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Dear Professor Irvine

### **Royal Society Edinburgh Inquiry into Energy Issues for Scotland**

Following your recent letter to Philip Sellwood, Chief Executive of the Energy Saving Trust (EST), I would like to welcome the Royal Society Edinburgh (RSE) Inquiry into Energy Issues for Scotland and am pleased to provide the attached response on behalf of EST. This submission should not be taken as representing the views of individual members of EST.

EST was established as part of the Government's action plan in response to the 1992 Earth Summit in Rio de Janeiro that addressed worldwide concerns on sustainable development issues. We are the UK's leading organisation working through partnerships towards the sustainable and efficient use of energy by households, communities and the road transport sector and one of the key delivery agents for the Government's climate change objectives.

EST activities in Scotland receiving funding from the Scottish Executive include eight Energy Efficiency Advice Centres, transport programmes and the Scottish Community and Householder Renewables Initiative (SCHRI). We believe that the proven expertise of the EST in Scotland will prove particularly helpful to delivering climate change objectives in Scotland and have currently seconded a staff member from our Scottish team to the Scottish Executive to help develop its proposed energy efficiency strategy.

Our submission to the RSE inquiry focuses on the specific areas of EST expertise. We believe that the focus of the inquiry should primarily be on reducing energy demand in the first place and then to provide sustainable and secure energy solutions. In particular we believe that the household and transport sectors are the key areas requiring urgent attention. In this respect we have identified the following six key priorities for action.

- Strengthening of programmes to raise awareness and to provide advice to consumers.
- Additional residential energy efficiency measures.
- Further support for mass market renewables (eg PV, micro-wind etc).
- Increased focus on transport.
- Strong leadership from the public sector.

- Strengthening of Scottish Building Regulations.

I attach our response to the specific questions raised by the RSE and trust that you will find this helpful. I have also enclosed a copy of our recently launched *Agenda for Change Scotland – Action for a low carbon society*, which particularly focuses on suggested actions and measures that Government can take in a number of the above areas. Meanwhile please contact me if I can be of further assistance.

Yours sincerely

Mike Thornton  
Head of Energy Saving Trust Scotland

## **Energy Saving Trust Response to the RSE Inquiry into Energy Issues for Scotland**

### **General**

#### **1. How should Scotland provide for its energy needs over the next 5, 15, 30, 45 years, in the context of the likely UK, European and global energy environment?**

EST believes that in the short term Scotland should primarily focus on demand reduction and low carbon solutions for its energy needs across all sectors, most notably in households and transport. Energy efficiency is the most cost effective means to reduce climate change emissions.

We therefore welcome the Scottish Executive's proposed Energy Efficiency Strategy and advocate that this include specific sectoral targets that deliver large carbon savings and incorporate milestones to demonstrate progress. As a minimum for the domestic sector EST believes that a target of at least 20% improvement in household energy efficiency over 10 years would be appropriate for Scotland.

#### **2. Should Scotland aim to be self-sufficient in energy in general, and in electricity in particular, despite trends towards interdependence within Europe?**

EST does not believe that it is necessary for Scotland to be self-sufficient in energy in general and electricity in particular. However, clearly, major reductions in primary energy use and a shift to renewables, including mass market solutions by which we mean micro-chp, photovoltaics, micro wind and community heat and power projects etc, will help improve self-sufficiency in Scotland.

#### **3. What are the possible implications and consequences for Scotland, and the UK, of becoming increasingly reliant on imported oil and gas for their energy needs?**

Possible implications are widespread including higher energy prices, an increase in fuel poverty, affordability of transport and security of supply concerns etc. Without any curtailment in primary energy demand and a major shift to low carbon fuels then there will be significant environment issues, particularly in relation to climate change through increasing CO<sub>2</sub> emissions.

### **Energy Supply**

#### **4. What is the feasibility, availability, reliability, sustainability, efficiency, capacity and risks of the different energy generation technologies?**

It is important to address mass market technologies as well as large scale energy generation technologies when considering this issue. The full environmental impacts of energy generation technologies, including embodied energy and waste, also need to be taken into account.

We have no comment on the detail.

**5. What are the likely trends, and uncertainties, in the availability and cost of energy sources over the next 20/45 years?**

Without a reduction in primary energy demand, the availability of UK sourced fossil fuels is likely to decrease with a rise in energy prices from historic levels. The value and hence cost of renewable energy supplies is likely to rise as a consequence.

**6. What are the economic issues of capital investment in the supply and distribution of energy that need to be considered?**

EST supports the development of mass market energy supply solutions. It is important to ensure that there is sufficient capital investment in the required infrastructure to allow the development of these technologies and to deliver a stable market framework that will attract funding from the capital markets.

**7. What are the key issues surrounding the development of Scotland's bulk electricity transmission and local distribution systems?**

EST believes that Scotland's local distribution systems will need to be designed and operated to allow the increased development of mass market energy supply solutions. Network operators should be incentivised to invest in appropriate infrastructure solutions accordingly and to reduce distribution/transmission losses.

## **Energy Demand**

**8. What will the impact of energy availability and price be on the demand for energy by commerce and industry in Scotland?**

Higher price energy supplies will inevitably have a negative impact on business profitability for energy intensive users. However historic trends in other sectors illustrate the relative inelasticity of energy prices to energy demand. Further work is required to determine what level of energy prices would result in a major impact on energy usage.

It is clear that higher energy prices would result in increased levels of fuel poverty, making it harder to achieve the Scottish Executive's fuel poverty targets.

**9. What are the likely trends in the domestic demand for energy for space heating and other purposes? What would need to be done to achieve major savings? What are the investment costs?**

Annex 1 shows the UK trend in household energy consumption by fuel type since 1970; including DTI's updated EP68 projections to 2010. Over the period 1970-2003,

the average growth rate in total energy demand has been around 0.8% p.a. By contrast, the DTI projections imply a decrease in demand of a similar order between now and 2010. Clearly, for that to happen it would require a material change to the long run trend.

