



The Scottish Parliament
Pàrlamaid na h-Alba

TRANSPORT, INFRASTRUCTURE AND CLIMATE CHANGE COMMITTEE

AGENDA

6th Meeting, 2009 (Session 3)

Tuesday 10 February 2009

The Committee will meet at 2.00 pm in Committee Room 6.

1. **Climate Change (Scotland) Bill:** The Committee will take evidence on the Bill at Stage 1 from—

Chris Austin, Head of Public Affairs, Association of Train Operating Companies;

Marjory Rodger, Director of Government Relations in Scotland, Confederation of Passenger Transport UK;

Derek Halden, Director, DH Consultancy;

and then from—

Gordon Dewar, Managing Director, Edinburgh Airport, BAA Scotland;

Robert Ashdown, Head of Technical Division, Chamber of Shipping;

Gordon Wilmsmeier, Senior Research Fellow, Transport Research Institute, Napier University;

Dr Alice Bows, Core Researcher, Tyndall Centre Manchester;

and then from—

Paul Tetlaw, Chair, Transform Scotland;

Jeff Gazzard, Coordinator, GreenSkies Campaign;

John Lauder, National Director for Scotland, Sustrans.

TIC/S3/09/6/A

Steve Farrell
Clerk to the Transport, Infrastructure and Climate Change Committee
Room T3.40
The Scottish Parliament
Edinburgh
Tel: 0131 348 5211
Email: steve.farrell@scottish.parliament.uk

The papers for this meeting are as follows—

Agenda item 1

Private paper

TIC/S3/09/6/1 (P)

Written evidence from ATOC, CPT, BAA Scotland, Chamber
of Shipping and Transform Scotland

[TIC/S3/09/6/2](#)

Scottish Parliament Transport Infrastructure & Climate Change Committee

Climate Change (Scotland) Bill

Background Note by the Association of Train Operating Companies (ATOC)

Introduction

1. This paper provides background information from the Association of Train Operating Companies (ATOC) for the Committee's scrutiny of the Climate Change (Scotland) Bill. It highlights the contribution rail can make to some of the policy issues that arise from the Bill, in particular the potential for reduction of energy consumption and emissions in transport. We are scheduled to give oral evidence to the Committee on 10 February and will be happy to provide further written information following this if the Committee would find this helpful.
2. We would emphasise the important role rail can play in reducing carbon emissions from transport:
 - Rail has a substantially lower carbon footprint (CO₂ per passenger kilometre) than car or domestic air rail and has reduced this by 25% in the last ten years. Modal shift to rail from more carbon intensive modes can reduce total transport emissions.
 - Train operators are committed to further reductions in rail's carbon footprint and are implementing a range of initiatives designed to reduce energy consumption and associated CO₂ emissions;
 - Further electrification offers the opportunity for further reductions in emissions from rail and, in the long term, to provide a very low carbon form of travel. This is particularly important since road and air will continue to rely heavily on petroleum-based fuels for many years and reductions in the carbon intensity of these fuels will be much more difficult to achieve.
3. Given its increasing environmental advantages, the best thing the railway can do to support Scotland's carbon reduction targets is to carry a greater share of national passenger travel and freight movement. Train operators will attract passengers onto the railway where capacity exists to do so. We therefore strongly support the recent and current investment in rail capacity being made.

Background

Rail's environmental performance

4. Recent work undertaken by ATOC has confirmed rail's continuing carbon advantage over competing modes. The figures below are for Great Britain:
- On a per passenger kilometre basis, rail emits approximately half the CO₂ of car travel and a quarter that of domestic air.
 - Rail has reduced its carbon footprint (CO₂ per passenger kilometre) faster than other modes – by 5% in the last year and by 25% over the last decade. In comparison, cars have seen a 9% reduction over the last ten years while UK domestic air has worsened, increasing by 11%.
 - Rail can carry additional passengers with minimal carbon impact by filling spare capacity and extending train length. In the long term we believe rail can provide additional capacity at a very low carbon penalty.

The rail industry is actively taking steps to reduce its carbon footprint still further. A programme of initiatives is in hand including:

- The roll-out of regenerative braking, where electrical energy generated under braking is returned back to the grid;
- 'Eco-driving' (using the optimum power to maintain the schedule);
- On-train metering, which will enable much improved energy management and;
- Re-engining of High Speed Diesel Trains with improved fuel consumption and quieter engines.

Modal shift

6. Given rail's relative carbon advantage there is a significant opportunity to tackle carbon emissions from transport within Scotland through modal shift from road to rail. Road transport emissions currently comprise approximately 17% of Scottish CO₂ emissions – the second largest source after power station emissions. CO₂ emissions from road transport in Scotland have grown by over 11% since 1990 despite total CO₂ emissions falling by 7% over the same period. Similarly, emissions from domestic flights originating in Scotland have more than doubled since 1990.¹

¹ NAEI Greenhouse Gas Inventory data for Scotland (1990-2006).

7. Modal shift from road and air to rail, where practicable, can therefore help to reduce (or limit the growth in) overall carbon emissions from transport in Scotland.

Improving capacity/integration

8. As regards existing service provision, rail currently delivers a number of critical services in Scotland:
 - Supporting significant flows in the Central Belt, particularly between Edinburgh and Glasgow;
 - Providing a key role for commuters in Strathclyde with a dense electrified network and a key role in commuting to Edinburgh, particularly from Fife
 - Providing fast links to London well as connections to other major cities such as Birmingham, Manchester, Newcastle and Liverpool and;
 - Providing important social links to rural communities in South West Scotland and the Highlands.

The Scotland Route Utilisation Strategy, published in March 2007 by Network Rail, forecasts that Scottish rail demand would grow by 3% pa and freight by 10% by 2016.

High speed rail

9. Modern electric high speed trains provide a fast, comfortable and very energy efficient alternative to domestic aviation. ATOC analysis indicates that, on a per seat km basis, short haul jet aviation is around 4-5 times more carbon intensive than electric high speed rail (using the current UK generation mix). In the longer term, as the electricity supply is progressively decarbonised, electric high speed rail's carbon performance could be expected to improve rapidly. High speed rail is therefore a very attractive alternative to existing domestic air services and further airport capacity expansion. Significant modal shift from air to rail could make an important contribution to reducing emissions from this market.

Summary and recommendations

10. Rail has a demonstrable – and improving – carbon advantage over competing modes. Modal shift to rail, particularly from road, is a key mechanism for reducing overall carbon emissions from transport. In light of this, the single most important role rail can play in reducing carbon emissions is to carry a greater share of travel demand, both passenger and freight.
11. In closing, we also underline the following points:
 - Rail's significant carbon advantage over other modes should be fully reflected in any strategies developed to meet the targets set out in the Climate Change (Scotland) Bill;
 - Electrification brings the potential for sourcing power from very low carbon supplies. This will widen rail's carbon advantage over both road and air which will continue to rely on carbon-intensive, petroleum-based fuels for some time to come;
 - There is potential for electric high speed rail to reduce overall CO₂ emissions with mode transfer from domestic air traffic movements.

