Stop Climate Chaos Scotland

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Climate Change Plan (RPP3) policy proposals

1. Increase the budget for active travel to 10% of the total transport budget
2. Cross-city cycle highways
3. No reduction to Air Passenger Duty (APD)
4. Scotland's energy efficiency programme gets all homes to EPC 'C' Certificate by 2025
5. Solar homes
6. Support the growth of low carbon heat networks
7. Introduce package of carbon reducing measures for farming
8. Generate at least 50% of all Scotland's energy from renewables by 2030

Secondary proposals

a. Phase out the sale of petrol and diesel cars
b. Low emission zones
c. Workplace and supermarket parking levies
d. 'Healthy commute checks' for housing development decisions
e. Peatland restoration

Proposals also under consideration

- Enforcing speed limits
- All new homes to be zero carbon

Stop Climate Chaos Scotland (SCCS) is a diverse coalition of organisations in Scotland campaigning together on climate change. Our members include environment, faith and international development organisations, trade and student unions and community groups.

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1. Increase the budget for active travel to 10% of total transport budget

The Scottish Government should commit a minimum 10% of the overall transport budget to supporting active travel by 2020, with increases year on year, to deliver its commitment for 10% of journeys to be made by bike by 2020, reaffirmed in the Programme for Government.

Transport planning is naturally long-term and if we are to meet climate targets in the next 10 or 25 years, we need to begin making significant changes to our transport infrastructure now. Only around 2% of the total transport budget is currently allocated to active travel, despite extensive evidence on the multiple benefits and cost-effectiveness of investing. Short-term funding boosts are welcome but do not enable strategic planning.

Cross-sectoral benefits

- Increasing walking and cycling delivers significant health benefits by reducing our risk of conditions such as heart disease, diabetes, cancer, obesity and mental health problems.
- Research has shown particular benefits of active travel for young people including increased concentration at school, better road safety awareness and lower risk of obesity.
- Reduced air pollution and road congestion. Improved local shopping, school and residential environments.
- Well-designed active travel infrastructure can deliver a range of benefits such as reductions in road traffic casualties and improved urban biodiversity.

Carbon savings

Scotland's transport sector is responsible for around a quarter of our total emissions. Active travel is an important lever in reducing cars on our roads, and therefore emissions levels. The Scottish Government has a vision that 10% of all journeys will be by bike in 2020. Scottish Household Survey data for 2014 shows 1.4% of all trips being made by bike, far below the 10% aim. A study on the impacts of expanding the cycle network in Montreal found that a 2% reduction in emissions was brought about by increasing the bicycle network by 7%[1]. A review by the European Cycle Federation estimated that cycling results in 21g CO_2e for each kilometre travelled, compared to 271g CO_2e per car passenger[2].

Financial costs/ benefits

Spending on active travel is highly cost-effective. In assessing a sample of community schemes, Sustrans found that for each £1 spent, between £3.30 to £27.50 was delivered in benefits over 30 years, taking into account aspects such as reduced congestion and increased air quality[3]. A UK Government Department of Transport review of active travel schemes found a 'highly significant' mean benefit to cost ratio of £6.28 to £1[4].

Supporting evidence

In 2012, Edinburgh City Council committed to spend 5% of its transport budget to support its Active Travel Action Plan, and to increase this by 1% annually. Currently at 9%, there is clear evidence that this is working. Between 2010 and 2015 the Council estimate that cycling rose by 50%. The proportion of Edinburgh residents cycling as their main mode of travel to work increased from 4 to 11.8% since 2006[5].

[1] https://momentummag.com/building-bike-lanes-slow-climate-change-new-study-finds/
[2] https://ecf.com/what-we-do/health-and-environment/decarbonisation
[3] Sustrans Scotland: walking and cycling outcomes, 2014
[4] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/371096/claiming_the_health_dividend.pdf
[5] http://www.transport.gov.scot/sites/default/files/documents/rrd_reports/uploaded_reports/j415388/j415388.pdf

2. Cross-city cycle highways

A duty on Local Authorities to build at least one cross-city cycle route per city, as part of a package of wider measures to support improvement of cycling infrastructure.

Cycling is an important lever in reducing car travel, and therefore emissions. The Scottish Government has a vision that 10% of all journeys will be by bike in 2020. Data for 2014 shows 1.4% of trips being made by bike (2.6% of commuter trips) – far below the 10% aim. A key barrier to achieving these goals is the provision of good quality cycling infrastructure, which needs to be direct, convenient, and safe - separated from heavy traffic.