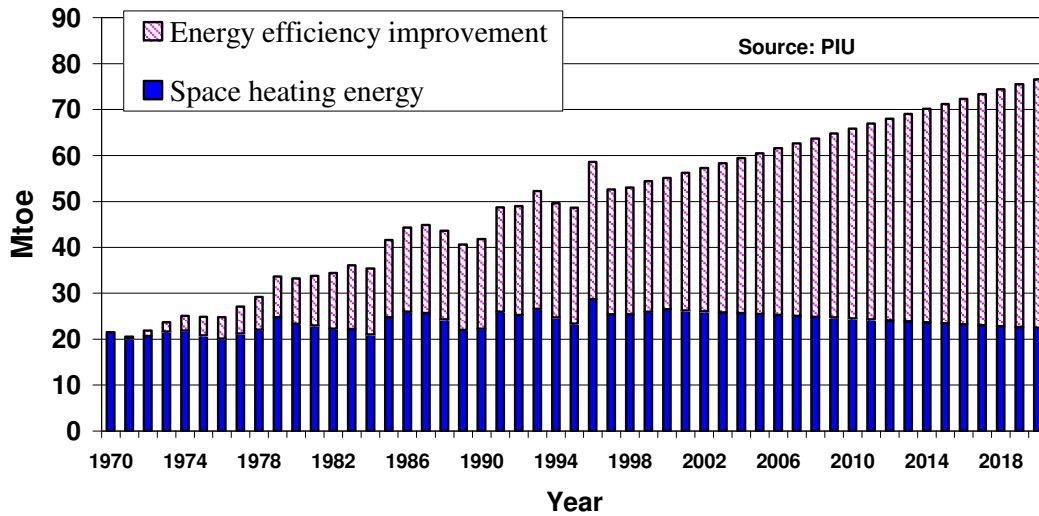
Turning to carbon emissions, Annex 2 shows that household energy use accounts for nearly 30% of UK carbon emissions, which is roughly the same proportion as industry and transport. After a fall in emissions over the preceding two decades, household carbon emissions have remained fairly constant at around 40 MtC/a since 1990.

It is important to consider what the drivers in both energy use and carbon emissions are in order to determine what action needs to be taken to make a significant contribution to Government's carbon saving objectives. Analysis by Defra, as part of its work on energy efficiency indicators, reveals that there are three main trends that influence domestic sector carbon emissions. These are:

- An increasing demand for energy for heating, lighting etc at a rate of roughly 2% p.a. per household, in the form of increased levels of comfort, lighting, appliance use, home entertainment etc.
- An increase in the energy efficiency of homes at a rate of roughly 1.5% p.a. per household, in the form of improved insulation levels, heating system efficiencies, more efficient lights and appliances etc.
- A reduction in the carbon intensity of electricity throughout most of the 1990s, largely due to the dash for gas.

Taking into account the underlying growth in the number of households, these have broadly cancelled each other to the extent that total household carbon emissions have been broadly flat over the last decade as illustrated below.

UK Home Heating Energy Use 1970-2020



However, given the fact that the carbon intensity is unlikely to reduce further in the short-medium term and the number of households will continue to grow, it is clear that achieving carbon savings in the domestic sector will depend on reducing the rate of growth in demand for energy, and/or increasing the rate at which energy efficiency improvements are delivered. Both represent significant challenges in their own right.

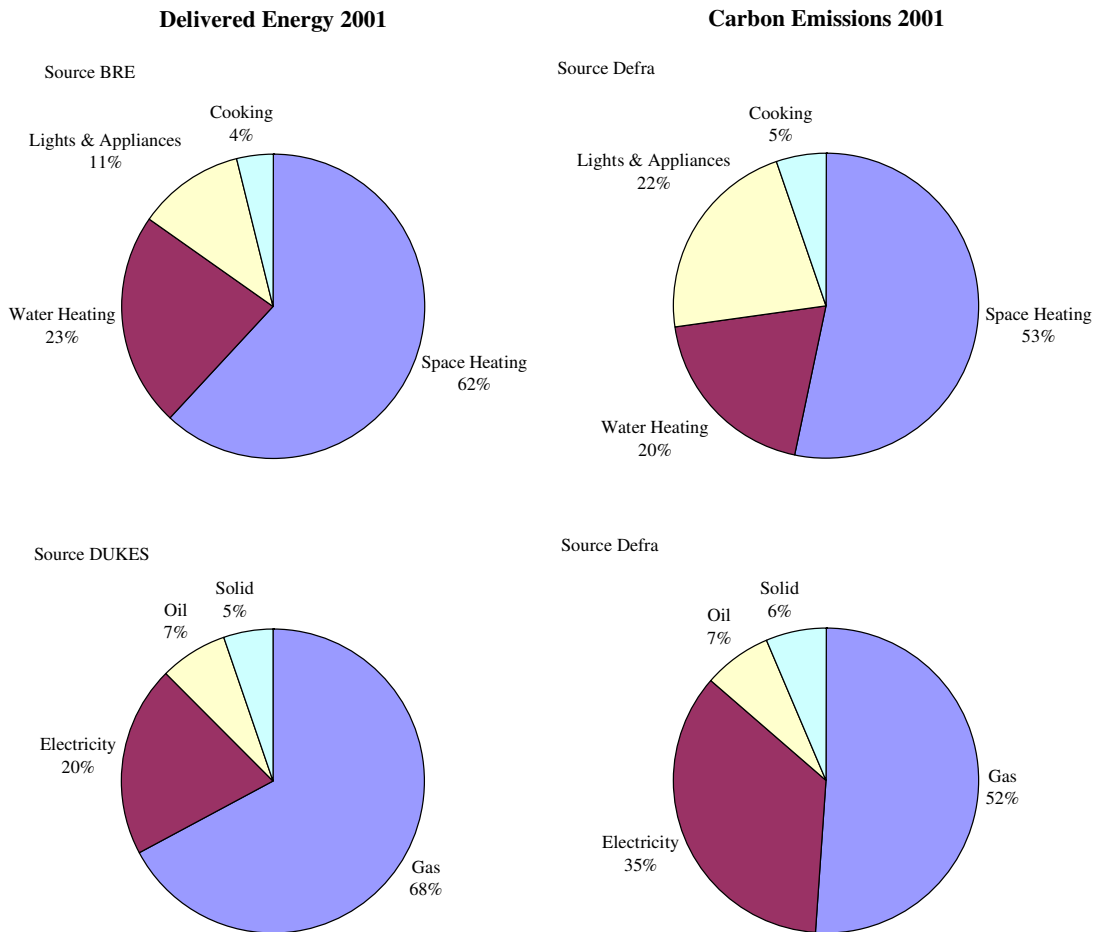
The UK Government’s Energy Efficiency Action Plan sets out the key measures whereby Government is aiming to increase the rate of uptake of energy efficiency measures. If these are implemented and delivered as expected, they will significantly increase the rate of improvement in energy efficiency such that it exceeds the growth in energy service demand and hence lead to carbon savings. But even more is needed.