Chris Austin, OBE
Head of Public Affairs
Association of Train Operating Companies

5 February 2009



Climate Change (Scotland) Bill – Call for Views Transport, Infrastructure and Climate Change Committee

The Confederation of Passenger Transport (CPT) is the trade association for bus, coach and light rail operators across the United Kingdom. In Scotland our members run over 90% of the registered bus network. CPT has already submitted a response to the Climate Change Bill Consultation but is grateful for the opportunity to make a further response to the Transport, Infrastructure and Climate Change (TICC) Committee in advance of the Committee's consideration of the Bill at Stage 1.

This response only addresses the questions outlined by the Transport, Infrastructure and Climate Change Committee that are relevant to the interests of our members. The earlier CPT response to the Climate Change Bill Consultation, which gives more detail on areas not specifically referred to in the questions outlined by the TICC Committee, is attached as an annex to this response.

Issues on which the Committee is seeking views:

Question 12. The Bill requires the Scottish Government to produce an action plan setting out current and proposed measures to improve the energy efficiency of buildings in Scotland, as well as measures to encourage behavioural change.

What are your views on this proposal?

The Confederation of Passenger Transport (CPT) supports the requirement for action plans to improve the energy efficiency of buildings as well as measures to encourage behavioural change.

Many of the ways in which public transport can aid the Scottish Government in achieving the ambitious targets for the reduction of greenhouse gas emissions were detailed in CPT's response to the initial Climate Change Bill Consultation (Annex 1). However, the business of running Scotland's bus and coach services extends beyond the actual rolling stock. CPT's members are also responsible for the offices and depots they operate from and, to an extent, the behavioural attitudes towards climate change and energy efficiency expressed by staff.

One example of good practice is First Group, who are carrying out a series of initiatives to reduce energy usage from their depots, resulting in a drop in energy usage of 19% since 2004 (The 19% equates to 4,537 tonnes of carbon dioxide). This reduction has been achieved through behavioural changes, new and low cost energy reduction initiatives and investment in heating management systems.

First Group are also in the process of installing half hourly meters at all 600 locations with the energy being derived from 100% renewable sources - including on-shore wind, small scale hydro and biomass. The installation of smart meters will support the company in achieving further energy reductions in their buildings.

Stagecoach has also signed a contract to source most of its electricity requirement for its UK bus operations from renewables. Energy generated from mostly small-scale hydro, as well as on-shore wind and biomass, will provide more than 70% of the company's required supply, with the remainder coming from cleaner, low-carbon sources. Smart meters are also being installed to help cut energy use across its 240 UK sites.

Other operators are following suit by reducing energy consumption through investment in new buildings and workshops, temperature control systems and smart metering; sourcing electricity from renewables; reducing water consumption through investment in low usage/recycling devices; improving waste management by the recycling of passenger, maintenance and office waste and engaging staff in environmental management through training and development.

Public transport is rightly regarded as the greener alternative to the private car. Therefore, it would be remiss of our industry if we were not readily aware of the many ways in which an operator can reduce emissions, cut energy use and encourage behavioural change amongst staff and passengers.

Scottish Government action plans on these subjects would be welcomed to help spread these messages and to give examples of best practice to enable our members to attain the enhanced Energy Performance Certificate mentioned within the Climate Change Bill.

Question 20. Do you have any comments on the Bill?

CPT supports the Minister for Transport, Infrastructure and Climate Change, Stewart Stevenson's view that it is unfeasible to create sectoral targets as the relatively high margins for error would make it difficult to record sectoral progress in smaller sectors accurately.

However, CPT has recently carried out some research that demonstrates the potential value of encouraging modal shift to achieving the Scottish Government's 2030 and 2050 targets:

- Carbon Dioxide emissions from the surface transport sector are around 25% of the UK total
- 54% of UK transport sector emissions are from cars with bus accounting for 3% and train 2% (source: Defra 2007)
- Carbon Dioxide emissions from the surface transport sector continue to rise.
- Carbon Dioxide emissions per passenger journey from buses and coaches are around one third less than those of cars.
- Around 63% of carbon dioxide emissions from cars arise from journeys of less than 25 miles which can readily be made by bus.
- Use of public transport helps reduce congestion, which in turn improves road safety and local air quality.
- Moving buses produce far less emissions than an idling bus. In fact, increasing average road speed by just a couple of km/h reduces emissions significantly while also increasing reliability and punctuality.
- If every bus in the UK took just one more car driver we could save up to 1.2 million tonnes CO₂ per annum.

Public transport, by its very nature, is a greener solution. However, operators in Scotland are not resting on their laurels:

- The average fleet age in Scotland compares favourably to the rest of the UK and is decreasing further as operators gear up to run full accessible fleets by 2017.
- The introduction of the Driver's Certificate of Professional Competence (CPC) means that all bus drivers will receive continuous professional development with training on subjects including how to drive more efficiently and economically. This includes smoother braking, slower acceleration, more efficient gear changes and less idling.
- The UK's first bio-buses, which run on 100% biodiesel, are running in Kilmarnock.
- Scotland's first carbon neutral bus network is in operation between Fife and Edinburgh; and,
- Hybrid vehicles will shortly be introduced in Glasgow.

Scotland is really leading the way in several of these areas.

CPT welcomes the Climate Change (Scotland) Bill and hopes that the action plans and guidance that will inevitably follow will take note of the work that Scotland's bus and coach industries are already undertaking and will consider measures to support investment in emerging transport technologies; encourage partnership working with the public sector to improve local bus infrastructure; and promote modal shift.

ANNEX 1

The Scottish Government
Climate Change Bill Consultation
1-G North, Victoria Quay
Edinburgh
EH6 6QQ

Dear Sir/ Madam,

Climate Change Bill Consultation

I am writing to you on behalf of the Confederation of Passenger Transport (CPT). CPT is the trade association for the bus, coach and light rail industries and in Scotland our members run over 90% of the registered bus network.

Buses can play an important role in facilitating Scotland's renewed focus on the climate change agenda. Buses offer the best combination of energy efficiency and space consumption in urban streets. One double-deck bus can take 75 cars off the road, giving a potential annual carbon saving of 67,200kg.

The bus industry in Scotland is committed to providing a clean and efficient fleet for Scotland's passengers and has invested over £450 million in new vehicles over the past ten years. The industry has also been quick to trial new technologies and fund research and development. In May 2006 First switched to using ultra-low sulphur diesel for its Scottish fleet of over 1,500 buses and coaches as part of its aim to minimise First's impact on the environment. In October 2007 Stagecoach began trialling 8 bio-buses in Kilmarnock which run on 100% bio-diesel manufactured from used cooking oil and other food industry by-products, resulting in an expected 82% cut in CO2 emissions.

CPT Scotland welcomes this consultation on proposals for a Climate Change Bill and hopes that the final bill will recognise the role that the bus industry can play and will make positive steps towards tackling congestion and encouraging modal shift.

The Consultation makes the point that hard policy measures, such as those reserved to the UK Government on taxation and regulation of product standards, may have more potential than softer devolved measures to reduce emissions. CPT believes the Scottish Government needs to utilise the devolved powers at its disposal effectively in policy areas such as planning, development and transport to compensate for an inability to amend reserved matters.