Cross-sectoral benefits

- Reduced conflict between motorised traffic, cyclists, and pedestrians
- Health benefits - reducing our risk of conditions such heart disease, diabetes and obesity
- Research has shown particular benefits of active travel for young people including increased concentration at school, better road safety awareness, lower risk of obesity
- Reduced congestion, air pollution, improved shopping and residential environments.
- Well-designed cycling infrastructure can support urban biodiversity

Carbon savings

Scotland's transport sector is responsible for about a quarter of Scotland's emissions. A study on impacts of expanding the cycle network in Montreal found that a 2% emissions reduction was brought about by increasing the bicycle network by 7%[6]. A review by the European Cycle Federation estimated that cycling results in 21g CO_2e for each kilometre travelled, compared to 271g CO_2e per car passenger[7].

Financial costs/ benefits

Local authorities will require funding to implement these policies. This could be achieved through committing a minimum 10% of transport funding to active travel. Spending on active travel is highly cost-effective. In assessing a sample of community schemes, Sustrans found that for each £1 spent, between £3.30 to £27.50 was delivered in benefits over 30 years[8]. A UK Government Department of Transport review of active travel schemes found a 'highly significant' mean benefit to cost ratio of £6.28 to £1[9].

Supporting evidence

A number of cities and countries have shown that consistent investment in cycling infrastructure works. The Netherlands has not always been cycle-friendly but is now world leading. The Dutch planning principle of 'Sustainable Safety' looks at the network as a whole, ensuring pedestrians, bikes and cars are separated where necessary. Copenhagen began to invest in cycling infrastructure in the 1980s, and now 30% of journeys are by bike. Seville started to introduce more cycle tracks in 2007, and cycling now accounts for 7% of journeys, five times more than in Scotland. London is developing cycle 'superhighways', raising the profile of cycling along key routes.

Wider measures to support cycling infrastructure could include minimum requirements for the percentage of people living within half a mile of an active travel route. A study in Seattle found adults living within a half-mile of a bike path were 20% more likely to cycle[10].

[6] https://momentummag.com/building-bike-lanes-slow-climate-change-new-study-finds/
[7] https://ecf.com/what-we-do/health-and-environment/decarbonisation
[8] Sustrans Scotland: walking and cycling outcomes, 2014
[9] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/371096/claiming_the_health_dividend.pdf
[10] http://activelivingresearch.org/files/ALR_Brief_DailyBikeTravel_May2013.pdf

3. No reduction to APD – a fair taxation framework for aviation

Air Passenger Duty (APD) should be maintained at least at current levels when powers are devolved to Scotland. The Scottish Government should work towards developing a fair taxation framework for aviation that reflects aviation's social and environmental impact.

The Scottish Government intends to bring forward a Bill within the next year for a devolved tax to replace APD in Scotland, in order to halve and ultimately abolish APD altogether, claiming this will promote international connectivity. Cutting APD at a time of austerity and whilst funding is urgently needed for the low carbon transition directly contradicts the Scottish Government's social and environmental goals. There is no independent evidence that APD is a significant barrier to Scotland's international connectivity. Changes to our tax regime should demonstrate a commitment to social justice and a low carbon economy. Scotland's lower income groups will achieve no or minimal benefit from the cut, and higher earners (and corporations) will benefit disproportionately

Cross-sectoral benefits

- Maintaining APD at current levels will raise an estimated £230-£300m revenue per year
- This revenue should be used to support the low carbon transition and other Government social and environmental objectives, including addressing the costs that aviation places on society. In addition to climate costs, externalities include air and noise pollution (with associated health impacts), social costs to nearby communities, costs of infrastructure and congestion around airports, and biodiversity impacts of airport expansion.

Carbon savings

Aviation is the most carbon intensive form of travel. Someone flying from the UK to New York and back generates roughly the same emissions as the average person does heating their home for a year. The Scottish Government's assessment shows its APD proposals may increase emissions by 60,000 tonnes CO_2 per year, largely through encouraging more short-haul flights, at a time when we need action to decrease, not increase, aviation emissions. By 2020, global aviation emissions are projected to be around 70% higher than in 2005, even if fuel efficiency improves. The proposed tax cut is inconsistent with Scotland's aspirations to be a world leader in climate action. It would make achieving our climate targets more difficult, and the Scottish Government has not specified which sectors of the economy would have to make up for these emissions, at what cost.

Financial costs/ benefits

Aviation is already significantly under-taxed through exemption from fuel duty and VAT, which is why APD was introduced. There is no independent evidence that cutting APD would provide a net benefit to the economy. In fact, cutting APD could result in a net loss of income resulting from reduced domestic tourism. The Government's own analysis of a 50% cut suggests that more than half of the passenger increase would come from people flying within the UK, where rail alternatives exist, and cutting APD could undermine investment in rail travel including high-speed rail networks.

