

Appendix A.

Belfast City Council response to the Department of Enterprise, Trade and Investment consultation on the Bioenergy Action Plan for Northern Ireland 2009 - 2014.

Having reviewed the draft Bioenergy Action Plan for Northern Ireland 2009 – 2014, Belfast Council submits the following comments in response.

Air Quality Considerations.

Strategic objective 2 (page 18) of the draft Bioenergy Action Plan states that there is an intention “to create a supportive and encouraging policy and regulatory framework within which the bioenergy sector can develop and thrive”.

In addition, paragraph 16 of this section refers to air quality issues stating, “It is important to ensure that increased use of biofuels to generate energy does not have a detrimental impact on air quality.” Belfast City Council would concur fully with this statement.

In the same paragraph however, the text states “Given that much of Northern Ireland could be described as rural or semi-rural, it is not considered that this issue would be of a similar scale as potentially in other parts of the UK”. Belfast City Council considers this statement to be a generalisation and that the installation of biomass appliances in urban locations of Northern Ireland, of which Belfast would be the largest, should be carefully controlled.

The Department for Environment, Food and Rural Affairs (Defra) has commissioned a UK-wide study of the potential air quality impacts of a major expansion of biomass heating. There are numerous ‘Key Messages’ from this research, which are pertinent to the development of a Bioenergy Action Plan for Northern Ireland. These are summarised as follows:-

- To meet its 2020 renewable energy targets, the United Kingdom needs to increase substantially the amount of 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 and away from densely populated urban areas may actually benefit air quality.
- In urban areas or where an Air Quality Management Area has been declared, Defra would expect biomass heat deployment to be less common and larger (and therefore cleaner) biomass plant to be more prevalent.
- Encouraging the use of larger plant, 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.

Defra, whilst supportive of the need to employ biomass heating techniques, has raised concerns regarding the possibility of making air quality worse in certain areas. Indeed, Defra has accepted that implementation of the abovementioned ‘Key Messages’ will not be entirely straightforward.

Specific air quality issues of concern.

Emission levels.

In common with other combustion plant, the combustion of biomass can impact upon air quality in a variety of ways. Emission levels of pollutants such as particulate matter (PM₁₀ and PM_{2.5}), polyaromatic hydrocarbons (PAHs), carbon monoxide (CO) and sulphur dioxide (SO₂) depend upon the completeness of the combustion process. The temperature in conventional biomass combustion is generally insufficient to oxidise atmospheric nitrogen and therefore, nitrogen oxides (NO_x) are almost exclusively formed from the fuel. Accordingly, emission levels of nitrogen oxides are heavily dependent on the chemical composition of individual fuels, as are emissions of oxides of sulphur. Consequently, overall emissions are determined by the design of the combustion plant, the chemical and physical qualities of the fuel and the presence of emissions abatement equipment.

Approvals and consent.

In addition to meeting regulatory requirements, all but the smallest biomass installations will require planning consent. From an air quality management perspective, it is considered that a key component of the planning assessment process should involve an appropriate air quality impact assessment.

Planning applications containing a biomass boiler should follow a risk-based approach and it is recommended that the assessment should consider:

- Geography – what is the planned location of the biomass boiler, and could it potentially negatively affect any areas of poor air quality?
- Fuel substitution / alternatives – will the biomass boiler be displacing a boiler running on a different fuel, and if so what fuel? If the development containing the boiler is on a new site, what other fuels might be available and what would be their comparative effect on air quality?
- The likely emissions performance of the boiler.
- The type of biomass fuel that the boiler will be using.

If the assessment suggests that the biomass boiler may pose a risk to air quality, then detailed information about the biomass boiler will be required which may include the need for an atmospheric dispersion modelling study to quantify the spatial extent of any air quality impacts. Atmospheric dispersion modelling studies typically require significant technical air quality skills.

Boilers, fuel standards and certification.

The emissions performance of a biomass boiler depends substantially on its design and the nature of the fuel used. Most boilers are designed to use fuels of a specific type and quality, and deviation from this fuel type generally leads to poor combustion efficiency and increased emissions of ambient air pollutants.

It is considered that current European Union and United Kingdom emission standards for biomass boilers are largely inadequate as tools for setting demanding air quality conditions, as they typically do not prescribe directly NO_x, PM₁₀ and PM_{2.5} emission levels. Emission standards and eco labels have been developed by other European countries however, these are difficult to transpose to the United Kingdom owing to the wide range of approaches to testing and emissions measurement.

Wood fuels are available in a variety of different forms and qualities and the performance of a biomass system is strongly dependent upon on the use of properly specified fuels. To aid the matching of biomass systems with the correct fuel supply, fuel standards have been introduced by several European countries. In the absence of United Kingdom specific standards, European standards are being adopted by some UK suppliers. In order to harmonise United Kingdom biomass fuels, it is recommended that UK specific standards should be developed.

Cumulative impacts.

Assessments of potential cumulative air quality impacts of multiple biomass installations will become increasingly important as the number of biomass installations increases over coming years. Whilst a single biomass boiler is unlikely to affect air quality outside its immediate vicinity, the cumulative impact of a number of biomass installations could potentially lead to localised air quality standards exceedences and also raise background pollutant levels. Steps should be taken therefore to ensure that biomass deployment is monitored and that screening assessments flag developing air quality issues. This is considered particularly important in urban locations where smaller biomass systems including stoves, room heaters and boilers may be installed in domestic premises. It is recommended therefore, that DETI considers working with local authority Building Control Services to monitor the prevalence of biomass appliances with a view to establishing installation trends.

Maintenance.

Biomass boilers, flue stacks and emission abatement equipment need regular maintenance to ensure that combustion efficiency is kept to a maximum and emissions are minimised. Many countries have already introduced a requirement for regular compulsory maintenance checks and it is recommended that similar provisions be considered for the Northern Ireland.