There are many measures that could be introduced within devolved policy areas that would make a considerable impact on Scotland's emissions. This consultation needs to focus on what the Scottish Government can do and not dwell on what it cannot.

With regards to transport, the Government can place a renewed impetus on encouraging modal shift through promotion of public transport above private car use. Consideration of public transport at the outset of planning decisions, the limitation of car parking spaces in town centres and shopping outlets and investment in park and ride schemes and enforced bus priority measures are all steps that can be taken to encourage public transport use and limit emissions generated by private car journeys and the associated congestion these journeys bring.

The consultation identifies the need for new technologies to reduce emissions. Bus manufacturers are constantly working towards providing even greener vehicles. Bus manufacture uses modern materials and construction and maintenance techniques that have much in common with aviation engineering. Work is continuing on Environmentally Enhanced Vehicles (EEVs), biofuels and hybrid technology.

As well as setting emissions targets into law, the Government should consider methods to provide funding to bus operators willing to invest in emerging technologies. As with all new technologies there is a financial risk in the form of the initial costs and the ongoing costs of maintenance. Only through the proper funding of the bus industry can the Scottish Government hope to encourage continuing research and development. However, the Government must temper their demands on the bus industry with the realisation that there is a global demand for the latest clean technologies – vehicle manufacturers are limited in the quantity of new vehicles they can provide to operators.

The consultation states that the Scottish Government is addressing the environmental impacts of transport through a package of funded measures that promote more sustainable travel. CPT feels that more can be done by Government. As well as promoting sustainable travel the Government should consider methods to discourage car use. For example, car parking charges should reflect the true impact of motoring on the environment. Rather than removing tolls the Government should be looking at increasing elements of road-charging.

The consultation states, 'the small changes that each of us make are important. Walking, cycling and taking public transport rather than the car when we can.' This message needs to be enforced through governmental actions and funding decisions. To encourage people to leave their cars at home the alternative modes of travel must be made as attractive and reliable as possible.

Local authorities are responsible for funding initiatives such as Statutory Quality Partnerships, Punctuality Improvement Partnerships and Bus Route Development Grant schemes. These initiatives involve local authorities working with bus operators to improve the bus services within the council area; improving reliability and tackling congestion. Such initiatives need to be encouraged to bring about further modal-shift and the associated environmental benefits.

CPT is supportive of the Scottish Government's intent to ensure Scotland reduces its impact on the climate. CPT members are already working to improve the environmental credentials of the industry and hope the Climate Change Bill acknowledges the great importance of the transport sector and dedicates appropriate funding and attention to make Scotland's public transport network an example of best practise for quality and reliability with minimal environmental impact.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Paul White', written in a cursive style.

Paul White
Public Affairs Executive, CPT Scotland

Transport, Infrastructure & Climate Change Committee – consideration of Climate Change (Scotland) Bill

BAA Scotland written evidence February 2009

1. Background

BAA Scotland welcomes this opportunity to contribute to the Transport, Infrastructure and Climate Change Committee's consideration of the Climate Change (Scotland) Bill.

As the owner and operator of Scotland's three largest airports – Aberdeen, Edinburgh and Glasgow, BAA Scotland plays a critical role in connecting Scotland with the world. Collectively, our airports handle more than 20 million passengers a year and serve more than 150 destinations, spread across 28 countries.

As a country on the north west periphery of Europe, Scotland's economy depends on a successful aviation industry to compete successfully in global markets. Many of the industries on which our economy depends, including tourism, financial services and the oil and gas sector, rely on the free movement of goods, people and ideas. This is why a competitive and successful aviation industry is so important to Scotland.

Our airports also act as major economic generators for the cities they serve and for Scotland as a whole. The respected Fraser of Allander Institute carried out an independent economic impact analysis of the three Scottish airports and found that collectively, the airports employ 10,000 people, support tens of thousands more jobs across Scotland and contribute nearly £1.5 billion a year to the Scottish economy.

Strengthening Scotland's international connectivity through increased direct air links has been a key focus for BAA Scotland. We have reduced our airline landing charges in real terms at each of our three Scottish airports every year, year on year, for the last 15 years. We have also administered the BAA Scotland route development fund, which has invested an additional £130 million in new international routes through a package of discounted landing charges and direct marketing support.

This hard work has paid off with world class carriers like Emirates, Virgin Atlantic, US Airways, Continental and Delta coming to Scotland. European carriers, including bmi, easyJet and Ryanair have also expanded their operation at our airports to the benefit of passengers and the wider Scottish economy. As a result, international passenger numbers across our three airports have grown by 36% in the last five years.

However, we are far from complacent and recognise the strong desire within Scotland to further enhance our country's international connectivity, an aim that attracts support from across the political spectrum.

To that end, we have also welcomed the decision of the Scottish Government to include the development of our airports within the draft National Planning Framework, which will help ensure our airports continue to act as fitting gateways into the country we serve. We also welcome the proactive engagement undertaken by Scottish Government with regards to airlines, particularly at international routes conferences.

2. Aviation's contribution to climate change

BAA Scotland recognises that climate change presents one of the most significant challenges facing the aviation industry, both here in Scotland and throughout the world. Our starting point is simple – that aviation's contribution to climate change is growing and we must take action now to curb emissions from flights.

According to the Stern review on the economic of climate change, world-wide aviation is estimated to contribute about 1.6% of global greenhouse gas emissions. This compares to 10% for road traffic and 2.3% for rail and shipping. The Intergovernmental Panel on Climate Change central case estimate is that aviation will account for 5% of the world's total human contribution to climate change by 2050.

There are two main areas of impact:

- aviation in the air, which has CO₂ impacts and non CO₂ impacts
- airport related, which can be broken down into four main areas: aircraft on the ground, energy use in airport terminals, building new infrastructure and surface transport to the airport.

Of the total emissions from aviation, around 95% of carbon dioxide emissions come from aircraft in the air.

Whilst aviation's overall contribution to global emissions is small, it is growing.

3. Technological advances

The aviation industry as a whole is focused on improving technology to help address the industry's contribution to global emissions. Aircraft fuel efficiency has more than doubled in the past 40 years and the industry has set a target for a further 50% improvement for new aircraft in 2020 when compared to 2000 levels. Work is also underway to look at possible alternative fuels for aircraft, including bio-fuels and fuel cells.

Improvements to the management of airspace also have an important part to play in addressing emissions from aviation. According to the International Air Transport Association (IATA), around six million tonnes of CO₂ have already been saved by shortening existing routes and BAA is pushing for a unified system of air traffic management within the EU to significantly reduce emissions within Europe. IATA estimates that a single air traffic management system for the European Union could cut aviation CO₂ emissions by 12%.

In December 2008, the pan industry UK group Sustainable Aviation issued a report outlining its forecast of future CO₂ emissions from UK aviation to 2050. The report concluded that technological advances, operational efficiencies and the use of low carbon fuels in the future can allow emissions from UK aviation to fall back to 2000 levels by 2050.

4. Emissions Trading

BAA has been at the forefront of the lobbying for aviation to be included in the European Union Emissions Trading Scheme (ETS).