Supporting evidence

Nordic Countries have led on progressive environmental taxes since the 1990s. Norway introduced a tax on air passengers in June 2016. The Swedish Government has appointed an inquiry to assess how an air travel tax could be designed.

4. Scotland's Energy Efficiency Programme gets all homes up to EPC 'C' by 2025

We recommend that an overall target be set for Scotland's new energy efficiency programme to bring all homes up to an Energy Performance Certificate rating of 'C' by 2025, and that this be provided with multi-year funding for grants and loans. Uptake should be driven by regulation of minimum energy standards applied to all homes.

The Scottish Government took the welcome step of making energy efficiency investment a national infrastructure priority in 2015, and with the programme under development now is the time to set an ambition that is in line with the Climate Act and wider social and health objectives.

Energy efficiency is one of the lowest-cost ways to reduce emissions as many measures such as loft and cavity wall insulation are cheap to install and will pay for themselves in energy savings after a few years, going on to save energy and emissions for decades. These are emissions savings that can be achieved relatively easily compared with other sectors such as transport because they are cost effective, technically possible, and popular with householders. The National Infrastructure Project should make clear its ambition to significantly reduce emissions from the housing sector, with grants to the fuel poor and incentives for all other homes, underpinned by regulations to drive uptake, which are the best way to leverage additional funds during a time of constrained public finances.

Cross-sectoral benefits

There are significant additional benefits of investing in energy efficiency: it is the only way to permanently reduce the risk that a household falls into fuel poverty, and can reduce ill-health caused by inadequately heated homes, with the NHS in Scotland estimated to save £48m – £80m a year if all homes were brought up to EPC C[11]. The National Institute for Healthcare and Excellence (NICE) recommends that as a minimum, properties should be raised to an EPC band C and ideally to a band B to avoid the risk of death and ill health associated with living in a cold home[12].

Carbon savings

Upgrading fuel poor homes to EPC C by 2025 would save an estimated 1 MtCO2 a year by 2025[13]. This is double the rate of carbon savings anticipated from all RPP2 policies in the homes sector by 2027.

Financial costs/ benefits

The estimated cost of upgrading the housing stock to EPC band C or above are £7bn over 10 years, requiring a funding increase of approximately £3.2bn (or £320m per year) on current funding levels[14]. This funding would come from a mix of private investment (particularly the natural replacement of old gas boilers with more efficient condensing models) and additional public funds. A project of this scope could generate a net increase in jobs of 8-9000 per year[15]. It would also be a 'value for money' project – creating more jobs and benefits for the wider economy than a fiscally equivalent spending package[16].

Supporting evidence

The Committee on Climate Change's latest advice to the Scottish Government recommends a similar trajectory for energy efficiency in housing[17] to meet Scotland's 2030 emissions target cost effectively. England and Wales have already regulated minimum energy standards for rented accommodation.

[11] Consumer Futures Scotland (2014) Economic impact of improving the energy efficiency of fuel poor households in Scotland
[12] http://www.nice.org.uk/guidance/ng6/resources/excess-winter-deaths-and-morbidity-and-the-health-risks-associated-with-cold-homes-51043484869
[13] CCC (2016) Scottish Climate Targets 2028 – 2032; analysis by WWF Scotland
[14] Existing Homes Alliance (2016) Realising the potential of Scotland's Energy Efficiency Programme
[15] Verco (2014) Building the Future
[16] https://www.e3g.org/docs/Frontier_Economics_-_Energy_Efficiency,_an_Infrastructure_Priority.pdf
[17] Ibid

5. Solar Homes

A planning requirement for installation of solar (PV and solar thermal) in new buildings, domestic and commercial, to be maximised. This could be achieved through a general requirement for installation of solar rooftop technologies to be 'maximised', or a requirement that a specific minimum percentage e.g. 50% of suitable roof-space must be used for solar panels or green roofs unless there is a clear justification why this is not needed (e.g. because there is alternative low carbon energy supply such as a district heating network).

Solar panels are a reliable, established method of generating electricity and heat and enjoy significant public support. They need daylight, not sunshine or high temperatures, and are suitable for a vast number of properties in Scotland. Parts of Scotland have similar solar irradiation levels to parts of Germany, one of the leading countries in installed solar capacity. Costs of solar panels have come down rapidly and strong progress has been made in deployment in particular through the Feed in Tariff scheme. The Scottish Government has made positive changes to facilitate development through permitted development rights. However, solar capacity in Scotland is still fairly low at 231 MW (including solar arrays), around a tenth of what the Solar Trade Association estimate would be a reasonable 2020 target for Scotland.

