Ministear airson na h-Àrainneachd agus Atharrachadh Aimsir
Minister for Environment and Climate Change
Stiùbhart MacSteafain BPA
Stewart Stevenson MSP

F/T: 0845 774 1741
E: scottish.ministers@scotland.gsi.gov.uk

The Scottish Government
Riaghaltas na h-Alba

DELIVERING
A GAMES LEGACY FOR SCOTLAND

Rory Mair
Chief Executive
COSLA
Verity House
19 Haymarket Yards
Edinburgh
EH12 5BH

Copy to: Chief Executives, Scottish local authorities

30 August 2012

Dear Rory

Biomass and Air Quality

In April 2009 the then Minister for Environment, Roseanna Cunningham, wrote to you setting out the Scottish Government's policy position on biomass and air quality. Following a request from the Scottish Pollution Co-ordinating and Control Committee, I am writing again on this subject to provide you with an update on developments over the last three years.

Woody biomass is identified in the Scottish Government's Renewables Routemap[1] and the Renewable Heat Action Plan as a key technology in delivering a significant proportion of the 11% heat target by 2020. The Renewable Heat Incentive is driving further woody biomass schemes, and the development of local heat markets using local resources. In 2010 2.8% of Scotland's forecast non-electrical heat demand in 2020 was being met by renewables. Of that, 83% of renewable heat capacity, and 91% of renewable heat output, came from installations which used biomass primary combustion or biomass combined heat and power.

The Scottish Government has set out its policy on biomass in the National Planning Framework 2, in its Section 36 Thermal Guidance and in its Section 36 Biomass Scoping Opinion guidance. In summary the Scottish Government would prefer to see biomass deployed in heat-only or combined heat and power schemes, off gas-grid, at a scale appropriate to make best use of both the available heat, and of local supply. Further

[1] http://www.scotland.gov.uk/Publications/2011/08/04110353/0

detail, including the rationale for this policy, is also set out in the Draft Electricity Generation Policy Statement[2].

Meeting the 2020 target must take account of the Scottish Government's binding commitments in other areas of environmental policy. The revised Air Quality Strategy for England, Scotland, Wales and Northern Ireland, published in 2007, sets out the policy framework for air quality in Scotland and the rest of the UK. It also outlines the clear links between poor air quality and public health: current levels of air pollution shorten life expectancy in the UK by an average of 7-8 months, at an annual cost to society of £9-21bn. The UK, along with all other EU Member States, has also to comply with air quality limit values set in European legislation.

As you may be aware, concerns have been raised over the potential impact on air quality of the combustion of biomass to produce heat. With commitments to both an increase in renewable heat and protect air quality and public health, the Scottish Government needs to find ways to manage any conflicts which may arise. It also has a duty to present the evidence at its disposal and to communicate clearly the messages which it implies. This letter is intended to do that, and to suggest ways in which local authority policies could help to provide the necessary balance.

How wood fuelled heat could affect air quality

The main pollutant of concern with regard to the combustion of biomass is particulate matter (PM_{10} or $PM_{2.5}$), where biomass plant emissions are very much higher than natural gas, the cleanest fuel. Wood is generally cleaner than coal, and gives similar emission levels to fuel oil. Therefore, where a modern, purpose designed, wood pellet fuelled boiler is replacing an older coal or oil fired boiler, it would be expected that the emissions of air pollutants would decrease, and air quality improve. However, if the boiler being replaced is fired by gas, there will be an increase in air pollutants.

In general, the larger the combustion unit, the easier it is to control the combustion conditions and therefore the easier it is to reduce the level of air pollution emissions. A single large boiler will tend to produce lower emissions than a series of smaller units using the same fuel and for the same energy output. It is more difficult to fit additional pollution abatement equipment to smaller units, and so emission reductions must rely on good boiler design, operation and maintenance. This lower size range includes most small scale domestic wood burning stoves and boilers, although the emissions performance of most modern models is high compared with older models.

As part of the development of the UK Renewable Energy Strategy, Defra has undertaken an impact assessment for the uptake of biomass heat and its potential impacts on air quality. This showed that, where certain conditions are met, these impacts can reduced to a manageable level, and that no additional breaches of the current EU air quality directive's air quality limit values would occur. These conditions are:

- that all new biomass plant are of high quality, corresponding to the best performing units currently on the market;
- that the majority of biomass heat uptake replaces or displaces existing coal and oil fired heating;

[2] http://scotland.gov.uk/Topics/Business-Industry/Energy/EGPS2012/DraftEPGS2012

- that the majority of uptake is located off the gas grid and therefore generally away from densely populated urban areas; and
- that levels of uptake where the local authority has declared an Air Quality Management Area under section 83 of the Environment Act 1995 are substantially lower than other areas.

As conditions move away from this scenario, the modelled adverse/negative impacts on air quality and public health increase significantly.

The Renewable Heat Incentive

The Renewable Heat Incentive and Renewable Heat Premium Payment, which are reserved to the UK Government with the agreement of the Scottish Government, are expected to be the main mechanisms for encouraging take-up of renewable heat technologies. They have both been running since late 2011.

Abatement measures are currently in place to control the impacts of bioenergy on air quality. Any energy plant over 20MW is subject to pollution control regulation. For smaller plants, the UK Government is planning to introduce emission criteria requirements under the Renewable Heat Incentive.

This and other policies, such as the district heating loan scheme, have the potential to drive a significant expansion in the renewable heat sector, including biomass, sufficient to achieve the targets included in the Renewables Routemap and the associated Renewable Heat Action Plan. The fact that the market penetration of biomass is currently relatively low is an advantage here rather than a drawback: by setting the right conditions now we can ensure almost all of the eventual installed capacity is of a high standard, and predominantly installed in locations unlikely to have air quality issues – meaning that early installations will not result in exceeding air quality limits.

Key messages

In the development of local policy and the consideration of development planning applications, the evidence points to the following key points:

- to meet the 2020 targets for renewable energy, Scotland needs to increase very substantially the amount of renewable heat generated, and biomass heat is one of the key technologies;
- the potential conflicts between these goals and air quality can be avoided through the use of high quality, low emission plant. The replacement of old coal and oil fired plant with high quality wood fired plant located off the gas grid may actually benefit air quality. In urban areas or where an Air Quality Management Area has been declared, we would expect biomass heat deployment to be less common and larger (and therefore cleaner) biomass units to be more prevalent;
- encouraging the use of plant scaled to make best use of available heat and biomass resource, for example in conjunction with the development of heat

networks, will result in a system where air quality emissions are easier to control than from a larger number of small plant.

Further information on assessing the potential impact of biomass installations on local air quality is contained in the current series of Local Air Quality Management guidance documents issued by the Scottish Government in February 2009 and available at: http://www.scotland.gov.uk/Topics/Environment/waste-and-pollution/Pollution-1/16215/6116

Environmental Protection UK has produced additional guidance for Scottish local authorities which can be found at: http://www.environmental-protection.org.uk/publications/default.aspx

I hope you find this information helpful.

STEWART STEVENSON