Does Scotland have the right policies (Clean Air for Scotland Strategy), support and incentives in place to adequately tackle air pollution?

We are supportive of Scotland’s ambition to have the best air quality in Europe and drive for an integrated approach on air quality. However, we feel that there are some important gaps in policy to tackle air pollution.

We would like to see:

- A more integrated approach - tackling all sources and air pollutants, not just transport emissions but emissions from other sources such as heat and power
- Separate assessment and plans to tackle air pollution in Scotland which continue to recognise the different priorities that exist for Scotland and the rest of the UK
- Investment in solutions whilst:
  - Recognising emerging trends in energy, such as power generation decentralisation
  - Anticipating future infrastructure change as we move towards a low carbon future, for example, increased use of hydrogen
  - Investing in technologies which have long-term benefits for the Scottish economy

Are the policies sufficiently ambitious?

We welcome Scotland’s plans for clean air, aiming for the “best air quality” in Europe and being the first country in Europe to adopt, into legislation, the WHO guideline value for fine particulate (PM$_{2.5}$). However, as recognised in the recent Cleaner Air for Scotland 2016 progress report$^1$, more needs to be done.

The UK’s new air quality plan to tackle nitrogen dioxide specifically focuses on transport but recognises that measures to tackle particulate matter, sulphur dioxide, non-methane volatile organic compounds and ammonia are also needed. The UK has committed to publishing a wider Clean Air Strategy in 2018 amidst responses calling for harmful emissions originating from sources other than road transport to be tackled.$^2$ We feel it is important for Scotland to also continue to assess its own air pollution priorities tackling all harmful air pollutants from a range of sources in as short a timescale as possible.

Are the policies and delivery mechanisms (support and incentives) being effectively implemented and successful in addressing the issues?

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$^1$ Cleaner air for Scotland, The road to a healthier future, 2016 Progress Report, Scottish Government, June 2017
$^2$ UK Plan for tackling roadside nitrogen dioxide concentrations, Summary of responses to consultation, BEIS, July 2017
We believe that the existing policies and delivery mechanisms are too transport focussed in addressing Scottish Clean Air. The disparity between transport and other causes of air pollution is not as high as the rest of the UK, even though transport accounts for a high percentage of local breaches in urban hotspots. Only 38% of \( \text{NO}_x \), 16% of \( \text{PM}_{10} \) and 3% of \( \text{SO}_2 \) emissions are attributed to transport sources in Scotland\(^3\) where road vehicles emit around 5,000 tonnes pa of \( \text{NO}_x \) whilst an estimated 2,000 – 3,000 tonnes pa is predicted for space heating and hot water supply.\(^4\)

As well as this, we must be aware that whilst decentralised energy can bring many benefits, such as supply security and lower carbon emissions, the approach and technologies which are incentivised and supported must be able to withstand the test of time. The synergies between low carbon energy and air quality is recognised in the 2015 Cleaner Air for Scotland Plan.\(^5\)

As such, policy makers must identify emergent risks and anticipate infrastructure change in line with climate change policies. There should not be a trade-off between low-carbon and low-pollutant technologies in heat. For example, there is a trend of increasing installations of wood fuel boilers; an increase of 118.9% between 2013 and 2014 in Scotland, the majority of which were accredited by the central government’s Renewable Heat Incentive (RHI).\(^6\) This has helped to mitigate 845,000 tonnes of \( \text{CO}_2e \) in 2013, however, tighter emissions limits will have to exist in urban zones to reduce its effect on air quality. Currently, these limits are far higher than necessary, given that lower emission technologies exist. Other European countries have already adopted more stringent limits (Figure 1, below).

\(^3\) Synergies and tensions between climate change and air quality actions, Cleaner Air for Scotland Climate Change Sub-Group, October 2016
\(^4\) Cleaner air for Scotland, The road to a healthier future, Scottish Government, November 2015
There are many existing technologies which can provide low carbon heat with negligible local emission of air pollutants, thus, capable of meeting more stringent emissions limits in urban areas; one of which is fuel cell technology. Although current capital costs are high, modelling shows that fuel cells have a lower levelized cost of electricity than biomass and gas CHP when the social cost of NOx and CO₂ are included,7 (see Figure 2, below). Tighter regulations in urban areas along with incentives would help to drive uptake of these lower emissions technologies.