Cross-sectoral benefits

- The policy would create a clear, positive framework for investment in the industry
- Jobs would be created throughout Scotland given the distributed nature of the technology
- Where green roofs are used, in addition to providing insulation they reduce run-off, assisting natural drainage management, and support urban habitat connectivity
- The policy would ensure all new homes, including affordable homes, maximise opportunities for low carbon energy and save consumers money on their energy bills. Consumer-led installation has been criticised for not spreading benefits equitably. Solar panels can also be used by social landlords to meet energy standards cost-effectively

Carbon savings

- 16,000 homes were built in Scotland in 2015. Taking an average domestic solar panel, at this building rate the policy could deliver 53 MW additional renewable capacity per year, or around 700 MW by 2030, almost three times the current solar capacity in Scotland.
- Assuming each domestic solar system saves approximately a tonne of CO_2 emissions per year, the policy could deliver an additional 1.5 Mt CO_2 emissions reductions by 2030.

Financial costs/ benefits

Installation of solar systems at the new-build stage is easiest and cheapest; costs can be absorbed into building costs, and spread out over a number of installations providing economies of scale, compared to retrofitting which also creates a 'hassle factor' for occupants in accessing information and identifying an installer. Residents also benefit from reduced energy bills - protecting consumers against rising fuel costs.

Supporting evidence

In California, legislation will require that all buildings up to 10 stories high designate at least 15% of the roof space for solar use from January 2017. This will build on requirements in place since 2014 requiring all new buildings less than ten stories tall to be "solar ready"

6. Support the growth of low carbon heat networks

District heat networks can play a vital role in opening up future opportunities for delivering renewable and low carbon heat at scale. Current development of heat networks in Scotland takes place in a piecemeal and uncoordinated fashion. This could be improved and bolstered by regulation, delivered through a Warm Homes Act, to provide a regulatory framework to support the growth of district heating and address key barriers and strategic issues, and ensure that customers are adequately protected in future.

Heat accounts for over half of Scotland's emissions, but the current pace of change is too slow. Today, only 4% comes from renewables and we are unlikely to hit the 11% target for 2020. Unlike other renewable heat technologies, district heat networks are a mature technology that is ready to deploy, and their development must be prioritised to facilitate emissions reductions in the heat sector. District heating can reduce emissions and heating costs by up to 40% compared to alternative heat systems. However, projects have long timescales and need long-term capital funding. A supportive, clear and stable regulatory environment is needed to providing both developers and their capital funders with the certainty they need to invest in district heating schemes, and ensure that networks grow in a coordinated fashion, exploiting opportunities to connect to new customers and heat sources, and waste heat sources in their local area.

Cross-sectoral benefits

- Reduced heating costs (especially in electrically heated homes)
- Potential for futher carbon abatement once networks are switched to low carbon sources (electric heat pumps, biomass, geothermal).
- The building of new energy infrastructure, often in local communities, will create opportunities for greater local involvement and ownership.
- Can support the development of renewables by allowing the flexible integration of renewable heat sources in one system.

Carbon savings

The Committee on Climate Change estimates that heat networks providing 2.6 TWh of heat in 2030 could abate 0.4 MtCO2e per annum in Scotland.[18]

Financial costs/ benefits

The Heat Network Partnership for Scotland estimates that if all hundred heat network projects currently in development in Scotland were built, a total capital investment of £600 – 1000m would be required[19]. This would be provided by private and public capital, with new projects generally built in new-build developments or in publically owned buildings such as schools and hospitals.

Supporting evidence

The Committee on Climate Change recommends that achieving 2.6 TWh of heat supplied by heat networks would put Scotland on track to meeting its Climate Targets cost-effectively. Similar analysis by Ricardo Energy & Environment commissioned by WWF Scotland found that 4.4 TWh of heat from heat networks would be required by 2030, in a scenario where less abatement is achieved in the waste, international aviation and agricultural sectors[20]. District heat networks are already commonplace in other European countries; 98% of buildings in the city of Copenhagen are heated in this way, with the vast majority of heat generated from more-efficient heat and power plants. Carbon emissions have been reduced by a move towards waste and biomass combustion, as well as high efficiency electric heat pumps to make use of periods of excess wind energy.[21]

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[18] CCC (2016) Scottish Climate Targets 2028 - 2032
[19] Heat Network Partnership (2015) Investment in Heat Networks in Scotland
[20] Ricardo Energy & Environment (2016) Renewable Energy in Scotland in 2030
[21] Danish Energy Agency (2013) District Heating: Danish Experiences

7. Introduce a package of carbon reduction measures for farming

A package of advice, incentives and regulatory measures must be introduced to the farming industry by 2018 to boost carbon abatement. The starting point to achieve emission reduction is to understand the sources of emissions from the individual farm through **compulsory carbon audits, including fertiliser management planning, and compulsory soil testing.** From this, emission reduction measures can be identified and implemented, some of which can be incentivised or supported by Government.