The ETS places a cap on the total amount of emissions that is allowed across industry as a whole. Permits are subsequently allocated to companies, which clearly set the amount they are allowed to pollute. The total number of permits is finite and no pollution is allowed above the cap. Companies can then trade permits, selling permits if they can cut their emissions below their allocation and buying them if they want to pollute above their own allocation.

This system was identified by the Stern Review as one of the most effective ways of addressing emissions and on 13th January 2009, the European Union published directive 2008/101/EC, which confirmed that aviation would be included in the EU ETS from 2012.

There are a number of clear advantages to the ETS

- The amount of CO₂ that is emitted into the atmosphere is set – in the EU all departing and arriving emissions from 2012 this will be capped at 97% of average emissions between 2004 and 2006, reducing to 95% after 2013 through to 2020 . This represents a significant reduction when compared to business as usual projections
- CO₂ reductions are made in the most effective way possible and at least possible cost to the economy
- Emissions trading rewards those who cut their emissions and incentivises the development of new low carbon technology
- The system can be operated internationally and avoids unilateral action by individual countries that could have the unintended consequence of harming local economies. The inclusion of aviation in the EU ETS from 2012 is an important first step in moving towards a global solution.

We welcome the strong support that has been given by the Scottish Government for the inclusion of aviation within the EU ETS. This was confirmed in paragraph 5.50 of the consultation document that accompanied the draft Climate Change Bill.

5. Our airports

The heating, cooling and powering of our airport terminals all requires energy that contributes to carbon dioxide emissions. Emissions from airports represent only a small fraction of aviation's overall emissions. However, BAA Scotland recognises that our efforts to influence others within the industry to address their contribution to climate change is in part dependent on us demonstrating our own ability to reduce emissions from our buildings.

Each of our airports track and review the amount of CO₂ produced in relation to energy used and each year, clear targets are set to reduce consumption against predicted levels. Energy efficiency measures are incorporated into new building design and refurbishments, ensuring reductions in CO₂ where possible. The airports will be included in the DEFRA Carbon Reduction Commitment, providing an additional incentive to cut our emissions

The layout and operation of an airport can further influence aircraft ground emissions. By running the airports efficiently, aircraft have less requirement to run engines on the ground. As a result, our airports ensure that infrastructure is in place to reduce taxiing and queuing time for aircraft. We also promoting the use of fixed electrical ground power, which eliminates the need for more polluting generations whilst on stand.

Emissions from road traffic travelling to and from our airports are also important, both from a climate change perspective and in terms of local air quality. We have detailed surface access strategies in place at each of our three Scottish airports, which have set ambitious targets for increasing the proportion of passengers using public transport and minimising wasteful 'empty' car journeys.

We work closely with public transport providers, local authorities and the Scottish Government to improve access to our airports. In 2003, we introduced public transport levies at each of our Scottish airports, which places a charge on short stay car parking. This raises almost £500,000 a year to improve public transport and promote modal shift away from private car use.

We will be publishing a carbon footprint for Aberdeen, Edinburgh and Glasgow Airports in 2009, which will detail emissions sources at the airports and identify further areas for reduction.

6. The Scottish Climate Change Bill

BAA Scotland welcomes the publication of a Climate Change Bill that sets ambitious targets to reduce Scotland's overall greenhouse gas emissions. We have consistently advocated a strong policy framework and welcome the Scottish Government's commitment to create a set of clear, credible, long term targets.

We recognise the considerable debate there has been around the principle of whether to include emissions from international aviation within the scope of the Climate Change Bill and respect the strongly held views that were expressed on this during the consultation that preceded the final Bill.

However, paragraph 5.49 of the consultation document that accompanied the draft Climate Change Bill explained the difficulties associated with including emissions from international aviation within Scotland's reduction targets.

Paragraph 5.52 of the consultation document specifically said the following:

"As methods for apportioning aviation and shipping emissions within an international framework develop and are agreed internationally, it may become possible for these emissions to be satisfactorily included in Scotland's reductions targets and there will be scope in the Bill to include these sectors in the legislative framework at a future date."

We respect the policy decision taken that has subsequently been taken by the Scottish Government to include emissions from aviation within the scope of the Bill. However, international agreement has yet to be reached on how to apportion emissions from international aviation. As a result, it will be important to ensure that no unilateral action is taken that either interacts badly with the EU ETS from 2012 or places the aviation industry in Scotland at a significant competitive disadvantage. Such action could risk the ongoing effort to attract new international routes into Scotland and simply shift aircraft emissions to other countries, rather than assist the important effort to tackle overall global emissions.

BAA Scotland will therefore carefully consider the specific regulations that are laid before the Scottish Parliament under Section 14 of the Bill and looks forward to engaging with the Scottish Government and the Scottish Parliament once these regulations have been published.

WRITTEN EVIDENCE FROM THE CHAMBER OF SHIPPING – 29 JANUARY 2009

The Chamber of Shipping is the trade association for the UK shipping industry (including deep-sea bulk, short-sea bulk, containers, ferry, cruise, offshore support and specialised operators), working to promote and protect the interests of its members both nationally and internationally. With 144 members and associate members, the Chamber represents over 860 ships of about 23 million gross tonnes and is recognised as the voice of the UK shipping industry.

Question 5	The Bill defines “Scottish emissions”, in relation to a greenhouse gas, as being emissions of that gas which are attributable to Scotland. The policy memorandum states that “Scottish emissions” are defined as being those greenhouse gases which are emitted in Scotland or which represent the Scottish share of emissions of gases from international aviation and international shipping. What are your views on this definition of Scottish emissions?
Question 20	Do you have any other comments on the Bill?

Summary

In the climate change debate shipping should be regarded as the best available solution to the global need for transportation. Shipping is the most energy-efficient mode of transport and the backbone of global trade – carrying 80% of all world trade and 92% of the UK’s goods. Furthermore, the carbon cost of carrying a tonne of freight by ship is 10 times less than by road and 100 times less than by air. Seen in light of the enormous volume of goods carried by ships, the CO₂ emissions from shipping is small. The reason for this is that shipping for many decades – even without regulation – has had a strong market-driven incentive to focus on reduction of fuel consumption. However the Chamber of Shipping fully acknowledges the need for further reduction of air emissions from shipping and believes that the way to achieve environmental protection must be found in a holistic manner. To be successful, such an approach should take into consideration the availability of technology to reduce emissions, the need to encourage innovation and the economics of world trade.

International shipping’s contribution to global carbon emissions

Precise figures concerning the contribution of international shipping to global carbon emissions are hard to come by. A variety of studies put the figure at anywhere between 1.5 and 5%. The International Maritime Organization (IMO) – the UN regulatory body for shipping – and most scientific commentators agree that a figure in the range 2 - 4% is realistic with an authoritative IMO study published in October 2008 putting the figure at 2.7%. While a precise figure would be helpful for measurement purposes, it is not necessary to wait for this before taking policy decisions. This is for two reasons; firstly, even at the higher end of the estimates of shipping’s contribution to carbon emissions, when seen in the context of the enormous amount of work performed, shipping remains by far the most efficient way to move bulk cargoes of goods and this position is unlikely to be usurped in the medium term. Secondly, despite its excellent carbon performance, the shipping industry is absolutely committed to reducing its carbon footprint in line with society’s expectations.