What is perhaps more challenging is to address the seemingly incessant increase in the demand for energy in homes. Many commentators attribute this primarily to the ever-growing numbers and types of domestic appliances and increased lighting loads. In fact, the electricity consumption per household for lights and appliances has barely increased over the last decade, reflecting the fact that the markets have been transformed in recent years to much more efficient products, largely offsetting the growth in demand. Nevertheless, the forecast continued growth in household appliances is a key area where policies, typically at EU level, alongside behavioural measures, will be needed to limit the growth in demand.

By contrast, average internal temperatures have been rising for many years and are forecast to continue rising for some time, despite now being close to a “comfortable” 20C. From the perspective of fuel poverty, occupant health and housing quality, this is a welcome improvement and it is noteworthy that the improvements in insulation

levels and boiler efficiency over the last 30 years have enabled this improvement to occur without increasing domestic sector carbon emissions.

Given that space and water heating, which together account for 85% of consumption, dominate household energy use the increase in household comfort levels is by far the most important driver in demand for energy and consequent carbon emissions. This is further illustrated in the pie charts below. Note the disproportionately large impact of electricity – while only accounting for 20% of delivered energy use, it is responsible for 35% of carbon emissions.



Addressing the demand for energy in many ways presents a more significant challenge than increasing the uptake of energy efficiency measures. While the latter can be achieved through regulation, legislation and Government fuel poverty programmes, the former requires behavioural change.

In conclusion, the UK and Scottish Climate Change Programme reviews will enable the contribution that household and other policies can make to the UK's carbon reduction goals to be judged. The revised Programme must present a clearer

exposition of the potential for carbon savings in the household and other sectors to be made.

This brief analysis indicates that:

- Carbon emissions from households have remained broadly flat since 1990, following a decrease in the two previous decades. The increase in use of gas, both in the home and in electricity generation, has been the principal factor behind this trend.
- The scope for further fuel switching to lower carbon fuels is limited in the short-medium term. Further carbon savings can only be achieved by increasing the rate of energy efficiency improvement and/or reducing the rate of growth in demand for energy.
- Policies set out in Defra's Energy Efficiency Action Plan, assuming they are implemented as envisaged, will substantially increase the rate of energy efficiency improvement such that it exceeds the underlying growth in demand for energy and hence lead to carbon savings - it is expected that the proposed Scottish energy efficiency plan will do likewise.
- Previous and existing policies to improve household energy efficiency have also achieved significant improvements in household comfort and thereby helped tackle fuel poverty, with relatively modest increases in energy use.
- The potential for carbon savings in the household sector can be significantly enhanced if the growth in demand for energy can be reduced. This will require action on behavioural measures.
- More emphasis on energy efficiency does work and is required.

### **What needs to be done?**

Cost effective measures that can contribute to energy efficiency improvements are dominated by improvements in building fabric, boiler efficiency, high efficiency lights and appliances. However, free markets have failed to deliver the necessary investment for a number of reasons that reflect the fact that energy efficiency is very low down the list of priorities for most people. EST believes that a range of additional policy instruments is required to deliver the potential residential energy efficiency savings and has identified the following instruments that could be developed by the Scottish Executive as part of a Scottish Energy Efficiency strategy. We have also included proposals to support mass market renewables as the issues facing the adoption of these technologies, e.g. consumer acceptance, are very similar to those for energy efficiency measures.

- The key to supporting existing policies and overcoming market barriers is by raising consumer awareness through providing information and advice whilst establishing the links between climate change and individual behaviour. All possible opportunities, and support for action, should be used to access and influence consumers in a consistent manner. Ultimately this should take place at each point in the consumer chain be it at the time of purchase or repair etc. It is therefore important to ensure comprehensive training of sales people and installers, for example through accreditation programmes. Likewise, it is equally important for consumers to be easily able to identify energy efficient appliances, which can only be achieved through appropriate accreditation processes. The continued development and implementation of robust accreditation mechanisms for installers, energy efficient and green products are essential to provide consumer confidence. In the case of products, accredited processes will need to be refined to reflect technology improvements.
- It is particularly important to educate tomorrow's consumers by providing information services to the education sector. Outside of Scotland, EST currently runs an Energy Certification Programme for schools, which takes a holistic approach between energy efficiency, the school curriculum and encouraging efficient use of school energy resources. It raises the levels of environmental awareness of pupils, teachers and parents and readily translates into behaviours of individuals in the home and more importantly bill-payers of the future. We believe that the introduction of such a scheme in Scotland would not only benefit schools but also help improve home efficiency and raise climate change awareness. It therefore has the potential to become a key tool under the proposed UK Climate Change Communications programme.
- EST is piloting the concept of a Sustainable Energy Network (SEN) in other UK countries, through building upon the existing infrastructure provided by the network of Energy Efficiency Advice Centres (EEACs). The EEACs currently focus on energy efficiency advice, whereas in the SEN model their work would be extended to supplying information and advice to encourage energy efficiency and the use of renewable energy in both homes and road transport. As we believe that the more integrated approach offered by SEN is likely to prove more cost effective than separate initiatives, we suggest that the Scottish Executive should support the introduction of the SEN concept in Scotland, suitably modified to reflect specific Scottish circumstances.
- In addition to delivering carbon reductions, sustainable energy can also help alleviate fuel poverty. We believe that some improvements in the interaction between fuel poverty programmes, such as Warm Deal, the Scottish Central Heating Grant Scheme and the SHQS with the Energy Efficiency Commitment (EEC), are desirable and warrant further investigation. This could include the use of EST's Home Energy Efficiency Database as an information repository to achieve better co-ordination.