The new **Farm Advisory Service** should be boosted to ensure all farmers receive the support needed to identify emission reduction measures. In addition, a carbon audit should be a requirement of receiving financial support and subsidy.

To back up the package Government must commit to; researching mechanisms to achieve widespread uptake of **nitrogen use efficiency measures**, a target for **agroforestry** in Scotland, and a target of 10% of Scotland's farmland managed through **organic farming** by 2025.

Rural Land Use, of which farming is a large part, accounts for 25% of emissions in Scotland. Whilst emissions have reduced since 1990 this has been due to sector contraction and market forces rather than Government Policy and behaviour change. Like all sectors farming has a responsibility to cut emissions, especially as it receives public funding. All farmers should be seeking carbon efficiency savings which also save money.

Cross-Sectoral benefits
Measures in a wide package could benefit wildlife, river water quality, homes & businesses in flood risk areas, climate adaptation, farm animal welfare, air quality, and movement towards a circular economy.

Carbon savings
A package of measures could save more than 300Kt CO2e per year[22]. The RPP2 estimated abatement of 260Kt CO2e each year from 1990 levels, from 90% uptake level by farmers of fertiliser efficiency measures.

Financial costs/ benefits
Full costs to government of a package of carbon reduction measures will depend on the balance of advice, incentive and regulatory measures (needing enforcement). For farmers, the regulatory measures will incur costs but should also result in efficiency savings. The average cost of performing a fertiliser management plan is £470, although many farmers will already by doing this and will therefore incur them with no extra costs and planning in subsequent years may be less[23]. Costs can be recouped from efficiency savings estimated in RPP2 at £240m for the industry to 2027.

Supporting evidence
The Scottish Government has funded a number of Farming for a Better Climate Focus Farms[24] to demonstrate carbon saving measures. Torr organic dairy farm reduced emissions by 11% over a three year period[25]. Glenkilrie beef and sheep farm cut its carbon footprint by 10% over the same timescale[26].

[22] Scot Gov unpublished figures
[23] http://www.gov.scot/Resource/Doc/154696/0041530.pdf
[24] http://news.scotland.gov.uk/News/Reaping-the-rewards-5db.aspx
[25] http://www.sruc.ac.uk/downloads/file/2745/torr_organic_dairy_-_efficiency_findings
[26] http://www.sruc.ac.uk/downloads/file/2752/glenkilrie_-_benefits_from_reducing_emissions

8. At least 50% of all Scotland's energy from renewables by 2030

The Scottish Government should set a new target to source at least 50% of all Scotland's energy use from renewables by 2030. The new target should apply across the electricity, heat and transport sectors and feature in the forthcoming energy strategy. This would see the leadership and support provided by the Scottish Government to renewable electricity extended to the heat and transport sectors, which would help meet climate targets and capture the many additional benefits that renewable energy brings.

To meet our future climate targets Scotland will need to increase the use of renewable energy and complete a just and planned transition away from fossil fuels. Independent analysis carried out by Ricardo AEA on behalf of WWF Scotland has shown that to meet new climate targets for 2030, at least half of all Scotland's energy consumption will need to be met by renewables, up from 13% today. This target has was also recommended by Scottish Renewables[27],

The Scottish Government's 2020 renewable electricity target, and the leadership and support that this has provided, has been crucial in driving the recent growth in renewable electricity in Scotland. Setting a new target for 2030, with clear sub-targets for the heat and transport sectors, would extend this vision and support to these sectors where the use of renewable energy has grown only slowly over the past decade. A suggested breakdown of the targets per sector is 143% electricity from renewables, 40% of heat and 18% of transport[28].

Cross-sectoral benefits

- Health benefits from cleaner air as a result of switching to electric vehicles.
- Heat networks can help reduce fuel poverty if these replace electric heating, especially in tower blocks.
- The building of new energy infrastructure, often in local communities, will create opportunities for greater local involvement and ownership.

Carbon savings

By 2030[29]

- Power: 5 million tonnes CO2 (moving to 10gCO2/kWh)
- Heat: 1.3 million tonnes CO2
- Transport: 3 million tonnes

Financial costs/ benefits

Analysis commissioned by WWF Scotland and carried out by Ricardo Energy & Environment found that such a shift would be cost-neutral by 2030 (using HMT projected carbon values)[30] and generate significant additional benefits. A switch to electric vehicles would reduce petrol and diesel consumption by 40%, improving air quality in towns and cities as well as public health. It is also estimated that the additional renewable electricity required to supply such a scenario would generate an extra 14,000 jobs in Scotland, in addition to the 21,000 already employed in low-carbon industries.

