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**Authorisation guidance for biomass combustion**

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# Purpose

To clarify which schedules of the Environmental Authorisations (Scotland) Regulations 2018 (EASR) applies when considering the burning of biomass.

# Background

Biomass is used as an alternative to fossil fuels, partly due to financial incentives and because it has the potential to deliver greenhouse gas reductions, where the biomass used has been produced and managed sustainably and is used in heat-only or combined heat and power schemes to support heat and local supply needs. Careful consideration needs to be given to its environmental impact e.g. transportation of fuel, and emissions of particulate matter when burned, which may result in increased air pollution. SEPA can work with regulated businesses to help drive the use of the most suitable energy sources, improve energy storage, increase energy efficiency and productivity (increased output from every unit of energy used) while minimising wasted energy. You can read more about this in our Energy Framework. Environmentally sensitive, low carbon energy solutions are key to delivering long-lasting environmental, social and economic success.

The combustion of ‘fuels’, which includes specifically grown energy crops, some production residues and clean recycled timber, is a regulated activity which requires authorisation under EASR. Where combustion takes place in a medium combustion plant net rated thermal input greater than 1MW and less than 50MW, schedule 27 of EASR applies. Where combustion takes place in combustion plant on an installation which aggregates to 50MW or more net rated thermal input, the technical requirements in schedules 19, 20 and 21 (the latter where the combustion plant is greater than 50MW net rated thermal input) of EASR apply.

The incineration and co-incineration of ‘wastes’, which includes mixed construction and demolition and municipal wood collections, is a ‘waste management activity’ under schedule 11 of EASR and may also be subject to the technical requirements in schedule 22 of EASR. A registration is required for biomass waste incineration between 50kg and 3000kg per hour. You can read more about the standards required in the SEPA guidance for registration activity biomass waste incineration between 50kg and 3000kg per hour (reference IND-G-002).

Where the incineration or co-incineration of biomass waste exceeds 3 tonnes per hour, this is an ‘industrial emissions activity’ for which a permit is required and the requirements of schedules 19 and 20 will also apply.

A more detailed summary of the relevant legislation is given in Appendix 1 of this document

Note that some ‘wastes’ can ‘cease to be waste’ prior to combustion and would therefore be regulated as a ‘fuel’. This is explained further in the next sections. Conversely, some materials which would ordinarily be considered as ‘fuels’ could be discarded, for example, if burned without any energy or heat recovery to simply dispose of it and would therefore be regulated as the incineration of waste.

# Fuels – Combustion Activities

SEPA will regulate energy production from the following types of biomass as the combustion of ‘fuel’ under schedules 20 and 21 or 27 depending on the size of the combustion plant.

The list is not exhaustive and any other biomass material should be assessed on its own merits.

Schedule 20 of EASR describes combustion activities where the aggregated combustion capacity has a rated thermal input of 50MW or more.

Combustion activities where the individual appliance (plant) has a rated thermal input of between 1 and less than 50MW are subject to the medium combustion plant provisions of schedule 27.

Please go to the medium combustion plant pages of the SEPA website for more information about permitting requirements.

Any generators of electricity which aggregate to 1MW or more are a regulated activity under schedule 26 part 3 paragraph 1, however we do not believe that biomass is likely to be used in this type of plant.

Activities below the EASR thresholds, are regulated by local authorities under the Clean Air Act 1993 – see Appendix 1.

## Virgin Wood and Energy Crops

Forestry is the primary source of virgin wood production. Other energy crops (e.g. miscanthus) are also grown for direct use in biomass plants. Where wood or another energy crop is the main product, or one of a range of products, and is used for the production of energy in appliances with a rated thermal input of 1MW or more, the activity will be regulated as the combustion of ‘fuel’.

## Residues from Forestry

In commercial forestry, residues arise when trees are harvested for stemwood. Poor quality or small diameter stems may be available for use as wood fuel. The tops and branches (known as brash) are normally cut off the trees and can be used as a fuel.

Where such residues are used for the production of energy in appliances with a rated thermal input of 1MW or more, the activity will be regulated as the combustion of ‘fuel’.

## Residues from Arboriculture

Wood from arboriculture includes residues from:

* Managing municipal and private parks and gardens
* Tree surgery and pruning
* Maintaining railway and road verges.

Arboriculture residues are very similar to forestry residues, possibly including a larger proportion of brash material and less round wood, with a higher percentage of bark.

Where such residues are used for the production of energy in appliances with a rated thermal input of 1MW or more, the activity will be regulated as the combustion of ‘fuel’.

## Agricultural Residues

Agricultural residues are commonly used in batch-fired plant in the UK, typically in systems located on farms and rural situations and also processed into pellet form for fuel.

For example, cereals, peas and oilseed rape all leave a straw residue following harvest of the grain or seed.

Where such residues are used for the production of energy in appliances with a net rated thermal input of 1MW or more, the activity will be regulated as the combustion of ‘fuel’.

## Vegetable Residues from Industrial Processes

Some manufacturing processes produce residues which consist solely of spent plant material which is no longer suitable for use in the process. Examples include;

* Draff from whisky distillation.
* Oat husks from cereals processing.
* Rape meal left over from the crushing production of rapeseed oil.
* Olive cake.

Where such residues are used for the production of energy in appliances with a rated thermal input of 1MW or more, the activity will be regulated as the combustion of ‘fuel’.

## Oversize from Composting

The use of “oversize” material in biomass plants.

The composting process may produce “oversize” materials, i.e. the large woody fraction of the finished product after the finer grades have been screened out. This may be re-used within the composting process to provide structural material but also increasingly is being used as a source of biomass to generate renewable energy.