Looking at future trends (and regardless of the current economic conditions), it is likely that – in absolute terms – emissions from shipping will grow steadily for the foreseeable future despite efforts to improve the carbon performance of individual ships. This is because shipping is a service industry which responds directly to growth in world trade (without which expansion in the world economy could not occur) and that growth is likely to be greater than the achievable carbon reductions. It is worthy of note that no serious politician or government body has ever called for shipping’s carbon emissions to be reduced at the expense of slowing

down the world economy. Any reductions in ships' carbon emissions must therefore be achieved in a way that permits growth in the volume of goods shipped by sea.

Measuring Scotland' share of international maritime emissions

Measuring Scotland's share of international maritime emissions is extremely difficult, with almost all of the options failing to provide an accurate representation. Do we, for instance, wish to measure the relative contribution of the Scottish shipping industry (however defined) to that of the global shipping industry? Or do we wish to measure the amount of carbon generated by shipping in order to provide Scotland with the goods and services required? Or should Scotland accept responsibility for all carbon emitted by ships within its territorial waters? When considering the most appropriate methodology for allocating the share of global shipping emissions to Scotland's Carbon Budgets, it should be remembered that shipping is the only truly international industry. Not only will ships make multiple calls in any one voyage, but they will often carry cargo destined for onward transport to a number of other countries. This makes allocating emissions extremely difficult and carries with it the distinct possibility of introducing error into the Scotland's overall Carbon Budgets.

Measuring Scotland's share of international carbon emissions will also be made more problematical for it is only the UK, as a nation state, which has a duty to report bunker fuels sales (even if only as a 'memo item') under the Kyoto agreement. Similarly, bunkers that are recorded by the UK as being used for domestic voyages would include fuel used on voyages between the constituent parts of the UK. There would therefore be a significant risk of double counting if both the UK Climate Change Act and any similar legislation in Scotland were to seek to account for the same emissions. It is not clear how this issue could be easily overcome except by utilising some broad measure of disaggregation.

When considering questions of measurement, the other side of the coin – enforcement – must also be borne in mind. The UK Climate Change Act, the Kyoto agreement and the EU Emissions Trading Scheme have all excluded mandatory carbon reductions from shipping for the same reason – it is virtually impossible to legislate for such a mobile and international industry except at the global level. For any country to impose unilateral legislation on a global marketplace is to deliberately impose additional costs on its own stakeholders which will not be shared by their competitors.

Measurement only or mandatory reductions also?

It is unclear to the Chamber what mechanisms for the enforcement of any national measures will not be capable of being easily and legitimately avoided by operators. This means that the total emissions reductions will, in practice, be less and may paradoxically be even higher if legitimate avoidance measures result in longer voyages. For instance, if Scotland were to impose a carbon charge on a ship's final voyage into Scotland, a ship coming from China may decide to make an otherwise unnecessary call in France or Ireland in order to minimise the technical 'final voyage' into Scotland or, more likely, would call at an English port and move the goods across the border by another less carbon efficient transport mode such as road or rail.

If the Climate Change (Scotland) Bill was clear that it only wished to *measure* Scotland's contribution – a position that the Chamber of Shipping could support – to international shipping emissions this could be done as soon as an agreed methodology was decided upon. A 'bottom-up' approach (i.e. obtaining data from individual ships) would yield more accurate data than a 'top-down' (e.g. averages of bunker fuel sales etc) approach, but it should be recognised that this would place a considerable burden on both shipowners and administrations alike.

The Committee will doubtless be aware that the UK Climate Change Act has mandated that the government in Westminster must take account of emissions from international shipping when considering its carbon budgets. In order to assist this process the Chamber of Shipping

has teamed up with WWF-UK (formerly the World Wildlife Fund) to assist the UK government in quickly developing a methodology for measuring carbon emissions from ships that is truly reflective of those emissions that can appropriately fall within the UK's responsibility. Should the Climate Change (Scotland) Bill end up recommending a similar approach it may wish to consider whether our joint proposal to the Office of Climate Change might assist the body responsible for delivery north of the border. A copy of our joint proposal has been appended to this submission for ease of reference (see **Annex 1** below).

A word on international agreements to control and reduce carbon emissions from global shipping

Measurement and control mechanisms for carbon are being actively discussed within the IMO and its Secretary General has announced his wish for that body to have agreed upon a concrete package of proposals in readiness for the UNFCCC Conference of the Parties (COP15) meeting in Copenhagen in December 2009. Meanwhile the EU have indicated that, should IMO not deliver a satisfactory package of measures by 2011, then they will look to include international shipping within the EU ETS by 2013. It is therefore clear that shipping will be included within some form of international / regional regime within a very few years.

The UK Government has played an active and constructive role in the negotiations at IMO and its policy position reflects well the realities of dealing with this particular sector. The Chamber of Shipping is keen that the UK Government should remain committed to an international solution delivered through the IMO. While we accept that measures delivered either unilaterally or through devolved administrations will always be an option open to governments, we would stress that these should be seen as options of last resort both in terms of effectiveness and ease of administering. To that end we would consider the inclusion of international shipping in the Climate Change (Scotland) Bill (while negotiations are building to a climax in the international arena) to be a retrograde step and one likely to hinder rather than help the broader discussions and efforts to reduce carbon emissions.

Carbon emissions trading and market-based instruments (MBIs) e.g. a fuel levy are politically very sensitive topics within the IMO. A significant number of developing, non-annex 1 countries (i.e. China, India, South Africa, Brazil etc) are of the opinion that they are not duty bound to seek carbon emission reduction measures through either the IMO or UNFCCC. Furthermore, they are also less willing to discuss measures to improve operational and technical efficiency and are extremely unwilling to contemplate the introduction of MBIs. The Chamber of Shipping, however, is firmly of the opinion that MBIs must play a part in efforts to reduce the sector's carbon footprint and has openly called for international shipping to be subject to a global, open emissions trading scheme in December 2008.

The Chamber is also actively working with its international parent body – the International Chamber of Shipping (ICS) – and sister associations throughout the world to develop consensus for this approach on the understanding that it delivers the necessary environmental outcome while maintaining the necessary level playing field and ensuring that any solution does not discriminate between national shipping registers.

Prospects for developing new engine technologies and fuels, as well as more fuel-efficient operations

Shipping is a mature technology and the scope for improvement by full application of existing technologies is limited. Ships engines have improved steadily since their inception while hull and propeller designs are almost fully optimised. For instance, new hull coatings may provide some enhanced fuel efficiencies (and hence carbon reduction) in the order of 5% - 10%. While there is always room for improvement (and much is dependent on what constitutes an 'existing' ship), it is thought that a modern, well-maintained vessel may be able to improve its performance by about 5% if cost/benefit is considered immaterial. Given that fuels costs

account for 30-50% of total voyage costs it should be recognised that shipowners have long had every possible commercial incentive to optimise fuel efficiency.