- EST suggests the mandatory extension of the SHQS standard to vulnerable households in the private rented sector to drive the investment required to raise building standards.
- EST welcomes the requirement (under the EU Energy Performance in Buildings Directive) for a valid home energy efficiency report to be produced upon sale or change of tenancy, which needs to be introduced in a timely and effective manner. If implemented through a rigorous approach this requirement should prove a valuable tool in stimulating the uptake of energy efficiency measures.
- Council tax rebates could be offered as an incentive for householders to invest in energy efficiency measures. This could be based upon specific measures such as cavity wall and/or insulation or those cost-effective measures identified in a home efficiency report.
- EST believes that the tax incentives for landlords for energy efficiency measures may not prove as effective as hoped and that a regulatory approach requiring landlords to undertake and implement energy efficiency measures identified in a home energy efficiency report would be more effective.
- We welcome the recent funding of the Scottish Community Householder and Renewables Initiative (SCHRI) for a further 3 year period. We believe that this mechanism could be complemented by the DTI's proposals for a Low Carbon Building Programme (LCBP).

We would like to stress the crucial role of local authorities in showing real leadership on climate change and energy efficiency issues. A major step forward in this respect would be to require local authorities to develop and to implement sustainable development strategies. These should include minimum procurement standards for vehicles, buildings energy efficient products and appliances based on Executive guidelines. Clearly local authorities have a major role in helping change consumer behaviours.

- All Government procurement including new buildings and vehicles should not only take environmental issues into consideration but should result in the purchase of the most efficient products. This should include the installation of renewables and chp where practical, adherence to the proposed Code for Sustainable Building, the purchase of top-rated energy efficient appliances and the procurement of low carbon vehicles. It is important that these issues are not just set out in procurement guidelines; but that they are taken seriously throughout the procurement process, i.e. are not optional extras in calls for tenders and post-tender negotiations, which seems to be what often happens at the moment.
- The draft European Directive on Energy Services proposes a 1.5% p.a. energy performance improvement target for public sector buildings. We believe that the Scottish Executive should demonstrate its commitment by voluntarily adopting

this target prior to EU legislation. Local authorities also have an important role in delivering staff awareness training, encouraging car share schemes, cycling and the use of public transport etc, and facilitating the greater use of video conference and home working.

- Local authorities that are highways authorities also have very important roles in transport planning and public transport support in their local communities. We believe that greater priority needs to be given, both in local transport investment plans and transport planning, to low carbon modes of transport, in particular to public transport, cycling and walking. We address transport issues in more detail below.
- One further area that requires improvement is the delivery of local authority activity under the Home Energy Conservation Act (HECA). In the housing sector, local authorities have clear responsibility for the housing stock they own. We would like to see longer-term energy efficiency objectives for social housing set as part of this review. However, in the wider housing stock, local authorities' role is confined to duties under HECA to draw up plans for energy efficiency improvement, and then report on progress. In practice this has been of limited benefit: the quality of reporting is very variable and resources for delivering the plans have not generally been forthcoming. We would welcome any further encouragement from the Scottish Executive in the implementation of HECA duties.

Additional instruments are also required to be developed at the UK Government and EU levels and are highlighted in the enclosed Agenda for Change document. In particular we believe that the Scottish Executive should be encouraging UK Government to implement or strengthen the following residential energy efficiency measures:

- Other fiscal instruments could be introduced, either as alternatives or as well as the council tax rebates proposed above, to encourage the take up of energy efficiency measures in households. For example, through reductions in stamp duty (or grants for those below stamp duty thresholds) in return for investment in energy efficiency measures based on the energy report required under the Energy Performance in Buildings Directive.
- Increasing the level of EEC on suppliers, combined with the accreditation of third party schemes and the introduction of a more market-based mechanism similar to the renewables obligation with a buy-out price and recycling fund.
- The introduction of inefficiency charges on products that waste energy such as appliances rated C-G and incandescent light bulbs.
- At the EU level, we believe that the Scottish Executive should be encouraging UK Government to press for tighter product regulation under the Framework

Directive for Eco-Design of Energy Using Products and the introduction of reduced VAT for DIY energy-saving materials and energy efficiency products.

### **Investment costs for typical energy efficiency measures**

Specific energy efficiency measures can be extremely cost effective for example:

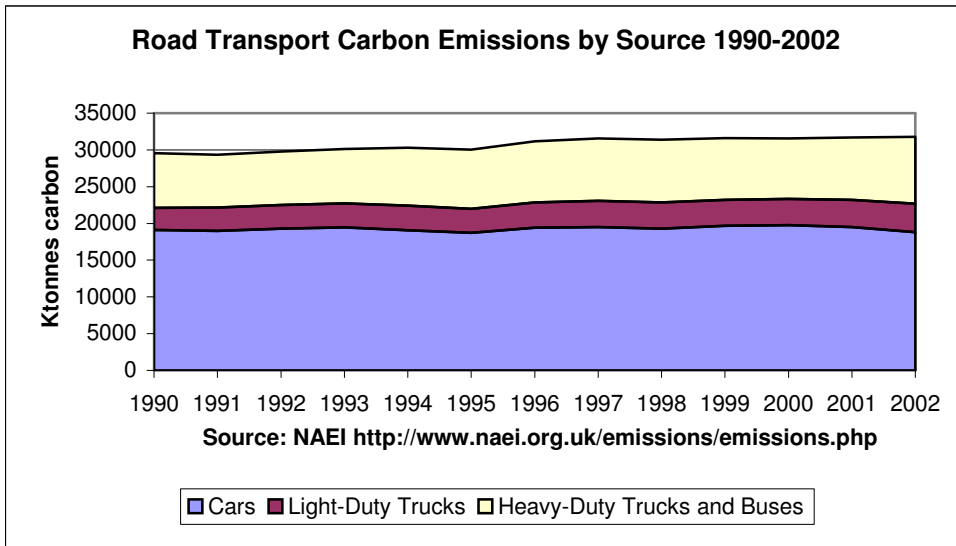
- Cavity wall insulation for a typical semi-detached house typical costs between £260- £380 with payback between 3 and 5 years.
- Professional loft insulation costs for semi-detached house are typically between £220 - £250 for a virgin loft (0-250mm) and from £200-£230 for a 200mm top up with respective paybacks of between 2-3 years, and 7-12 years respectively. DIY costs for a virgin loft are from £170, payback around 2 years, and for a top up from £140 with a payback of 5-7 years.
- Professional installation costs for draught proofing range from £85 - £110 for a semi detached house with pay back of 6-11 years. DIY costs from just £40, with 3-4 yr payback.
- DIY cost for hot water tank insulation is from £10 with payback up to 1 year and 10yr lifetime.
- The DIY costs for primary pipework insulation (between boiler and cylinder) are from £10 with payback up to 1 year.
- The cost for insulating solid walls through internal wall insulation (dry-lining) is from £900 for a semi-detached house with payback of between 5 and 6 years although this will also require redecoration. External wall insulation for solid wall buildings is more expensive with longer paybacks.

