



RSE 'Inquiry into Facing Up to Climate Change'

Evidence paper from Transform Scotland

Friday 30th April

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. We welcome the opportunity to contribute to the Royal Society of Edinburgh's inquiry on climate change.

2 Responses to initial questions raised by RSE inquiry

2.1 "Do you perceive the changing weather patterns in Scotland and globally as affecting you and/or your organisation?"

2.1.1 We firmly believe that changing weather patterns will affect the UK in a significant way. The increasing incidence of severe weather events involving abnormal rain intensity as seen over recent years at Boscastle, Hull, Cockermouth and other locations shows the impact changing weather patterns, caused by rising temperature will have on the country.

2.2 "What are the impacts of the Climate Change (Scotland) Act on the goals and activities of your organisation in terms of investment and exposure to risk?"

2.2.1 The Climate Change (Scotland) Act will not directly affect Transform Scotland's activities because our primary role is the promotion of sustainable transport and we demonstrate our commitment to this at staff level by using sustainable transport modes whenever possible and travelling by rail rather than air.

2.3 "What do you plan to do in response to these factors over the next 5-10 years?"

2.3.1 Our plan for the next decade is to continue our campaign to move society to more sustainable transport.

2.4 "How integrated is your response with other organisations in similar or related fields?"

2.4.1 We will continue to closely with the wide range of organisations included in our membership. We also work with transport and government authorities on issues relating to sustainable transport.

2.5 "What are the main barriers to change for you and/or your organisation?"

2.5.1 We see two main barriers: firstly, an increasingly sceptical public; and secondly, government policy promoting unsustainable interventions instead of sustainable ones.

2.5.2 One of the main issues of concern at the moment, we feel, is the degree of public scepticism regarding the reality of climate change, which has been fostered by powerful and well funded industrial lobbying groups. There is genuine concern that significant proportions of the population either do not believe in climate change or that climate change is affected by man and likely to have serious effects on the planet. This is despite the mounting evidence of receding glaciers, melting polar ice, abnormal and increasingly frequent droughts and severe weather events. It is important that the RSE inquiry address these issues by refuting the main sceptic arguments using sound scientific data and analysis but presented in an easily accessible

manner for public consumption and debate. Unless the public is brought on-board, it will be difficult for any government to push through fundamental change of sufficient magnitude to achieve significant change.

2.5.3 The second main barrier is a mismatch between government aspiration to reduce carbon emissions (as required by the Climate Change Act) while prioritising expenditure towards expensive and polluting major road schemes (in particular the M74 Northern Extension, Aberdeen western bypass, and the Second Forth Road Bridge) and allowing for airport expansion (as set out in National Planning Framework 2).

2.6 “What are the relative merits for your organisation of a carbon tax; emissions trading; energy regulations or performance standards; or incentive schemes?”

2.6.1 We are strong supporters of the use of economic instruments to drive demand reduction. We were involved in drawing up the legislation which allows for local authorities in Scotland to implement local road user charging schemes and were one of the main proponents of the Edinburgh congestion charging scheme which unfortunately was rejected in a referendum in February 2005.

2.6.2 We take the view that there is likely to be little progress in delivering sustainable transport unless and until transport users pay for the damage they inflict on others and society generally (the ‘polluter pays principle’). The University of Leeds’ Institute for Transport Studies report, commissioned by the UK Department for Transport, *Surface Transport Costs & Charges*,¹ in what was probably the most comprehensive report of its kind in the UK, reported that:

“For the British road sector as a whole, taxes and charges in 1998 covered between one third to a half of their relevant marginal social and environmental costs, depending on the range of the cost estimates examined. Congestion costs, making up some two-thirds of overall costs, are the most important cost category, followed by environmental costs, accident costs and infrastructure maintenance.”

3 Response to further issues raised by RSE

3.1 Energy generation

3.1.1 Given that energy is one of the main sources of greenhouse gas emissions globally it is essential that the UK decarbonise by moving towards electricity production by hydro, wind, tidal and other renewable sources. Transport Scotland’s view is that this on its own is unlikely to happen swiftly enough.² This emphasises the need to reduce demand by whatever means possible. Transport, as a major generator of emissions, must have its demand constrained if emission reduction targets are to be met.

3.2 Transport

3.2.1 Our own organisation’s transport emissions are trivially low because no members of staff own cars, and all travel to work on foot, by bicycle, and use public transport, while using rail for travel on work purposes. This type of lifestyle is actually quite painless to adopt and we feel that UK governments have shown a lack of confidence and commitment in promoting changes that would reduce transport emissions while at the same time enhancing the appearance of our cities and the health of the citizens. ***What is of more importance than our own organisation’s performance are the trends in the transport sector more generally.***

3.2.2 In 2006, the Scottish transport sector was responsible for 24.4% of all greenhouse gas emissions.³ 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”.⁴

3.2.3 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.⁵ Clearly, if the transport sector played its part in reducing emissions then there would be a significantly better chance of hitting future targets.