Pushing for decentralised hydrogen heating systems using fuel cells and CHP units will ensure Scotland achieves energy security without compromising air quality. Additionally, fuel cell technology can provide the corner stone to a zero-carbon heating supply as part of wider plans to decarbonise heat in the UK by 2050. Due to its ability to use a wide range of fuels, from biogas to hydrogen, it is robust to change in future variations in the heating mix – at the same time emitting negligible levels of air pollutants.

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7 Averting an emerging air quality risk, Ecuity Consulting LLP, 2016
Are the powers and resources of Local Authorities and SEPA to address air pollution adequate?

We agree that Local Authorities have a good understanding of the way that their community operates, and can have the best judgement to formulate action plans to combat air quality issues. However, there is a risk from too much emphasis on transport and a lack of any mechanism for modal change in heat and power installations.

Single cases of air pollutant-compliant heat and power installations are unlikely to cause notable impacts on local air pollution but if planning guideline limits are not sufficiently tightened, they could become a problem when aggregated. Planning guidance should encourage and incentivise the use of not only low carbon technologies but also negligible air pollutant emitting technologies, such as fuel cells. The role of planning policy, including the National Planning Framework (NPF), Scottish Planning Policy (SPP), Strategic Development Plans (SDP) and Local Development Plans (LDP) is recognised in guidance from Environmental Protection Scotland and the Royal Town Planning Institute Scotland. We would like to see the tightening of emission limits and guidance within planning to ensure heat and power installations meet both low carbon and low pollutant requirements. Installations must also be future proofed for changes to Scotland’s energy system.

Further, to encourage community cohesion, skills development and local economy regeneration, we support air quality to be featured in renewable community projects. To anticipate future shift towards decentralisation, local authorities should be informed of the benefits of community heating solutions which are future proof; optimal for air quality, grid flexibility, low carbon and low risk of stranded asset. We suggest investment funding in fuel cell technology to aid the transition to a zero-carbon, zero-emission, high efficiency future.

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8 Delivering cleaner air for Scotland: Development Planning & Development Management, Guidance from Environmental Protection Scotland and the Royal Town Planning Institute Scotland, January 2017
How should the improvement of air quality be prioritised in areas where there have been persistent breaches of NO₂ limit values?

We believe that transport measures to curtail the NOₓ limit level to below the statutory limit in the short term in NOₓ hot spots are important. However, currently all concerted efforts seem to be in hotspots where transport is known to be an issue - roadside and kerbside. In doing so, it is easy to assume all problems associated with air quality arise from transport. As highlighted, there are other causes of NOₓ levels in urban areas that could compound if measures are not taken in policy making.

![Figure 3, left, NOₓ monitoring stations by type, 2015. Data from Scottish Environment Statistic Online. Figure 4, right, Air pollutant emission by sector, Scotland 2013](image)

To signal Scotland’s intentions in being the leader in European air quality, an integrated strategy tackling air pollution needs to be formulated. Technologies being promoted by the government to tackle climate change need to be re-examined to ensure that they are not in conflict with clean air ambitions.

Are there conflicts in policies or barriers to successful delivery of the air quality objectives?

Technologies adopted now should pave the way for a smooth transition to future energy supply, and subsidisation for technologies should be forward-looking and focus on tightening air pollutant emission standards as well as low carbon measures. The link between energy and air quality is recognised in the 2015 Cleaner Air for Scotland Plan and recognition of this link is important to develop approaches which successfully deliver air quality objectives.

The Committee on Climate Change (CCC) recommends that if we are to meet carbon targets and decarbonise the heat sector, we need to consider hydrogen as an energy vector. The use of hydrogen and other low emissions fuels is suggested as one of the approaches which can help minimise impacts on both air quality and climate in the 2015 Cleaner Air for Scotland Plan. We are supportive of the action outlined in the 2015 plan to investigate the use of hydrogen as a transport fuel and

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9 UK climate action following the Paris Agreement, Committee on Climate Change, October 2016
explore wider environmental and economic opportunities to use hydrogen for energy applications – especially in promoting renewables, energy balancing and storage.

Fuel cell technology would aid any transition to low emissions fuels and would open up opportunities to help the Scottish economy to prosper; becoming the hub for manufacturing cutting-edge, innovative technology. A greater proportion of the economic value of fuel cells can be captured by the Scottish economy, compared to other low carbon solutions. Not only could Scotland gain from increased manufacturing opportunities, there is also value from R&D, investment in supply chains and installation capabilities. As the economy shifts away from its dependency on oil and gas, hydrogen fuel cells can successfully aid Scottish ambitions for a green economy.

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