There is also considerable scope to reduce electricity consumption from lights, household appliances and consumer goods – particular standby power consumption. EST would be pleased to provide further information on the costs of energy efficiency measures if this would be helpful.

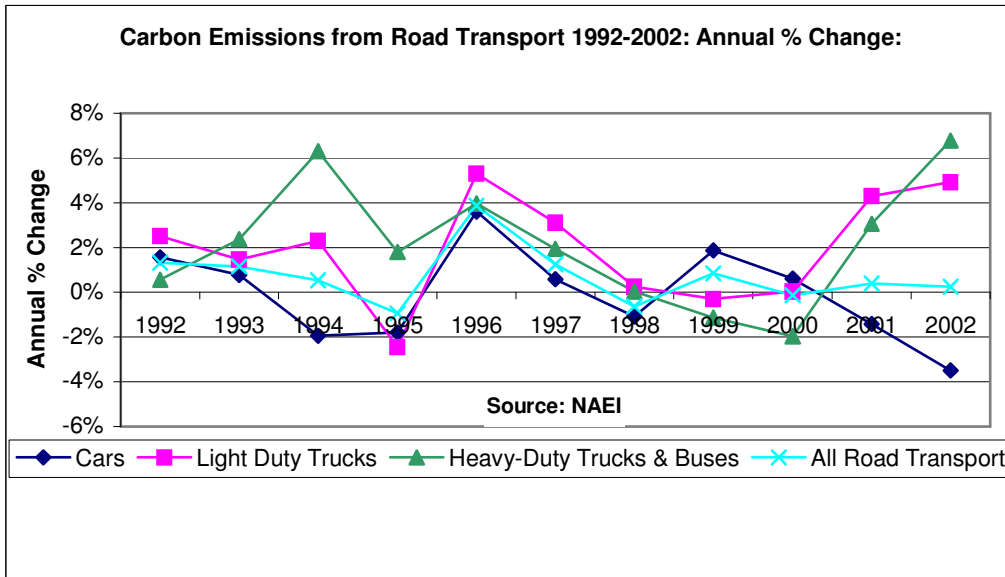
### **10. What are the likely trends in the demand for energy for transportation in Scotland? What is the likely time-scale and scope for substituting other power sources for fossil fuels? What are the likely investment costs?**

Informed comment on the overall transport emissions is difficult without separating road and domestic aviation emissions. In the UK as a whole, transport CO<sub>2</sub> overall has grown since 1999, mainly from increased aviation emissions as opposed to road transport. The National Atmospheric Emissions Inventory (NAEI) reports that the total CO<sub>2</sub> emissions from the road transport sector have actually remained broadly

static for the last five years growing by just 1.35% between 1998 – 2002 (31,490–31,916 ktC) as illustrated below.



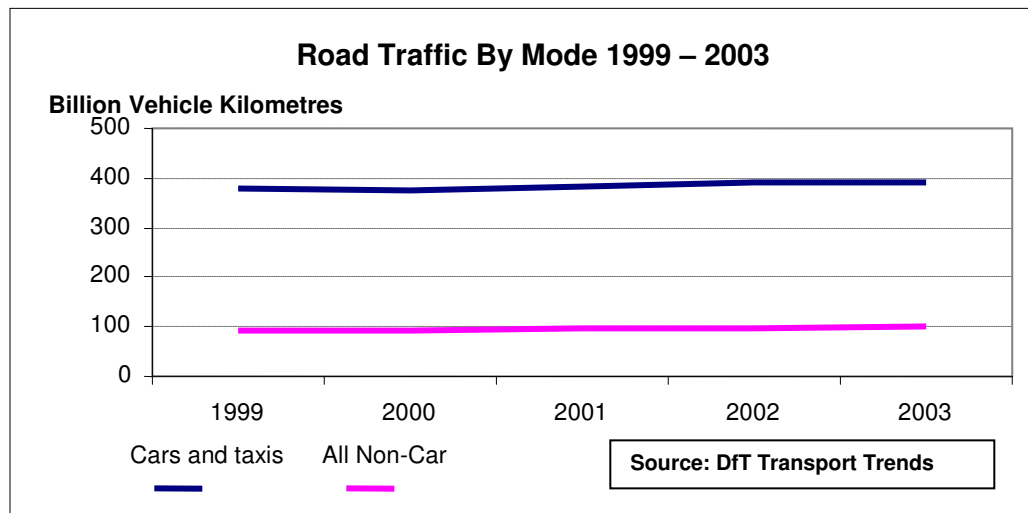
Since 2000 there has been a decline in CO<sub>2</sub> emissions from cars, whilst overall CO<sub>2</sub> road transport emissions have been held fairly constant due to a rise in CO<sub>2</sub> emissions from heavy trucks and buses as illustrated below.



