TRANSform Scotland

the campaign for sustainable transport

Scottish Parliament Energy, Economy & Tourism Committee: *'Determining and delivering Scotland's energy future' inquiry*

Submission from Transform Scotland
Monday 4th August 2008

1. Introduction

1.1 We welcome this opportunity to submit our views on how Scotland can move to a more sustainable energy future. As the national sustainable transport alliance,[1] our response focuses on sustainable transport and its role in helping reduce Scotland's dependence on fossil fuels.

1.2 Scotland faces the twin threats of climate change and oil depletion – both of which are due to our over-dependence on fossil fuels as an energy source. As such, we believe that it is imperative for Scotland to *reduce the transport sector's reliance on oil.* Peak Oil is now predicted by a growing number of analysts to occur between now and 2015;[2] even the most optimistic predict Peak Oil to fall some time within the next 20 years. Global oil production matched discovery in the mid 1980s, and the world is now using four times more oil than is being discovered. UK North Sea oil and gas production peaked in 1999, and is now falling.

1.3 The oil strike at the Grangemouth oil refinery in April 2008 demonstrated just how exposed the Scottish transport sector is to security of oil supplies. We believe that reducing Scottish transport's exposure to increases in, and volatility of, the price of oil will not only benefit Scotland's overall economic stability, but will also provide a number of other significant benefits. Environmental benefits would include lower climate emissions; public health benefits would accrue as a result of greater use of active travel modes; finally, we can see benefits for the economy and enterprise in terms of opportunities for expansion of renewable energy and technological innovation.[3]

2. Transport is a *key* energy issue

2.1 Transport is a key energy issue as it is the sector that is *the primary consumer of oil supplies*. The UK transport sector is particularly vulnerable to oil security issues as it is so deeply dependent on oil as its power source: 74% of oil consumption is used for transport,[4] while around 98% of the fuel used for transport is oil.[5]

2.2 Our current transport system is overwhelmingly reliant on cheap supplies of fossil fuels. Supplies of oil *will* become increasingly scarce, and hence more expensive. (In the short- to medium-term this issue, framed as "oil security", could conceivably be down to market conditions, but in the longer-term - but perhaps even already - this will be explained by "peak oil" or "oil depletion.")

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1 Transform Scotland is the national sustainable transport alliance. We campaign for a more sensible transport system, one less dependent on unsustainable modes such as the car, the plane and road freight, and more reliant on sustainable modes like walking, cycling, public transport, and freight by rail or sea. 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.

2 Robert L. Hirsch, 'Peaking of world oil production: Recent forecasts', in *World Oil*, April 2007. <http://www.worldoil.com/Magazine/MAGAZINE_DETAIL.asp?ART_ID=3163&MONTH_YEAR=Apr-2007>.

3 Other benefits that might be expected would include: cuts in traffic congestion, air pollution and traffic noise due to reductions in traffic levels, plus the reduction in development pressure on areas around towns and cities as demand for commuter housing, roads and new airports declines.

4 UK Cabinet Office Performance and Innovation Unit (2001) 'Oil – Initial Scoping Note' - <http://www.cabinetoffice.gov.uk/~/media/assets/www.cabinetoffice.gov.uk/strategy/oil%20pdf.ashx>.

5 UK Cabinet Office Performance and Innovation Unit (2001) 'Transport – Initial Scoping Note' - <http://www.cabinetoffice.gov.uk/~/media/assets/www.cabinetoffice.gov.uk/strategy/transport%20pdf.ashx>. See §3.7.

2.3 Reductions in the use of fossil fuel in the transport sector is also of critical importance in meeting climate change emission reduction targets.

3. Transport is over-dependent on oil

3.1 Scottish life is heavily dependent on cars and lorries, which in turn are dependent on cheap and plentiful oil supplies. Out-of-town shopping centres, business parks and low-density suburban housing are difficult to operate without cars. Most of our food and other goods are supplied via road haulage, often from distant warehouses, or by plane from other parts of the world.[6]

3.2 Of course, some transport modes are much more oil-dependent than others. Air transport is 100% dependent on oil, with no alternative fuel in prospect, while virtually all cars and trucks are powered by oil.

