



5 Biomass Boiler Information Request Form¹ – to accompany a planning application

In common with other types of combustion appliances, biomass boilers are potentially a 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 meet certain emission control requirements in order to protect local air quality.

In order to approve a planning application associated with a biomass boiler, the following information below must be supplied to the local authority.

The operation of a biomass boiler may require regulation under the Clean Air Act 1993 or the Environmental Permitting Regulations (EPR) depending on the type of biomass fuel and the size of the boiler, as detailed in Appendix 1.

1. Development Details

a) Planning Application Reference	SMD/2023/0658
b) Name of Site	Quarry Walk Park
c) Address where boiler(s) will be located	Quarry Walk Park Coppice Lane Freehay Staffordshire ST10 1RQ
d) Person completing form	Rebecca Millican
e) Contact telephone number	
f) Date	24/4/24

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

¹ Form based on template by Environmental Protection UK (EPUK), 2009 Biomass_Boiler_Information_Request_Template.doc

regarding an accumulation tank (heat store). The boiler manufacturer and/ or installer should be able to help you provide this information.

g) 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).
FACI 208 199kw WOOD PELLET BIOMASS BOILER
h) Describe the boiler combustion system and how combustion will be optimised and controlled.
The ideal draught for a FACI boiler varies between 1 and 2 mm water gauge, boiler will be set between this range in order to achieve optimal combustion. Regular cleaning as below: Open the lower hatch and, by means of a picket (optional), clean carefully the combustion chamber from dust residuals and incrustations in order to allow an optimum combustion and a better contact between the flame and the boiler's walls.
i) Describe the fuel feed system.
Pellet auger from hopper
j) Provide details of the abatement equipment in place for controlling particulate matter (fly ash) emissions.
Open the lower hatch and clean, using the supplied pipe brush, all the boiler's pipes from incrustation. Insert and pull out the pipe brush repeatedly until the pipes are totally cleaned. After having cleaned the pipes, go to the back-side of the boiler and lift up the ashes box hatch in order to remove the dust residuals.
k) How does the biomass boiler deal with variable heat loads - is the boiler linked to an accumulation tank?
2000l accumulation tank
l) Is the biomass boiler an exempt appliance in accordance with the Clean Air Act 1993? If <u>yes</u>, provide evidence to demonstrate the biomass boiler has been tested and certified as an exempt appliance (for example a link to the appliance on the UK Smoke Control Areas website https://smokecontrol.defra.gov.uk/appliances.php) If <u>no</u>, it must be clearly stated how applicant proposes to get the biomass boiler certified.
No but not in a smokeless zone.

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.

m) Describe arrangements for cleaning and de-ashing the boiler.
The park warden cleans and removes ash from the boiler weekly. He disposes of this into an ash bin.
n) 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.
Boiler will be serviced once a year by a Hetas approved engineer.
o) Describe how incidences of boiler or abatement system failure are identified and mitigated.
The boiler is connected to an app which notifies the on-call phone if there is a fault. This phoned is manned 24/7.

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 will probably 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.

p) Identify the height of the boiler exhaust stack above ground. 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 NO ₂ and PM ₁₀ . It will be necessary to obtain background concentrations of NO ₂ and PM ₁₀ for the proposed location of the biomass boiler. If the location already exceeds the air quality objectives the options for potential increases to pollution emissions need careful assessment. The boiler exhaust stack height should be calculated using dispersion modelling software such as ADMS 4 or Aermid.
6 meters
q) Identify stack internal diameter (m).
200mm
r) Provide maximum particulate matter and nitrogen oxides emission rates (mg/m ³ or g/hr) to standard reference conditions (6% oxygen, 273K, 101.3kPa).
Emissions Certificate attached.

s) Identify the exhaust gas efflux velocity (m/s) and discharge temperature in °C
t) Provide the grid reference of boiler exhaust stack.
What 3 words: Preheated.distorts.beams

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.

u) Describe the fuel specification including origin, type of wood (chips, pellet, briquettes), nitrogen, moisture, ash content (%).
Bulk Wood Pellets 6mm <10% moisture.
v) Does the fuel comply with European or equivalent fuel quality standards such as CEN/TS 335 or ONORM?
EN Plus A1 UK307
w) Describe what fuel quality control procedures will be adopted to guarantee constant fuel quality from your supplier.
Quality control from seller in line with ENplus A1 regulations.
x) Provide evidence to demonstrate that the biomass boiler combustion system is applicable to the fuel specification.
Information is on the emission certificate.
y) Identify where and how fuel will be stored on site (e.g. bunker or silo).
Pellets are stored in hopper next to biomass shed.
z) 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.

Blow air
aa) Identify the type of fuel delivery vehicle and provide evidence to demonstrate that there is sufficient space for the fuel delivery vehicle to access the site. How frequent will the fuel deliveries be?
Monthly
bb) Are there noise issues to note related to the fuel store re-filling procedures?
No
cc) How will any mould or other odours from the fuel store be managed?
Fuel store will be cleaned and inspected regularly.