The number of cars and light goods vehicles in the UK grew by around 70% between 1980 and 2003 (16.3 million to 27.7 million). Since 1999, however, the growth slowed somewhat, but was still fairly high at 10% and fell to 2% from 2002-2003 (see below). It is unclear whether this slowing trend will continue.

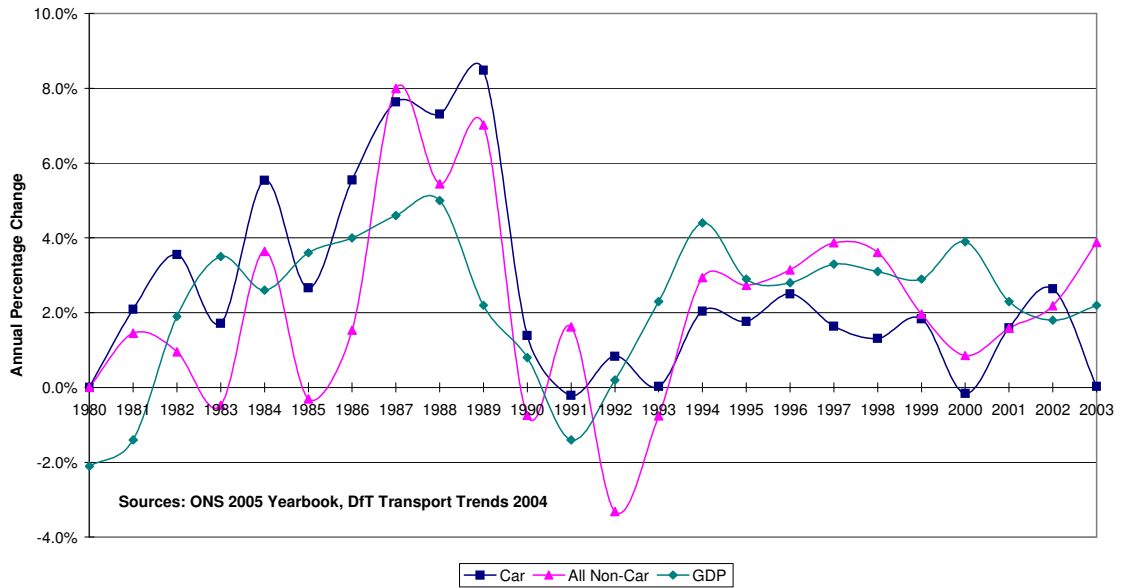
| <b>Motor vehicles currently licensed in Great Britain by taxation class: 1980 to 2003</b> <i>Millions</i> |                                  |                                 |              |                       |              |
|---|----------------------------------|---------------------------------|--------------|-----------------------|--------------|
|   | <u>Private &amp; light goods</u> | <u>Two wheel motor vehicles</u> | <u>Buses</u> | <u>Goods vehicles</u> | <u>Other</u> |
| 1999  | 25.2                             | 0.8                             | 0.1          | 0.4                   | 1.9          |
| 2000  | 25.7                             | 0.8                             | 0.1          | 0.4                   | 1.9          |
| 2001  | 26.4                             | 0.9                             | 0.1          | 0.4                   | 1.9          |
| 2002  | 27.2                             | 0.9                             | 0.1          | 0.4                   | 1.9          |
| 2003  | 27.7                             | 1.0                             | 0.1          | 0.4                   | 2.0          |
| <b>Source: DfT</b>  |                                  |                                 |              |                       |              |

Furthermore we note that vehicle miles travelled by car have only increased by a fairly small amount since 1999, and were unchanged from 2002-2003.

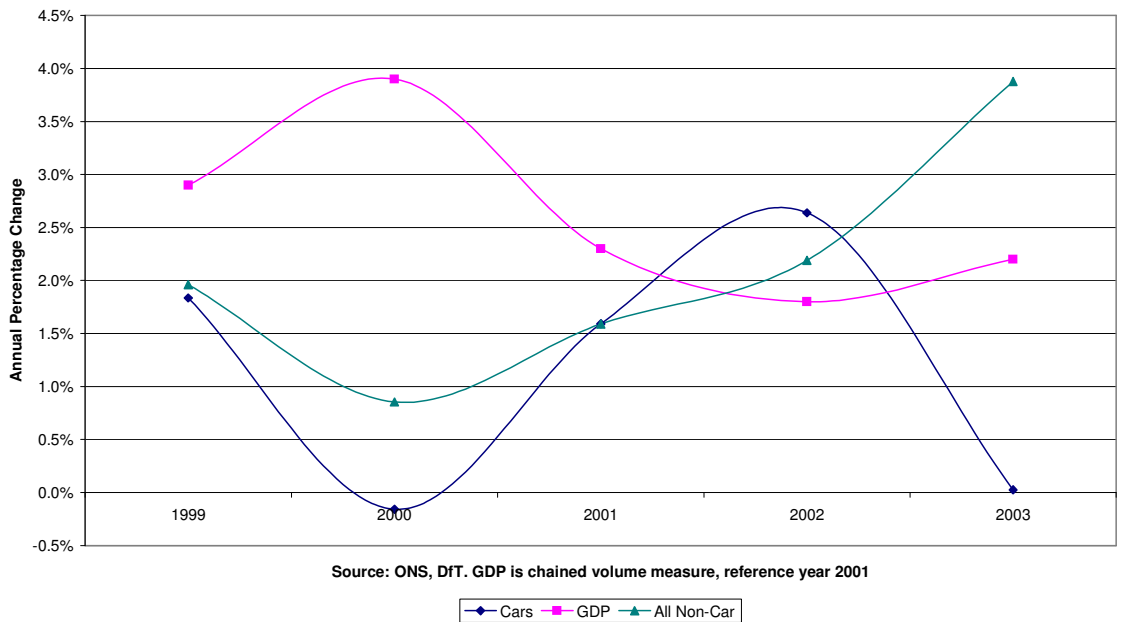


Historically, a common assumption among traffic modellers and policy makers alike is that GDP growth automatically leads to increased traffic. To test this assumption, EST has compared annual GDP change and annual change in kilometres travelled by car. The analysis shows that from 1980 until the late 1990s, trends in GDP and car traffic tracked each other fairly closely. However, since 1999 this relationship has changed and appears to have decoupled as illustrated below for 1980-2003 and 1999-2003 respectively.