Supporting evidence

The shift to renewable electricity is estimated to have avoided the emission of 12.2 million tonnes of CO2e in 2014[31], and the EU has set a new renewable energy target of meeting 27% of the union's energy consumption from renewables by 2030, up from 12% today.

[27] https://www.scottishrenewables.com/news/call-scotland-source-half-energy-renewables-2030/
[28] Ricardo AEA (2015) Renewable Energy in Scotland in 2030
[29] CCC (2016) Scottish Emissions Targets 2028 - 2032
[30] Ricardo AEA (2015) Renewable Energy in Scotland in 2030
[31] Scottish Government (2016) Energy in Scotland

---------- **SECONDARY ASKS** ----------

a. End the sale of petrol and diesel cars in Scotland by 2030

End the sale of new petrol and diesel cars by 2030, with an interim 2025 target, supported by policies to promote active travel, public transport and transition to low carbon vehicles. A ban on the sale of new petrol and diesel cars by 2030 should be considered.

Tackling the use of petrol and diesel cars must be a priority for Scottish energy policy in the 2020s. The CCC have estimated that by 2020, at least 16% of new car sales 5% should be electric vehicles (EVs) in order to provide a 'critical mass' for roll-out. Whilst progress has been made with EV sales increasing 245% in 2014, this still only accounts for around 1% of new sales. A bold vision is needed to drive a more rapid transition.

Cross-sectoral benefits

- Reduced air pollution. Public Health England estimate 2000 deaths a year in Scotland are attributable to fine particulate air pollution. The UK Environmental Audit Committee estimate poor air quality reduces life expectancy in the UK by an average 7-8 months.
- Health benefits of increasing active travel as an alternative to car use. Low emissions vehicles are also less noise polluting, supporting better quality environments.
- EVs can support effective use of renewable energy, by encouraging recharging at times of low demand, and using EVs as distributed energy storage for use at peak times.
- Shared car clubs can reduce inequality by increasing mobility in lower income groups
- Savings for consumers once the purchase cost barrier of EVs is overcome: driving 100 miles in an EV currently costs around £2-3, compared to £9-13 in fuel.

Carbon savings

Cars are the largest source (40%) of emissions in the transport sector, with transport making up around a quarter of our total emissions. The CCC estimate that new cars should have an average carbon intensity of 40 gCO_2/km by 2030 – compared to 124.4 gCO_2/km in 2014.

Financial costs/benefits

A report commissioned by the Institute of the Motor Industry estimated that 320,000 UK jobs could be created with a £51bn per year boost to the UK economy through growth in low emission cars. Ensuring Scotland benefits from this opportunity would require investment in charging infrastructure and incentives for consumers. The CCC estimate incentives of around £1,000/vehicle will be required in 2030 (through grants, tax exemptions or free access to low emissions zones and parking). Benefits would also accrue from investing in active travel - a UK Government review of active travel schemes found a mean benefit to cost ratio of £6.28 to £1.

Supporting evidence

A number of European countries have put in place or are considering phase-outs of petrol and diesel car sales. Norway has a target to reach zero new fossil-fuel car sales by 2025, and is currently the largest EV market in the world, 24% of cars are EVs. The Dutch Parliament has passed a motion to ban the sale of non-electric cars by 2025. Germany, Belgium, Switzerland, and Sweden are all considering deadlines for phase-outs.

Measures to support this policy should be identified in the planning system, for example by Councils requesting recharging infrastructure be incorporated in new developments.

b. Low Emission Zones

Deliver Scotland's first Low Emission Zone by 2018 (in accordance with SNP Manifesto commitment and Programme for Government)

A Low Emission Zone (LEZ) is an area where the most polluting vehicles are restricted, deterred or discouraged from access and use. Local authorities in Scotland already have the power to set up Low Emission Zones, however none have yet done so. The Scottish Government's "Switched on Scotland" Strategy, which envisages the decarbonisation of the transport sector by 2050, originally called for the introduction of LEZs by 2015. The SNP Manifesto pledged that the Scottish Government would take forward the actions set out in "Cleaner Air for Scotland" – Scotland's first distinct air quality strategy – to reduce air pollution, with the first low emission zone to be put in place by the end of 2018.