New technologies will certainly come on stream in time. But they are not available now and, no matter how many prototypes or concepts are developed, shipowners cannot be expected to invest in anything other than robust, proven technologies that are commercially available. However, shipowners are keen to see new technologies emerge and are willing to offer ships to assist in trials and development processes. Again it should be stressed that, given the direct link between fuel efficiency and carbon emissions, shipowners also have a direct commercial interest in the development of fuel saving technologies.

Alternative fuel sources may also have a role to play and bio-fuels can be used in ships engines. However, given the volume of fuel used by the c50000 merchant ships trading internationally (transporting every kind of cargo) and the current uncertainty surrounding the net benefit of bio-fuels, the industry would consider it prudent for legislators to better assess the impact of a substantial take-up of bio-fuels by such a large consumer as international shipping before reaching any decisions.

Fuel cells, solar-power, wind kites etc are all theoretically possible alternative technologies but they are best viewed as supplementary power sources rather than alternatives to the main propulsion systems on board. Nuclear power is technically feasible for ships and there are examples of nuclear-powered merchant as well as military ships. Issues of security and acceptability are, of course, dominant in that particular debate.

Reducing the speeds at which ships travel is often seen as a 'quick win' in terms of reducing carbon emissions from ships. While it is true that reducing ships' speed has a dramatic effect on fuel consumption, the full range of underlying factors which have hitherto determined the speed at which ships generally travel remain relevant. It should be noted that shipowners / operators have relatively little say over the speed of their vessels as this is invariably determined by the charterer. Any reduction in ships' speed would therefore require the consent of customers as they would in general have to wait longer to receive their goods. Shippers seek to maintain supply continuity and time of delivery is an essential competitive parameter. To maintain an acceptable service at slower speeds would mean an increase in the number of ships required negating much of the fuel savings otherwise expected. Furthermore, very little can be achieved on traditional slow-steaming bulk carriers as these already steam at little more than thirteen or fourteen knots. For ferries, travelling time for the passenger is a key issue in the extensive competition with other (less carbon efficient) transport modes; many Scottish ports are tide-bound which further reduces the flexibility of port arrival / departure times and; they should also be considered, especially in Scotland, as a bridge between outlying areas forming essential and reliable infrastructure. Any policy decision requiring vessels to slow down would need to be underpinned by a robust and detailed analysis of all the implications of such a measure.

Additional Industry Comments

The shipping industry has been working through the IMO, EU and national governments on how best to reduce carbon emissions for some time. As a result, it may be helpful for the Committee to note the broad principles which we feel will deliver a mechanism that delivers its environmental objectives while maintaining the competitiveness of the industry.

- Firstly, and perhaps obviously, industry is only interested in delivering a solution that is **effective** in contributing to the reduction of total global greenhouse gas emissions.
- In order to achieve this and avoid evasion, such a system must be **binding and equally applicable to all Flag States**.
- Across all maritime legislation, the shipping industry consistently argues for a goal-based (as opposed to a prescriptive) approach, as being better suited to such a

diverse industry and also allowing shipowners the flexibility to meet their environmental responsibilities in the most **cost-effective** manner.

- Linked to cost-effectiveness are considerations that seek to limit or at least **minimise competitive distortion** and that, within the parameters of sustainable development, do not penalise trade and growth nationally or globally.
- It has been suggested that shipping suffers from the lack of a Formula 1 to lead and drive technological improvements. Whereas the aviation industry has benefited from the civilian application of military technologies and also from the space-race, shipping has had no such high-end sector motivated by a completely independent set of cost considerations. We would therefore suggest that any control measures for shipping should actively **support and encourage the promotion and facilitation of technical innovation and R&D** in the entire shipping sector.
- In addition, it is clear that any regulatory mechanisms adopted must be **flexible in order to accommodate likely future technologies** in the field of energy efficiency.
- Finally in our checklist, the industry would look to ensure that the 'back-office' side of any regulation is given due thought. For any system to be workable, and for true environmental benefit to be gained, it is clear that the approach must be **practical, transparent, fraud-free and easy to administer**.

Domestic Shipping

We note that the subject of this inquiry is the possible inclusion of international shipping emissions within Scottish Carbon Budgets. However, the Chamber has concerns that emissions from domestic shipping (which can take place as part of an international voyage) should be properly attributed. We are unclear how this will be done. For example, it is not clear how foreign-owned competitors, which have had the opportunity to refuel abroad before making Scottish domestic voyages, will be treated? We would ask the Committee to satisfy itself that the methodologies for including domestic shipping (and its definition) within the Climate Change (Scotland) Bill are likely to achieve the stated objectives.

January 29, 2009

Robert Ashdown
Head of Technical Division
Chamber of Shipping



Delivering for Britain



TO: COMMITTEE ON CLIMATE CHANGE

CC: DfT, DEFRA, DECC

29 January 2009
BY EMAIL

Dear Ben,

Shipping and the Climate Change Act

Following the decision of the UK Government to include carbon emissions from international shipping within the Climate Change Act for measurement purposes - a position which both WWF and the Chamber of Shipping endorse – the two organisations, the leading stakeholders in this field, have committed to working together in its implementation. Our common objective is to assist the UK government to quickly develop a methodology for measuring the carbon emissions from ships that is truly reflective of those emissions that can appropriately fall within the UK's responsibility.

During our initial discussions we have reached some broad conclusions which we hope you will find useful in developing your own thinking. These are very much our preliminary thoughts and we remain eager to participate in the development of the methodology for measuring this most complicated of sectors.

Overall Coverage

'International shipping' is imprecise in meaning and its coverage will need to be defined. In general terms it would be taken to mean commercial shipping engaged in international voyages (ie not 'domestic shipping'). We assume that it is not intended to encompass leisure yachts, military or other Government vessels or installations at sea that are not otherwise regarded as ships such as fixed installations used for the production and pumping of oil. It should be noted that existing IMO legislation contains definitions of many relevant terms ('ship', 'international voyage' etc) and it would be sensible to use these wherever possible. It is not clear whether fishing vessels should be included, perhaps depending on whether their activities are encompassed elsewhere within the fishing industry itself.

Data on virtually all seagoing internationally-trading merchant ships of over 100 gross tons, including fishing vessels, is held within the Lloyds Register-Fairplay database and are allocated internationally-recognised unique numbers (IMO numbers). This would facilitate the inclusion of fishing vessels but we are not in a position to comment on whether similar methods of reporting and verification would be appropriate. Nonetheless, a clear definition of which vessels/installations are included will be necessary.

Consideration will also need to be given to an appropriate cut-off point for vessel size. Existing international maritime regulations, primarily from the IMO, apply only above certain levels of gross tonnage, though the levels vary for different purposes. For example, MARPOL, which deals with marine pollution, only applies to ships of more than 400gt; SOLAS, dealing with marine safety, applies to vessels of 500gt and over, while other conventions and agreements apply to vessels down to 100gt. Gross tonnage is considered the simplest and most appropriate measure for applying *de minimis* provisions.

In practice no commercial vessel below 100gt would be engaged in international trade, and very few in the next bands up. (As before, different considerations may well apply to fishing vessels.) The UK government will need to take a view on the most appropriate lower limit recognising the limits of the various data sets, the cost/benefit of measuring very small vessels and any effect the limit chosen may have on subsequent negotiations at EU or IMO level.