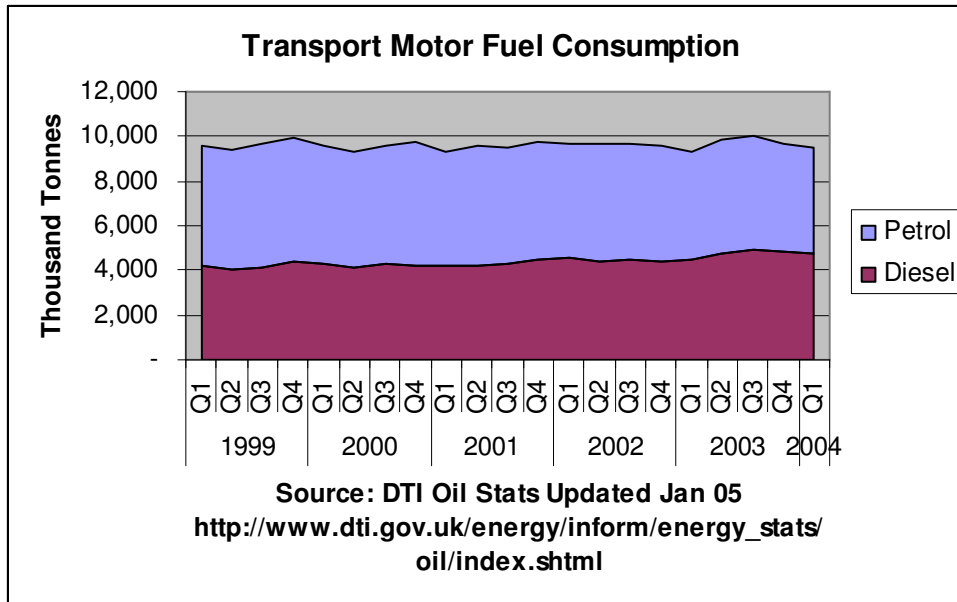
Vehicle Kilometres and GDP: 1980-2003



Vehicle Kilometres and GDP: 1999-2003



We also note that, fuel use for road transport has remained broadly static since 1999, with the diesel market share rising as presented below.



In summary, EST is not convinced that CO<sub>2</sub> emissions from road transport will grow by as much as some forecasts suggest when in fact emissions have remained fairly stable over the past 5 years. Historically, it has been argued that more fuel-efficient cars cause people to drive further but we believe that this would only be true for income-constrained people and note that vehicle kilometres have also not changed notably over the last 4-5 years. Furthermore, since 1999 the relationship between GDP and car traffic, which forms the basis for road transport forecasts, also appears to have decoupled and note that this also can be influenced by policy measures. We therefore suggest that it would be prudent to undertake further analysis of road transport emissions in Scotland to develop future projections.

EST strongly believes that far more needs to be done to tackle road transport emissions and that there is considerable scope for additional emission savings from the transport sector through other measures as well as fuel switching. We have therefore focused our response to this question on the potential for other measures to be adopted by the Scottish Executive. Additional instruments are also required to be developed at the UK Government and EU levels and are also highlighted in the enclosed Agenda for Change document. In particular strong encouragement should be given to UK Government to revise the current Vehicle Excise Duty levels to incentivise low carbon vehicles and penalise more inefficient ones and to seek tightening of the voluntary EU agreement for cars whilst introducing an effective approach to tackle vans.

### What needs to be done?

Transport already has the largest sector emissions in Scotland other than land use change and energy supply. Urgent action is clearly required to negate the increasing road transport emissions that are forecast by UK Government. In our view efforts to curtail Scottish transport emissions would be helped by setting a clear target for

emission reductions in the transport sector. Monitoring of progress against the target would allow the effectiveness of policy to be measured and remedial action taken if necessary.

EST would welcome strong Scottish Executive support for the development and uptake of clean low carbon vehicles and fuels. EST believes that the best approach would be via a technology-neutral grant funded programme. We do not believe that it is the role of Government to select technology winners, an approach that could be in breach of EU state aid rules.

However, there is considerable further scope to tackle transport emissions, key to which is the provision of information and advice to users. Additional measures that the Scottish Executive could implement include:

- Facilitating the provision of improved advice, including travel plans and fuel-efficient driving across all market segments, which could be undertaken as an extension to the current EEAC activity or as part of any eventual Sustainable Energy Network.
- Additional stimulation, assistance and subsequent sharing of best practice in the development of innovative road user charging schemes, supported by the matched funding currently available.
- Encouraging the development of Low Emission Zones (based on defined standards) that would exclude highly polluting vehicles, possibly as an extension to the existing Air Quality Management Areas.
- Supporting the development of low carbon fleets, most notably buses, but also other commercial fleets. For example, through the facilitation of:
  - Quality Partnerships between Local Authorities (LAs) and bus fleet operators where bus infrastructure improvements are provided in return for efficiency and/or environmental improvements in the bus fleet.
  - Clear Zones in urban areas where LAs work with bus operators, business and residents to reduce traffic and emissions.
  - Quality Contracts, where LAs are able to grant exclusive route-operating rights based on providing best value, whereby only the cleanest buses can be employed.
  - A low carbon bus programme.
  - Potential congestion charging initiatives in major cities.
- Support for green travel plans across all sectors including a commitment to the introduction of green travel plans for public sector operations and to exceed UK Government's departmental targets for reducing road transport emissions.
- Introduction of mandatory emission standards for licensed taxis.

- We believe that these policies need to be brought together in a coordinated manner particularly the provision of improved advice, including travel plans and fuel-efficient driving across all market segments. In our opinion, the Scottish Travel Awareness campaign could be enhanced through the provision of advisory services etc through the proposed SEN approach. Similarly the sharing of best practice, e.g. from innovative road user charging schemes, needs to be made available.
- Specific policies to reduce emissions in bus fleets are also required, particularly given the high proportion of the Scottish transport budget that is intended to be spent on public transport. Low carbon vehicles must underpin public transport policy. Similarly local authorities must show leadership by only purchasing, or contracting for, low carbon vehicles.