Cross-sectoral benefits

- Health benefits of reduced air pollution. Public Health England estimates 2000 deaths a year in Scotland are attributable to fine particulate air pollution. The UK Environmental Audit Committee estimate poor air quality reduces life expectancy in the UK by an average 7-8 months.
- Health benefits of increasing active travel as an alternative to car use.
- Reduced congestion and noise pollution, resulting in improved shopping and residential environments.
- LEZs could be designed to support the uptake of electric and hybrid vehicles

Carbon savings

Low Emission Zones, if they restrict private vehicle use, can act as a disincentive to motorised traffic and complement policies that enable modal shift, delivering emissions reductions. Low Emission Zones can also tackle the issue of black carbon, a component of Particulate Matter, which is also a key contributor to climate change. LEZs could also support subsequent roll-out of congestion charging where appropriate, through the introduction of Automatic Number Plate Recognition systems for enforcement (as has been effectively done in Milan's "EcoPass" scheme).

Financial costs/ benefits

Local authorities would require financial support to implement a Low Emission Zone. Fleet operators may require some support to scrap and update their fleets in order to comply with LEZ requirements by 2018. Savings would be accrued through reductions in health spending and lower congestion and modal shift reducing the need for road spending.

Supporting evidence/examples

There are over 200 LEZs across Europe. They have been especially effective in reducing emissions of Particulate Matter and Nitrogen Dioxide. LEZs are also planned to help cut CO_2 levels in London from 2018, where they are expected to speed up the uptake of electric vehicles. By 2018 all newly registered taxis in London will have to be zero-emissions capable and no diesel taxis will be licenced.

c. Workplace and Superstore Parking Levies

Introduce legislation enabling Councils to introduce parking levies for workplaces and other large car parks, such as superstores and large leisure centres, and require all Councils to consult on introduction of parking levies within a year of legislation being introduced.

A Workplace Parking Levy is a levy on private, non-domestic off-street parking provided by employers. Taxes targeted at workplace parking would encourage people to use public transport or active travel, easing congestion and cutting carbon emissions from the transport sector, and generate revenue for investment in sustainable travel. Levies on other large car parks would be applied to the organisation, which would decide whether to pass this charge on to individual customers.

Scottish Councils cannot introduce workplace or superstore parking levies under existing legislation. The Transport (Scotland) Act 2001 makes no provision for workplace parking levies (WPLs), in contrast to the Transport Act 2000, which enables their introduction in England and Wales outside of London.

Cross-sectoral benefits

- Encouraging modal shift to public transport and active travel resulting in less traffic congestion and noise, contributing to well-being in communities
- Discouraging parking at work would increase rates of active travel resulting in health benefits such as reduced risk of heart disease, obesity and some mental illnesses
- Health benefits of reduced air pollution
- Parking levies could be designed to encourage uptake of electric vehicles or use of car clubs

Carbon savings

Cars are the largest source (40%) of emissions in the transport sector, with transport making up around a quarter of our total emissions. 69% of all trips to work are by car or van, a trend which has not seen any change over the last decade. Average car occupancy is 1.51 passengers.

Financial costs/ benefits

Workplace and superstore parking levies provide significant revenue-raising opportunities for local Councils and broaden mechanisms for funding public transport and other sustainable transport requirements. Revenue raised should be ring-fenced for sustainable transport improvements such as financing active travel, investment in public transport, or establishment of Low Emissions Zones. Introduction of WPLs in Nottingham in 2012 has raised £25million, which has been reinvested into the city's new tramline.

Supporting evidence

Nottingham introduced a WPL in 2012. Businesses with 10 or fewer spaces are exempt, but those with more pay £379 per space per year. The cost has in some cases been passed down to employees, at a cost of £1.50 per day per spot. Public transport usage statistics are showing an uplift of over 2m trips per year in public transport journeys since the introduction of the WPL, bucking the national trend. The city expects to have stats on whether this has led to less congestion in 2017.

Cambridge is currently consulting on an 8 point plan to tackle congestion, which includes a proposal to introduce a WPL, which has been estimated to have revenue-raising potential of £7 to £11 million per year. Other measures in the 'package' include proposals for better public transport and Park & Rides, enhanced cycling infrastructure, peak time congestion control points, more on-street parking controls and improvements to public spaces.

d. 'Healthy commute checks' for housing development decisions

A national review of where we should be encouraging new housing in Scotland in order to enable sustainable, healthy lifestyles and maximise emissions reductions. Outcomes would be incorporated into Scottish Planning Policy and the National Planning Framework, which should promote more compact and mixed-use development, which is more likely to result in low carbon lifestyles than opposed to detached housing. Councils should reject proposals for housing developments where their impact on walking and cycling will not be positive, and require installation of electric vehicle charging infrastructure. Achieving sustainable patterns of development would also be supported by requiring lifecycle emissions assessments for new housing development, taking into account forecasted travel patterns of residents.