Possible Measurement Methodologies

Given that the Climate Change Act will, initially, only measure, rather than restrict, carbon emissions from international shipping, greater flexibility can be applied as to the methodology as there is a much reduced risk (so long as any associated administrative burden is low) that ships will choose to reflag as a result of any measurement requirements. Indeed, given that we would expect the methodology chosen to be flag-blind and non-discriminatory, reflagging for this reason alone would be pointless. However, it should be noted that methodologies which will work for measurement purposes will not necessarily work if mandatory reductions are later required. It will also be important that any methodology takes into account the risk of 'double counting' where other countries follow the UK's lead and seek to take responsibility for their share of emissions from international shipping.

There are numerous ways in which carbon emissions from international shipping could be measured, For example, by ship, by location, by voyage, by fuel sales, by number of port calls. However, the more accurate methods of measurement are considered to fall into two broad approaches, one based on physical activity and the other based on economic activity.

Physical Activity would be essentially a voyage calculation, relying on data such as point of origin, ship type, fuel type and distance sailed. There are two particularly difficult aspects to take into account:

- if outward voyages are to be included there is a clear difficulty in determining what the next voyage is to be; the UK has a much lower level of export cargos than imports, and consequently many ship leave the UK empty to seek their next employment – a bulk carrier in ballast may go to Rotterdam to load scrap metal or to Argentina to load grain, depending on market opportunities at the time, and often when on the high seas. If this general approach is chosen, it would be simpler to take account of inward voyages only (of course, where a ship arriving in ballast for an export cargo has come from is equally arbitrary, it is at least known);
- an appropriate methodology would need to be developed to fairly deal with vessels that have multiple loading and/or discharge ports. This is particularly relevant to the container trades, though applies also to other unit loads (such as new motor vehicles or refrigerated cargos) and some bulk trades in both petroleum/chemicals and dry commodities. For example, a containership on Far East service may have its first European port of call in the UK, with short voyages to Continental discharge ports or vice-versa; in addition there may be mid-voyage calls at container hubs in the Mediterranean. As well as the difficulty of determining an appropriate length of voyage, the split of cargo between that for the UK and that for elsewhere would be problematic (and touches on the need to avoid potential double-counting referred to above).

Measuring the **Economic Activity** could either be based on imports/exports or a percentage of GDP; or on shipping company economic activity. A significant advantage of the former approach is that it is better suited to providing the statistical base at the level needed to inform political policy-making whether in the UK, the IMO or elsewhere. In particular, it does not prejudice the approaches that might be adopted should specific instruments need to be

developed later. Last, and by no means least, is the avoidance of a significant burden on business, much of which is not located in the UK and much of which is run by SMEs, as the Government already collects very extensive data on the UK's sea-borne trade.

If the location of the shipping company's activities were to be considered when assessing 'economic activity', the acknowledged difficulties of allocating that activity to the UK or elsewhere needs to be addressed. In that connection, we would draw your attention to work that is currently being undertaken by the Office for National Statistics (ONS) and the Department for Transport together with Lloyds Register-Fairplay to allocate ships within the world fleet according to "country of economic benefit" (COEB). It seems to us that, should the government wish to pursue a methodology based on economic activity, this work could be directly applicable and add to the range of different policy needs to which it might be usefully applied.

It is clear that both of these broad approaches (economic & physical activity) will give rise to a number of questions and queries and that these will need to be considered fully if the finally-adopted methodology is to have credibility as an appropriate measure of international shipping emissions. We conclude, however, from our initial examination that measurement by economic activity is likely to provide the Government with the data it requires to meet its responsibilities under the Climate Change Act with the lowest administrative burden on business.

Specific Considerations Related To Sections of the Shipping Industry

In addition to the application of different methodologies to conventional cargo-carrying merchant ships considered above, it is likely that there will be some sectors that are more problematic than others, depending on the broad approach chosen. For instance, measurements based on imports and/or exports would exclude most ships engaged in carrying passengers (whether cruise ships or ferries) or in the service sectors (offshore support vessels, dredgers etc). It would be possible to develop a statistical approach for some of those activities, for example relating passengers to the voyage concerned or to the numbers embarking/disembarking; though there would be difficulties to be addressed in relation to ferries where most are multi-purpose, carrying both freight and passengers in markedly different proportions according to time of day or seasonal demand.

For specialist service vessels it is recognised that a different method of assessment may be required, compared with those carrying passengers or freight. While any methodology decided upon will need to meet the circumstances of the majority of internationally trading ships, there are some significant sectors where credible measurement is important; for example, in the cruise sector, where passengers may base their purchasing decisions on the environmental performance of the vessels in question.

Definition of Domestic Shipping and Emissions Measurement

At present the UK measures the carbon emissions of domestic shipping based on bunker fuel sales as determined by the IPCC under the Kyoto framework. It is widely recognised that this measure under-records emissions. Given that many domestic voyages will be part of a sequence involving international legs (and such ships will purchase their bunkers wherever most economic), and that there are no significant differences between domestic or international ships except for their voyage patterns, it may be more appropriate for all shipping to be treated as 'international shipping', with the proportion of domestic shipping being separately assessed. Again, this would be less burdensome, fairer (as it would include internationally trading vessels performing a domestic leg) and be more accurate than the current arrangements.

Next Steps

The WWF and CoS hope that, by taking our thinking forward jointly on these important issues, we can assist you better as you move your own thinking forward. We would like to emphasise

once again our willingness to be engaged in the detailed work going forward so that the most suitable methodology can be devised and applied as soon as practicable.

Yours sincerely

Robert Ashdown

Peter Lockley

Robert Ashdown
Head of Technical
Chamber of Shipping

Peter Lockley
Head of Transport Policy
WWF-UK



CLIMATE CHANGE (SCOTLAND) BILL

Interim submission to Scottish Parliament Transport, Infrastructure
Climate Change Committee

Wednesday 4th February 2009

1. Introduction

- 1.1 Transform Scotland is the national sustainable transport alliance. We are a membership organisation bringing together rail, bus and shipping operators; local authorities; national environment and conservation organisations; local environment and transport campaign groups; and individual supporters.
- 1.2 We strongly welcome the principle of Scottish climate change bill and the aspiration of the Scottish Government that Scotland lead the way on reducing climate change emissions.
- 1.3 We are a member of Stop Climate Chaos Scotland (SCCS), and are in broad agreement with the evidence presented by SCCS to the TICC Committee at its meeting held on 3rd February 2009.
- 1.4 We are particularly concerned with four elements of the Bill as currently drafted, and we set out our views on these matters in §4 below. This paper represents our interim view on the Bill. We intend to respond to the TICC Committee's call for views in full before the 27th February deadline.