3.3 People need to get used to petrol becoming more expensive: fossil fuels are scarce and finite, and as they get used up their price is *certain to rise*. In the context of rapidly increasing rates of demand from China and India, and with global oil supplies likely to reach their maximum at some point this decade, *it should be no surprise to see fuel prices in this country go up*. The challenge is not to seek to squeeze out a few more barrels of oil, but to reduce dependence on fossil fuels as soon as possible.

3.4 Buses and trains are typically more efficient users of energy than cars or planes; walking and cycling are the most sustainable modes of transport, but have been neglected during the decades of car priority. Overall, it is likely that we will have to learn to live with much less motorised travel.

3.5 There is no easy technical fix, as no alternative energy sources can match oil for low cost and availability. Biofuels may be superficially attractive but cannot on their own provide the answer: the UK Government is now retreating from its former support for biofuels due to questions regarding the impact of energy crops on food security. Hydrogen is a power carrier not a power source: hydrogen fuel has to be manufactured by either reforming fossil fuels with heat or splitting water using electricity; both of these processes require the input of energy. Professor Andrew Oswald, an economist at Warwick University, has estimated that it would require 100 new nuclear power stations or 100,000 wind turbines to allow the current oil use in UK road transport to be replaced with hydrogen.[7]

4. There should be a greater role for zero-carbon transport

4.1 We believe that there should be a strategic programme of investment in the most sustainable forms of transport: walking and cycling. These "zero carbon transport" modes have the potential to provide for significant congestion alleviation (given that two-thirds of *all* transport trips are less than five miles in length, and 40% less than two miles)[8] as well as providing a major contribution towards meeting physical exercise and public health targets.

4.2 Specifically, we suggest that there be a strategic programme to create walking and cycling networks in all towns & cities in Scotland with a target to have 20% of all journeys by bike by 2020.

5. There should be opportunities for conversion to electric traction

5.1 In principle, there should be significant scope for the substitution of electricity as a replacement for fossil fuels as a power source. This would allow the increase in the use of, for example:

- Electric cars

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6 See e.g. Richard Heinberg article 'Threats of Peak Oil to the Global Food Supply', available at <http://www.richardheinberg.com/archive/159.html>.

7 Oswald, Andrew (2005) *Energy and Travel in the Future* - <http://www.andrewoswald.com/>.

8 Scottish Executive (2007) *Travel by Scottish Residents: some National Travel Survey results for 2004/2005 and earlier years* – see <http://www.scotland.gov.uk/Publications/2007/01/12092407/10>.

- Electrically-powered buses (including hybrid technology)
- Trams and trolleybuses
- Electric trains[9]
- Electrically-powered goods vehicles
- Air-rail substitution (for longer-distance trips)

5.2 However, these changes would appear to be constrained by a number of factors, not least national electricity generation capacity.

5.3 We believe that the Inquiry should consider the following questions:

- ***What is the current technological viability of these technologies, and what constraints lie in the way of their widespread adoption?***

- ***What increase in electricity generation would be required to facilitate this conversion?***

- ***What capacity does the renewables sector have for providing the required electricity?***

6. There may be unintended benefits provided by changes in energy source

6.1 There could also be a number of unintended benefits (i.e. other than those outlined at §1.3, above).

6.2 Firstly, a move away from (particularly) coal generation of electricity would reduce requirements for heavy-haul rail-freight, freeing capacity on the rail network.

6.3 Secondly, changes away from fossil fuel sources will reduce transport emissions (shipping, road / rail transport) as renewable power is generated 'on-site' and transmitted through the grid.

7. Conclusions

7.1 Adapting to the decline in oil supply will inevitably involve major changes in our transport and lifestyles. It is vital for all of us to be well informed about what we face, and what will be required to adapt our transport system to the new world of oil decline.