The planning system should ensure homes are built near to where people work and shop, linked to good public transport and active travel networks. Scottish residents travel an average of around 20 miles every day (National Travel Survey 2012). Most policies focus on changing vehicle and fuel types rather than travel distances, ignoring the additional costs, emissions and other disadvantages of longer travel distances. Spatial land-use planning is crucial in influencing patterns of development, which determine how far we travel between our homes and workplaces. Spreading workplaces, retail developments and homes over a wide area requires people to travel further and makes it more expensive to plan public transport, creating infrastructure 'lock-in'. Homes, even if built to high environmental standards, cannot be 'zero carbon' if they are built where residents are likely to commute long-distances by car.

Cross-sectoral benefits

- Reducing travel distances reduce congestion and air pollution with consequent health benefits, and enable more active travel and enhanced mobility for non-drivers. The most common reason given for not cycling to work is that it is too far.
- Savings for individuals on fuel bills
- Potential to increase economic productivity through decreasing time spent commuting
- Quality of life benefits of reduced need to travel and more accessible communities; Scottish residents spend an average 15.3 days travelling per year (National Travel Survey 2012)
- Encouraging compact development (as opposed to detached housing) would also deliver additional emissions reductions through reduced heat loss and facilitating district heating.

Carbon savings

Cars are the largest source of transport emissions in Scotland, accounting for 40% of the total at 5.2 $MtCO_2e$. Emissions reduction potential in transport is highly dependent on patterns of travel demand, with shorter journeys being most amenable to mode-shifting from car to public transport with appropriate policy support.

Financial costs/ benefits

There are no direct costs to Government of this policy other than the cost of commissioning a review. Reducing travel distances could generate significant savings for Government in reduced health costs, reduced congestion (reducing spending on roads), less expensive public transport planning, in addition to individual savings in fuel costs, and the potential to boost economic productivity.

Supporting evidence

Whilst most climate and transport policies neglect land-use planning as a mitigation option, a standout example is the US city of Oakland's Energy and Climate Change Action Plan, which seeks to integrate land use considerations by reducing physical distances driven, and encourage more people to live closer to work. Housing development is encouraged near transportation nodes and along high-use corridors.

e. Peatland Restoration

Funding is urgently needed to restore 21,000 hectares of degraded peatland per year.

Peatlands ecosystems, in their natural state, sequester carbon from the atmosphere and lock it away in peat. Scotland's peatlands hold 1620Mt of carbon – equivalent to ten times the carbon stored in all of the UK's forests. Of Scotland's 1.8m ha blanket bog only 30% are currently in good condition. Past land management practices, such as draining, burning, grazing and afforestation have left a legacy of damage and rapid carbon emissions, which can only be reversed through restoration activities. The RPP2 included a target for 21,000ha of restoration per year.

Cross-sectoral benefits

Restoring damaged peatlands to a functioning ecosystem benefits the often rare and threatened wildlife which rely on peatland habitats and boosts their resilience in the face of changes in climate. It improves water quality by reduction of Dissolved Organic Carbon (DOC) and particulate Organic carbon (POC), which can turn streams and rivers brown, reducing the cost of removing it at water treatment works. Peatland restoration also bring flood management benefits by reducing the rate and amount of flood water heading downstream off the hills.

Estimated carbon savings

Peatland science shows that restoration of 21,000ha of the most damaged actively eroding peatland could permanently prevent the loss of up to half a million tonnes of CO2e per year. Drained or moor-gripped peatland is the widespread form of damage in Scotland, so restoring 21,000ha of this damage gives mid-range abatement of around 95Kt CO2e per year. However, if restoration is delayed emissions could become higher as the damaged peatlands shift to an eroding state.

Financial costs/benefits

Costs of restoration depend on the level of damage - the most damaged can cost upwards of £1000 per hectare to restore. The majority of Scotland's blanket bogs are drained or slightly damaged so costs of £100-300/ha are more typical. Abatement of carbon through peatland restoration costs approximately £13/tonne CO2e. This cost is favourable when compared to other carbon abatement techniques. Restoration of 21,000ha per year could cost in the region of £4.2million, with additional costs for employing area coordinators.
A variety of public and private funders are already financing restoration, helped by the IUCN's Peatland Code.

Supporting evidence

Peatland restoration is well documented with large areas restored, for example, by RSPB Scotland in the Flow Country of Caithness and Sutherland. During the last Parliament, Scottish Government's Peatland Action Programme funded 10,315ha in addition to restoration funded through SRDP, EU Life projects, HLF, Scottish Water and SEPA grants.