2. Transport's current contribution

- 2.1 In 2006, the Scottish transport sector was responsible for 24.4% of all greenhouse gas emissions.¹
- 2.2 It is likely that this underestimates the impact of the Scottish transport sector. As expressed by the UK Department for Transport in 2007, government estimates of the impact of the transport sector "*are likely to be an understatement of the full climate impact of UK related transportation [because of] the full climate impact of aviation emissions at high altitudes*".²
- 2.3 Transport is the principal sector where emissions continue to rise. Greenhouse gas emissions from the Scottish transport sector rose by 14.3% between 1990 and 2006, whereas all Scottish emissions fell by 12.3% over this same period.³ Clearly, if the transport sector played its part in reducing emissions then there would be a significantly better chance of hitting future targets.
- 2.4 The current level of emissions from the transport sector alone is currently above the total level of emissions that can be emitted under the 2050 target level. In 2006, total Scottish transport emissions were 4.08 MtCe,⁴ while the 2050 target will require emissions from all Scottish activity to be below 3.81 MtCe.⁵ Hence, current transport emissions represent 107% of the total emissions allowable from all Scottish activity in Scotland in 2050 under the target proposed in the Bill.

¹ NAEI (2008) - <http://www.airquality.co.uk/archive/reports/cat07/0809180941_DA_GHG1_1990-2006_v1r.xls> and <http://www.airquality.co.uk/archive/reports/cat07/0811180855_International_aviation_and_shipping1990-2006_final_v5.xls>. This figure is for all transport emissions (including, e.g., aviation and shipping). It is calculated as 15001 tCO₂e (transport emissions) divided by 61359 tCO₂e (total emissions including international emissions).

² Department for Transport (2007): *Low Carbon Transport Innovation Strategy*, §2.5. <<http://www.dft.gov.uk/pgr/scienceresearch/technology/lctis/lowcarbontis?page=5#a1010>>. Note that this quote refers to UK emissions, but the argument holds equally for Scottish aviation emissions.

³ NAEI figures. Transport emissions were 13128 tCO₂e in 1990 and 15001 tCO₂e in 2006. Total emissions including international emissions were 70002 tCO₂e in 1990 and 61359 tCO₂e in 2006.

⁴ NAEI report total Scottish transport emissions in 2006 as 15001 tCO₂e, or 4.08 MtCe.

⁵ NAEI report total Scottish emissions in 1990 as 70002 tCO₂e, or 19.07 MtCe. 20% of this baseline figure implies a 2050 target of 3.81 MtCe.

3. Current transport priorities

- 3.1 Current Scottish transport expenditure priorities are systematically biased towards large infrastructure projects; current priorities are, on the whole, contrary to achievement of greenhouse gas emission reduction in the transport sector.
- 3.2 The proposed Scottish Budget 2009-10 sets out a large increase in spending on motorways and trunk roads, whilst support for existing public transport networks is static or in decline, and funding for the most sustainable modes of travel - walking and cycling - remains at the pitifully low level of £20m per annum (around 1% of the entire transport budget).
- 3.3 In December 2008, the Scottish Government published the *Strategic Transport Projects Review (STPR)* and its *National Planning Framework for Scotland 2: Proposed Framework (NPF2)*. STPR, amongst other things, sets out a £9 billion spending programme on roads, while NPF2 provides for airport expansion and a £2.1 bn Second Forth Road Bridge.
- 3.4 Even if we accept the optimistic claim that the STPR projects will cut emissions (a 1% cut by 2022 on business-as-usual is asserted), this programme is not compatible with the climate change trajectories set out in the Bill, even in its current state. Current forecasts for the year 2022 indicate that, in the absence of significant technological or behavioural change, total road transport carbon emissions will increase from 2005 levels by some 10%. This is fundamentally at odds with the Government's climate change ambitions: a 10% increase in emissions from the transport sector (at 2022) is patently not compatible with the acknowledged requirements for deep cuts in total emissions (by 2020).

4. Specific comments on the Bill

4.1 The Bill must set annual emission reduction targets of at least 3% from 2010

- 4.1.1 Bill §3 (2) (b): The Bill allows the Government the option of setting emission reduction targets for the period up to 2020 that would barely reduce emissions during this period (or continue with business-as-usual reductions of approximately 1% per annum as seen across the period 1990-2006).
- 4.1.2 The interim target (50% reduction by 2030) is similarly unacceptable; it compares unfavourably with the UK Committee on Climate Change's Intended budget (42% reduction by 2020). We support the SCCS recommendation of an interim target of 50% reduction by 2020.
- 4.1.3 It is imperative that the Bill establish annual emission reduction targets of at least 3% from 2010, not just from 2020, and that the interim target be amended accordingly. This would allow Scotland to keep its cumulative emissions within sustainable levels; an early start in delivering emission reduction would also help focus minds in sectors - such as transport - that are currently failing to contribute.

4.2 The Bill must include International Aviation and Shipping from 2010

- 4.2.1 Bill §14: The Bill fails to include emissions from International Aviation and Shipping (IAS), instead providing only that the Scottish Ministers "may" make provision for this at a later date.
- 4.2.2 This is not in accordance with the statement made by the Cabinet Secretary for Finance and Sustainable Growth John Swinney MSP on 27th October 2008:⁶

"This Government has taken the bold decision to include emissions from international aviation and shipping within its targets. Scotland benefits greatly from international trade and travel and we believe it is right to take responsibility for the Scottish share of these emissions."

⁶ Scottish Government news release 'Tackling climate change', 27/10/08. <<http://www.scotland.gov.uk/News/Releases/2008/10/27131648>>. Retrieved on 03/02/09.

- 4.2.3 Given the rapid increase in emissions from the aviation sector, the omission of IAS emissions would damage the credibility of the Bill.
- 4.2.4 The Bill should be amended to specifically include IAS emissions from the start.
- 4.3 The Bill must establish a duty on all public bodies to reduce emissions in line with the national targets**
- 4.3.1 Bill Part 4: The Bill fails to place upon public bodies a duty to reduce climate change emissions, providing only that Ministers “may” choose to do so at a later date.
- 4.3.2 The Bill should be amended to establish a duty upon *all* public bodies to reduce emissions in line with the national targets.
- 4.4 The Bill must include mechanisms for enforcement of the emission reduction targets**
- 4.4.1 The Bill contains no mechanisms for enforcement. As such, we question what will make Scottish Ministers (and public bodies) comply with the emission reduction targets that are set.
- 4.4.2 We would like to draw the Committee’s attention to the example of waste water and drinking water quality. Both of these are regulated and enforced by specific bodies. This mechanism has proved a highly successful model in helping meeting targets for water quality, and the meeting of climate targets will require similar levels of scrutiny and sanctions.
- 4.4.3 The Bill should be amended to include measures for effective enforcement of the targets.

5. Conclusions

- 5.1 The Bill is generally welcome, but requires improvement if there is any chance of action being taken to reduce climate change emissions within Scotland by 80%. Specifically, we recommend:
- The Bill must set annual emission reduction targets of at least 3% from 2010
 - The Bill must include International Aviation and Shipping from 2010
 - The Bill must establish a duty on all public bodies to reduce emissions in line with the national targets
 - The Bill must include mechanisms for enforcement of the emission reduction targets.
- 5.2 More fundamentally, the Bill must be followed by a fundamental review of all existing and new policy decisions, and new legislation, in order that they comply with the requirements of the Bill. In essence, we require the Government to produce a national plan for emission reduction.

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