

NORTHUMBERLAND

Northumberland County Council

Biomass Boiler Information Request Form

In common with other types of combustion appliances, biomass boilers are a potential source of air pollution. Pollutants associated with biomass combustion include particulate matter (PM₁₀ / PM_{2.5}) and nitrogen oxides (NO_x) emissions. These pollution emissions can have an impact on local air quality and affect human health. It is essential that any new biomass boilers installed in **Northumberland** meet certain emission control requirements in order to protect local air quality.

It is essential, when required, that this form is completed and returned to us so that a determination can be made as to what controls and mitigation need to be applied to any new biomass boiler. In order to approve a planning application associated with a biomass boiler, the following information in this form must be supplied to the local authority.

Parts of Northumberland have been designated as Smoke Control Areas under The Clean Air Act 1993. Maps showing these areas are available at

<http://www.northumberland.gov.uk/Protection/Pollution/Smoke.aspx#whataresmokecontrolareas>

In accordance with this legislation all biomass boilers operated within the Smoke Control Area must be certified as 'exempt' appliances and boiler stack height will need to be calculated and approved, listings of exempt appliances can be found at:

<http://smokecontrol.defra.gov.uk/appliances.php>

For general guidance as a developer please refer to "Biomass and Air Quality, Developers Information Leaflet" and for more detailed information see chapter 4 of the "*Biomass and Air Quality Guidance for Local Authorities (England and Wales)*" both these documents are available from:

<http://iaqm.co.uk/guidance/>

You may find the Carbon Trust publication 'Biomass heating: a practical guide for potential users' a useful companion when completing this form. The publication can be downloaded from:

<https://www.carbontrust.com/resources/guides/renewable-energy-technologies/biomass-heating-user-guide>.

1. Development Details

a) Planning Application Reference	
b) Name of Site	
c) Address where boiler(s) will be located	
d) Person completing form	
e) Contact telephone number	

2. Particulars of the Boiler

This information on the basic design of the system will help us assess the emissions performance. Biomass boilers often produce relatively high emissions when lightly loaded, hence the question regarding an accumulation tank (heat store). The boiler manufacturer and/ or installer should be able to help you provide this information.

f) Describe the proposed biomass boiler including make, model, manufacturer, thermal capacity (kw/MW), efficiency, maximum rate of fuel consumption (kg/hr or m ³ /hr).	
g) Describe the boiler combustion system and how combustion will be optimised and controlled.	
h) Describe the fuel feed system.	

i) Provide details of the abatement equipment in place for controlling particulate matter (fly ash) emissions.

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j) How does the biomass boiler deal with variable heat loads – is the boiler linked to an accumulation tank?

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k) Is the biomass boiler an exempt appliance in accordance with the Clean Air Act 1993? If yes provide evidence to demonstrate the biomass boiler has been tested and certified as an exempt appliance (for example a copy of the exemption certificate or a link to the appliance on the UK Smoke Control Areas website):
<http://www.uksmokecontrolareas.co.uk/appliances.php>

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3. Boiler Operation and Maintenance

System efficiency and emissions performance very much depend upon regular maintenance. Your installer should be able to recommend a suitable maintenance schedule.

l)	Describe arrangements for cleaning and de-ashing the boiler.
m)	Provide details of the maintenance schedule associated with boiler, abatement equipment and stack. This should include frequency of boiler inspection and servicing by a trained boiler engineer.
n)	Describe how incidences of boiler or abatement system failure are identified & mitigated.

4. Boiler Stack Details

The design of the stack greatly affects how pollutants produced in the boiler disperse over the surrounding area. Where the area is heavily built up, or has existing air quality issues, dispersion becomes more complicated and a computer modelling technique known as dispersion modelling may be required. Your installer should be able to provide most of the details and make a calculation on stack height and design. When dispersion modelling is required you or your installer may need to engage a specialist consultant.

o) Identify the height of the boiler exhaust stack above ground. *The height should be calculated using dispersion modelling software such as ADMS 4 or Aermid [delete if dispersion modelling is not required]* Evidence shall be presented to demonstrate that predicted emission concentrations associated with the calculated stack height do not have a significant impact on the air quality objectives for NO₂ and PM₁₀.

p) Identify stack internal diameter (m).

q) Provide maximum particulate matter and nitrogen oxides emission rates (mg/m³ or g/hr) to standard reference conditions (6% oxygen, 273K, 101.3kPa).

r) Identify the exhaust gas efflux velocity (m/s).

s) Provide the grid reference of boiler exhaust stack.

5. Fuel Details

Emissions from a biomass boiler depend greatly on the type and quality of the fuel used. Reasonable guarantees are therefore needed that the fuel is compatible with the boiler, is of a high quality and that quality will be assured for a reasonable period of time. Your fuel supplier and installer should be able to provide this information.

t)	Describe the fuel specification including origin, type of wood (chips, pellet, briquettes), nitrogen, moisture, ash content (%).
u)	Does the fuel comply with European or equivalent fuel quality standards such as CEN/TS 335 or ONORM?
v)	Describe what fuel quality control procedures will be adopted to guarantee constant fuel quality from your supplier.
w)	Provide evidence to demonstrate that the biomass boiler combustion system is applicable to the fuel specification.
x)	Identify where and how fuel will be stored on site (e.g. bunker or silo).
y)	Describe how fuel will be unloaded from the delivery vehicle into the storage facility and what control measures will be in place to reduce particulate matter emissions to atmosphere.

6. Building Details

The height and distance of neighbouring buildings will determine their exposure to emissions from the biomass boiler, and therefore the height of the stack needed. Your architect should be able to provide this information.

z) Record the distance of adjacent buildings from boiler exhaust stack.
aa) Record the height of adjacent buildings from boiler exhaust stack.
bb) Record the dimensions of building to which the boiler exhaust stack is attached.
cc) Indicate the distance from the boiler exhaust stack to the nearest fan assisted intakes and openable windows.

7. Plans

Please attach the following to this form:

- A site plan showing the location of the boiler room, fuel storage area and the access and exit route for fuel delivery vehicles, and
- A site plan showing the position of the boiler exhaust stack, fan assisted intake air vents and nearest openable windows.

8. Returning this form

Please return this form to:

Environmental Protection Manager
Public Health Protection Unit
Fire & Rescue Service
Northumberland County Council
Northumberland Fire and Rescue Service Headquarters
West Hartford Business Park
Cramlington
Northumberland
NE23 3JP

Email: public.protection@northumberland.gov.uk

Tel: 01670 623870

Fax: 01670 626059

Web: www.northumberland.gov.uk

[This form was prepared as part of the 'Biomass and Air Quality Guidance for Local Authorities' project in June 2009, and was adapted from an original form developed by the London Borough of Camden.]

Further guidance documents and tools are available to download from:

<http://www.carbontrust.com/resources/guides/renewable-energy-technologies/biomass-heating-tools-and-guidance>

or contact The Carbon Trust, 4th Floor, Dorset House, 27-45 Stamford Street, London, SE1 9NT – *phone* +44 (0)20 7170 7000]