Regen' braking is already in operation on the overhead AC network where operators with regenerative braking capability are delivering savings of 15-20% per train km. A programme is ongoing to extend regenerative braking to those trains that are capable of it on the DC 'third rail' network south of London.
○ *On-train metering:* A cross-industry programme, supported by ATOC, DfT and Network Rail, is underway to fit on-board energy meters to the electric train fleet. Metering will provide train operators with the means to accurately measure and therefore manage their energy consumption downward.
○ *Eco-driving:* A number of train operators have established training programmes to train drivers in energy efficient driving techniques. In some cases these are supported by the use of simulators to support driver learning. Combining eco-driving with on-train metering can bring significant energy savings.

• TOCs are also actively managing site energy use at stations and depots. Since April 2010, owner groups and their TOCs have been participating in the Government's Carbon Reduction Commitment (CRC) Energy Efficiency Scheme. The CRC is an emissions trading scheme designed to reduce site energy use emissions from large and medium sized businesses through financial and reputational incentives and in response train operators are working hard to find ways to reduce emissions from stations, depots and offices.

Key documents/links
ATOC Energy and Emissions Statement:
http://www.atoc-comms.org/dynamic/publications/21/Energy-and-Emissions-Statement
Committee on Climate Change:
http://www.theccc.org.uk/
Carbon Reduction Commitment:
http://www.environment-agency.gov.uk/business/topics/pollution/98263.aspx

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