## **Environmental and Social Issues**

### **11. What are the environmental concerns that need to be taken into account, in terms of the impact on ecological and other natural resources, as well as waste management and impacts on the landscape?**

EST believes the key environmental concern is climate change and in particular CO<sub>2</sub> emissions.

### **12. Can the objectives of environment improvement and economic growth both be met without a major increase in energy costs? What steps should be taken to enable an informed debate on the issue?**

Yes. It is widely accepted that energy efficiency has a crucial role to play in reducing carbon emissions, eliminating fuel poverty and improving business efficiency through reduced costs, provide jobs and enhance security of supply whilst offering the greatest potential for reducing emissions in the short term. EST therefore strongly supports the development of a specific Scottish Energy Efficiency Strategy. The strategy should include specific sectoral targets, which must deliver substantial carbon reductions and reflect the required progression to longer term goals. The development of mass market renewable technologies in Scotland will also create jobs and could lead to the export of both products and know-how.

The development of a coordinated and integrated consumer communications programme to raise awareness and promote energy efficiency and mass market technologies would help inform debate at the consumer level and more importantly lead to behavioural change and consequent real action resulting in a reduction in primary energy demand and carbon emissions.

### **13. What are the social values and consequences of energy generation and distribution on employment opportunities, health, and energy affordability?**

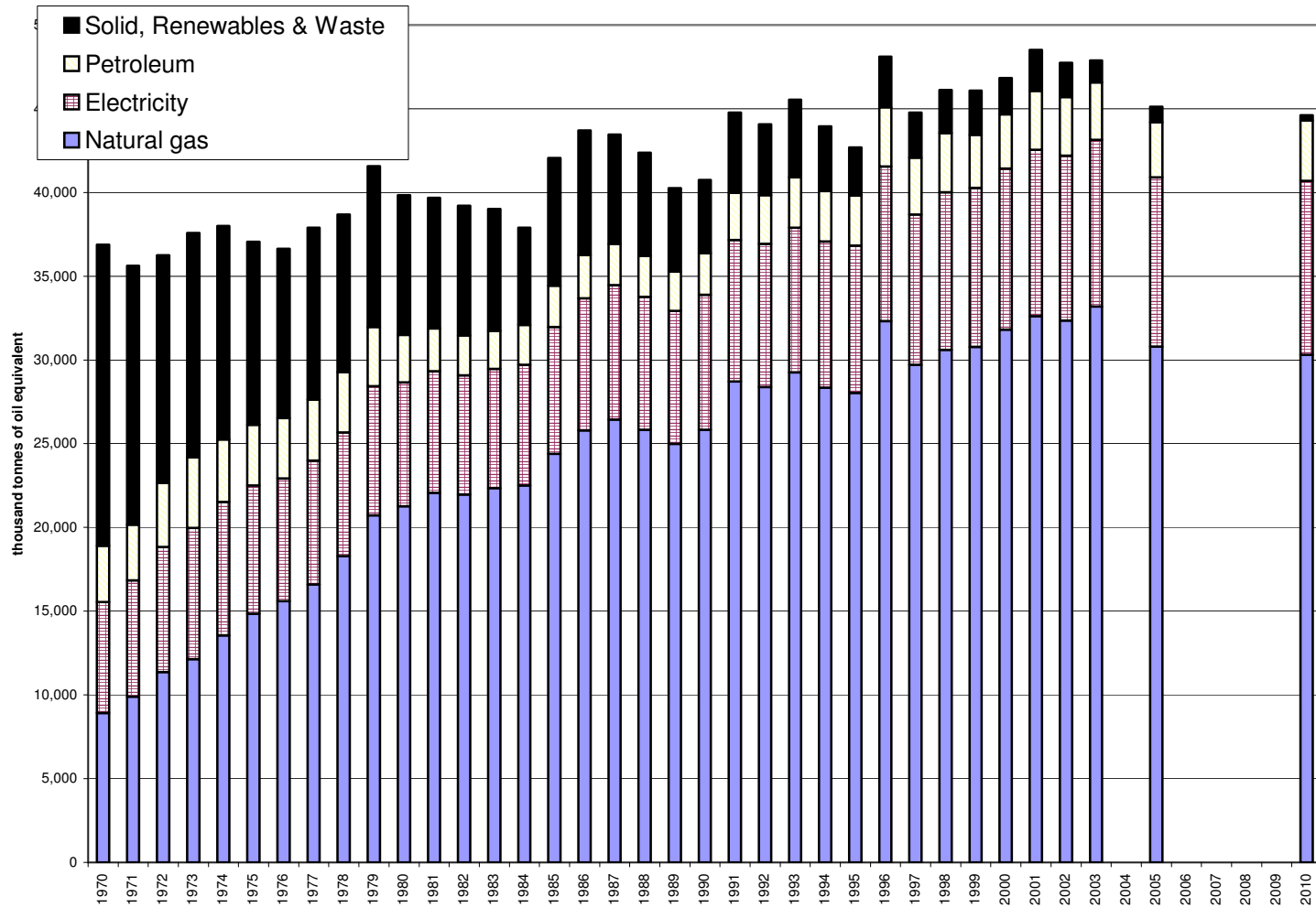
EST believes that the development of mass market renewables in off-gas network areas can help alleviate fuel poverty and improve health.

The Scottish Executive has acknowledged, through publication of its Green Jobs Strategy, that both energy efficiency and renewables offer very significant opportunities for creating sustainable jobs and sustainable economic activity. We fully agree with this view.



**Annex 1 - Domestic Energy Consumption by Fuel Type 1970-2010**  
(actual to 2003, then DTI provisional projection)

Source:- Energy Consumption in the UK, DTI & DTI updated energy projections



**Annex 2 - UK Carbon Emissions by End Use 1970-2002**