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.

dd) Record the distance of adjacent buildings from boiler exhaust stack.
Robin Log Cabin 1 – 4.2m
ee) Record the height of adjacent buildings from boiler exhaust stack.
Robin Log Cabin 1 – 3.2m
ff) Record the dimensions of building to which the boiler exhaust stack is attached.
Robin Log Cabin 1 3m by 4.8m
gg) Indicate the distance from the boiler exhaust stack to the nearest fan assisted intakes and openable windows.
Robin Log Cabin 1 openable window 6.2m
hh) Has there been a noise assessment for any motor driven fuel feed mechanism, with both internal and external noise propagation in mind?

No

7. Plans

ii) Have you attached a site plan showing the location of the boiler room, fuel storage area and the access and exit route for fuel delivery vehicles with this form?

jj) Have you attached a site plan showing the position of the boiler exhaust stack, fan assisted intake air vents and nearest openable windows to this form?

8. Return this form with your planning application to:

Environmental Health
Staffordshire Moorlands District Council
Fowlchurch Depot, Fowlchurch Road, Leek
Staffordshire Moorlands, ST13 6BH.

Appendix 1 Regulatory Regimes

The Clean Air Act (CAA) and the Environmental Permitting Regulations (EPR):

The operation of a biomass boiler may require regulation under the Clean Air Act 1993 or the Environmental Permitting Regulations (EPR) which implements the retained EU Law, including the Industrial Emission Directive (IED), the Waste Incineration Directive (WID) and the Medium Combustion Plant Directive (MCPD), depending on the type of biomass fuel and the size of the boiler, as detailed in Table 1.

A formal application for a permit must be made to Staffordshire Moorlands District Council or the Environment Agency, in order to operate a biomass boiler that falls under the EPR.

Table 1 Regulation of biomass plant

Fuel Scenario	Plant Size	Pollution Regulation applicable	Regulator
1. Biomass fuels e.g. coppice willow, and fuel residues of a similar nature arising from the manufacture of these fuels	<20 MWth	Clean Air Act (see note d below)	Local Authority
	20-50 MWth	LA-PPC (Part B PPC)	Local Authority
	>50 MWth	EPR (Part A1)	Environment Agency
2. Waste or waste derived biomass exempted from WID, and fuel	<0.4 MWth and < 45.4 kg/hr	Clean Air Act	Local Authority

Fuel Scenario	Plant Size	Pollution Regulation applicable	Regulator
residues of a similar nature arising from their manufacture	0.4 - 3 MWth and 45.4 -1000 kg/hr	LA-PPC (Part B PPC)	Local Authority
	> 3 MWth and/or 1000 kg/hr	EPR (Part A1)	Environment Agency
	> 50 MWth	EPR (Part A1)	Environment Agency
3. Waste or waste derived biomass to which WID applies	< 3 MWth	WID applies. LA-PPC (Part A2)	Local Authority
	> 3 MWth	WID applies. PPC (Part A).	Environment Agency

Table Source: reproduced from EPUK, 2009. Biomass and Air Quality Guidance for Local Authorities (England and Wales) Draft Guidance Document for Consultation April 2009. Available at https://www.environmental-protection.org.uk/wp-content/uploads/2013/07/Biomass_and_Air_Quality_Guidance.pdf

MCPD – The above Table 1 does not yet take into account the impact of MCPD. Where plant is between 1MWth and 50MWth regardless of the type of fuel used, you must read the following guidance: <https://www.gov.uk/guidance/medium-combustion-plant-when-you-need-a-permit>

Notes:

- a) The above is true for stand-alone combustion plant and incinerators. However, if the combustion is associated with an activity that is subject to Local Authority control, then the waste burning plant will remain under Local Authority control provided it is below 50 MW.
- b) All plant rating is thermal capacity.
- c) Biomass fuels generally fall into three categories, depending on whether the fuel is classified as waste, and whether it falls under the WID:
 - 1) Virgin' fuels – e.g. fuels derived from fresh timber
 - 2) Waste or waste derived fuels, exempt from WID – e.g. agriculture residues
 - 3) Waste or waste derived fuels, covered by WID – e.g. treated wood waste.
- d) Leek, Biddulph and Brown Edge are designated Smoke Control Areas, and as such appliances either must burn authorised 'smokeless' fuels or, the appliance needs to have been assessed and exempted by Defra for use in a smoke control area. Emission limits for exempted appliances are detailed in BS PD 6434, which covers residential combustion (about <44kW output). Emission limits for 'grit and dust' are applied to larger appliances (about >240 kW output) irrespective of whether they are located in a smoke control area. Assessment of emissions from appliances about >44kW for CAA exemption is generally by interpolation between the BS PD 6434 limits and the grit and dust emission limits. Further information on the SMDC smoke control areas can be found here: <https://www.staffs Moorlands.gov.uk/article/1093/Smoke-control-areas>