7.2 Unfortunately, and faced with this threatening phenomenon, there continues to be widespread denial, with government pressing ahead with airport expansion, new motorways and new subsidies for motoring and the road haulage industry (e.g. the abolition of bridge tolls).

7.3 However, the longer action is put off, the worse the difficulties of adjustment are likely to be. Other countries have been more forward thinking in adapting to the end of the oil age. In 2006, the Swedish government's *Commission on Oil Independence* set out how that country could substantially reduce its reliance on oil by 2020. The Commission recommended a 40-50% reduction in oil use for transport.[10] We note the motion passed by the Scottish Parliament in May 2008 regarding food security and peak oil,[11] and welcome this as an important first step.

7.4 Peak Oil will mean big changes in where and how we live. Fortunately, Scotland has phenomenal potential for renewable energy and sustainable transport. In our cities there is a continuing tradition of tenement living with walkable communities. Many Scots would benefit from additional exercise provided by regular walking and cycling. Scotland also has a strong core rail network that could be used to replace long-haul trucking, and much of the Scottish population lives beside the coast so there is potential for low energy transport by water.

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[9] Railways, if electrified, offer scope for alternative power sources, but at present just 23% of Scotland's rail network is electrified – one of the lowest proportions in Europe.

[10] Swedish Commission on Oil Independence (2006) *Making Sweden an OIL-FREE Society* - <www.sweden.gov.se/sb/d/2031/a/67096>.

[11] See, for example, Scottish Green Party news release available at <http://www.scottishgreens.org.uk/index.php?id=6014>.

8. Proposal to create a Centre for Sustainable Transport Technology

8.1 We recommend the establishment of a centre of excellence in sustainable technology for the public transport sector. Peak Oil will require many major changes to the whole of society, not just the transport sector. But we think that this is one practical step that could be taken in the short-term.

8.2 Scotland no longer makes cars – *the Hillman Imp is not going to make a comeback!* - but we do have Britain's largest bus manufacturer in Alexander Dennis, based in Falkirk. Scotland also features two of the world's largest public transport operators in FirstGroup, based in Aberdeen, and Stagecoach, in Perth.

8.3 We want Scotland to build on this home-grown experience and take the lead in developing sustainable technology for all forms of public transport: buses, trams, trains and ferries. We need to see the development and commercialisation of all forms of sustainable transport technologies that have a chance of helping us reduce the transport sector's oil dependence: for example, hybrid engines, electric vehicles and hydrogen technology.

9. General recommendations

9.1 Over the longer-term, the move to a sustainable energy future for the Scottish transport sector will likely require the following measures:

- A widespread public information campaign, so that people understand the issues and the need for action. Only a few years ago, the threats from climate change had very low public consciousness – we now need to do the same for the challenge of Peak Oil.
- A strategic programme to create walking and cycling networks in all towns and cities in Scotland, with a target to have 20% of all journeys by bike by 2020.
- A programme of rail electrification, and the prioritisation of other forms of public transport that need less, or no, oil input – e.g. electric buses, trams and trolleybuses.
- The fostering of 'localisation' – including community-supported agriculture; protecting local schools, shops and Post Offices; and preventing the construction of out-of-town shopping centres, business parks and education campuses.
- A re-prioritisation of transport investment – the withdrawal of subsidies for air travel or motorways, and a focus for transport expenditure on local infrastructure, cycle ways, walking, public transport, rail electrification and shifting freight from road to rail and water.
- Scotland to campaign in Europe for a phase-out date for all fossil fuel-powered vehicles whose fuel consumption falls below reasonable levels.
- Long-term planning for fair rationing of oil supplies, with preferred fuel priorities publicised in advance: e.g. emergency services, food supply, public utilities, and public transport.

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.

Transform Scotland
5 Rose Street, Edinburgh, EH2 2PR
t: 0131 243 2690
e: <info@transformscotland.org.uk>
w: <www.transformscotland.org.uk>