- 3.2.4 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,⁶ while the 2050 target will require emissions from all Scottish activity to be below 3.81 MtCe.⁷ 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 Climate Change Act.
- 3.2.5 Unfortunately, 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. The government's official advisory body, the Sustainable Development Commission, has scored the Scottish Government badly on transport in each of its recent annual Assessment reports. The 3rd Annual Assessment (08/09) asks government to "*ensure better alignment between climate change targets and transport policy.*" In very stark terms it states, "*This will require a sustained movement of funding away from roads ... and particularly to active travel and demand reduction.*" It tells government "*to commit 10% of total transport expenditure to active travel.*"
- 3.2.6 Instead of moving in this direction, the Scottish Budget 2009-10 set 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).
- 3.2.7 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 £2.3 bn Second Forth Road Bridge.
- 3.2.8 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 Climate Change Act. 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).
- 3.2.9 The UK and Scottish Governments should instead be proactive in providing a framework for local authorities so that they will achieve significant reduction in emissions over time, whilst at the same time improving the look and ambience of our towns and cities and improving public health. There is a multitude of sustainable transport measures that could be implemented, but here are a few:
- *Implementing road user charging - a policy which remains within the powers of the Scottish local authorities and the Scottish Parliament;*
 - *Converting the car and public transport fleet from fossil fuels to renewable power sources (electric or hydrogen powered buses, tram networks);*
 - *Increasing commuter cycling to continental levels (20-30% of all trips);*
 - *Reducing urban congestion by a combination of the above measures plus prioritising road space in favour of public transport, walkers and cyclists and reductions in inner city parking;*
 - *The greening of cities, whereby investment goes on better public transport and the promotion of walking and cycling in extensively pedestrianised city centres. This will reduce the need to commute by car and yield major carbon dioxide emission reductions.*
- 3.2.10 A recent report by Atkins and Aberdeen University for the Scottish Government looked at a range of options in relation to transport and interestingly came to the conclusion that the most cost-effective measures are, in general, the least expensive and easiest to implement.⁸ Essentially, these options are those that involve the development of more sustainable lifestyles by a reduction in the need to travel and

encouraging a shift from car to public or communal transport systems. The most cost-effective policies identified include the following: (i) *Community hubs*; (ii) *Widespread implementation of travel plans*; (iii) *Speed reduction on trunk roads*; (iv) *Introduction or increase in public parking charges*; (v) *Workplace parking levy*; (vi) *Bus quality contracts / statutory partnerships*; (vii) *Urban density increases*; (viii) *Freight best practice*; (ix) *Electric car technology & network development*; (x) *National network of car clubs*; and (xi) *Cycle infrastructure investment*.

4 Summary

- 4.1 Transform Scotland firmly believes that immediate action needs to be taken on a number of fronts to reduce the emission of greenhouse gases by man from the major sources of energy production and transport. As discussed above however, we are not convinced that energy production can be decarbonised within the required timescale and that the emphasis needs to be placed on demand reduction.
- 4.2 In our view, the Scottish and UK Governments need to redirect a significant part of the multi-billion road budget to the projects listed above to the development of integrated public transport systems that will include buses, trams, cycle networks and walking facilities.
- 4.3 Such a major change is necessary not only to achieve reductions in carbon dioxide emissions but also to allow for the massive rise in oil price that is predicted will occur from about 2015 onwards due to rising demand for oil and declining production.

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References:

- 1 University of Leeds Institute of Transport Studies (2001): *Surface Transport Costs and Charges: Great Britain 1998*.
- 2 A recent book by Stewart Brand, *Whole Earth Discipline* (2010), quoting figures by Griffith, illustrates the magnitude of the problem of decarbonising energy production by quantifying the effort required to convert current global energy production of about 16 terawatts to a range of alternative sources in the next 25 years, in addition to the 3 terawatts from current sustainable sources.
 - 2 terawatts of photovoltaic would require the installation of 100 square metres of 15% efficient solar cells every second for the next 25 years
 - 2 terawatts of solar thermal (using sunlight to produce steam) would require 50 square metres of mirror every second for 25 years, assuming 30% overall efficiency
 - 2 terawatts of biofuel – four Olympic sized pools of genetically engineered algae installed every second for 25 years
 - 2 terawatts of wind – a 300ft diameter wind turbine every 5 minutes for 25 years
 - 2 terawatts of geothermal – three 100 megawatt steam turbines every day for 25 years
 - 3 terawatts of nuclear – a 3 gigawatt plant every week for 25 years.
- 3 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).
- 4 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.
- 5 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.
- 6 NAEI report total Scottish transport emissions in 2006 as 15001 tCO₂e, or 4.08 MtCe.
- 7 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.
- 8 Scottish Government (2009) *Mitigating Transport's Climate Change Impact in Scotland: Assessment of Policy Options*.

Transform Scotland is the national sustainable transport alliance, campaigning for a more sustainable and socially-just transport system. Our membership includes bus, rail and shipping operators; local authorities; national environment and conservation groups; consultancies; and local transport campaigns.

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