This material will not be regulated as waste when sold and dispatched for use as a biomass fuel provided it consists solely of chipped woody material from source segregated municipal garden waste collections, commercial gardening contractors, and tree surgeons, etc. It must not contain chip from particleboard, furniture, demolition timber, treated wood, etc. Further, it must not contain physical contamination such as stones, metal or plastic.

Where oversize material from composting operations are used for the production of energy in appliances with a rated thermal input of 1MW or more, the activity will be regulated as the combustion of ‘fuel’.

## Residues from Virgin Timber Processing

Where source segregated, untreated offcuts, trimmings, bark and sawdust derived from virgin timber processing (e.g. sawmills, joinery, furniture manufacture) are used for the production of energy in appliances with a rated thermal input of 1MW or more, the activity will be regulated as the combustion of ‘fuel’.

## Post-Consumer Wood

In general, post-consumer wood such as mixed municipal or construction and demolition collections will be regarded as waste and must be incinerated in a plant which is compliant with the provisions of EASR schedule 22.

However, where post-consumer wood consists solely of source segregated, untreated and uncontaminated timber, it may be possible that it could cease to be waste once it has been prepared for use as a fuel and be regulated as a ‘fuel’ for the purpose of EASR. Using the Wood Recyclers’ Association grading system which can be seen by [clicking on this link](https://woodrecyclers.org/wp-content/uploads/WRA-Waste-Wood-Assessment-Guidance-V4-Nov-2024.pdf) , this fuel could consist of some “Grade A – Clean Recycled Wood” such as untreated clean white pallets and timber packaging. Note that the storage and chipping of waste wood such as scrap pallets and packaging is a waste management activity and requires an EASR authorisation.

Demonstrations must be made to SEPA on a case-by-case basis and may only apply to source segregated collections of untreated and uncontaminated Grade A wood. A clear audit trail for the sources must be maintained to demonstrate that only suitable materials are used.

For instance, painted or chemically treated timber cannot be included. We will refer to PAS 111 (Publicly Available Specifications 111 can be found at [the Wood Recyclers Association website](https://woodrecyclers.org/wp-content/uploads/WRA-Waste-Wood-Assessment-Guidance-V4-Nov-2024.pdf)) when assessing wood processing systems which produce Grade A recycled wood fuels.

Material separated from mixed collections would not usually be considered for ‘end-of-waste’ status by SEPA and we strongly advise discussing any proposed end of waste cases with us before submitting a case.

## Manures

The Animal By-Product Regulations allow the following to be classed as “combustion as fuel”

* Poultry manure (on site units of less than 5MW).
* Manure of farmed animals other than poultry manure (up to 50MW)

Combustion of poultry manure in units of greater than 5 MW, and of all other manure in units of greater than 1MW, are considered to be medium combustion plant and require a permit under EASR.

Note that animal carcases and any waste that is not listed here are not considered to be “biomass” in terms of the Waste Framework Directive.

# Wastes – Waste Management Activities

The recovery of energy from waste biomass will be regulated under schedule 11 of EASR and Schedules 19 and 20 where the incineration or co-incineration of biomass waste exceeds 3 tonnes per hour. Some of these wastes may be excluded from the requirements of schedule 22.

## Waste Particleboard

Particleboard sites which produce MDF, Particleboard and Orientated Strand Board have introduced procedures to control the waste wood entering their processes to ensure that their finished product complies with the definition of ‘biomass’ in Schedule 19, paragraph 3(1) of EASR. This compliance protects the downstream users of their wood products and allows the exemption to stand in relation to this wood throughout use - provided the wood is not treated with wood preservatives or coatings which contain halogenated compounds or heavy metals.

So, the recovery of energy from MDF, Particleboard and Orientated Strand Board will be regulated as the incineration of waste but is likely to be excluded from the scope of schedule 22 of EASR This also applies to Formica and melamine materials.

Depending on the throughput, such incineration of biomass waste would require either a notification (equal to, or less than, 50 kilogrammes per hour), registration (more than 50 kilogrammes per hour, and equal to, or less than, 3 tonnes per hour) or permit (more than 3 tonnes per hour).

## Paper and Cardboard

The recovery of energy from collected paper and cardboard is regulated as the incineration of waste under schedule 11 of EASR and Schedules 19 and 20 where the incineration or co-incineration of waste exceeds 3 tonnes per hour. The provisions of schedule 22 will also apply and there is no minimum threshold. However, the incineration of separately collected paper and cardboard capable of recycling will not be authorised. Only contaminated paper and card, rejected by recycling markets will be suitable for incineration.

## Post-Consumer Wood

The recovery of energy from mixed wood waste collections such as construction and demolition waste or civic amenity site waste or wood waste that is contaminated (e.g. painted or chemically treated) or mixed with contaminated wood will be regulated as the incineration of waste under schedule 11 and Schedules 19 and 20 where the incineration or co-incineration of waste exceeds 3 tonnes per hour. Provisions of schedule 22 will also apply and there is no minimum threshold.

Please see overleaf for Table 1 summarising the previous legislation that regulated biomass combustion activities and where these can now be found in EASR and the level of authorisation required.

**Table 1: Authorisation summary**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Biomass Type** | **‘Fuel’ or ‘Waste’** | **Scale** | **Pre-EASR Regulation** | **EASR Regulation and SEPA authorisation level** | **Chapter IV** |
| Purpose grown energy crops (timber, miscanthus, willow etc)Industrial residues (forestry brash, distillery draff, oat husks, barley stubble, timber sawmill/joinery offcuts)Some [‘Grade A’ Recycled Wood](http://www.woodrecyclers.org/PAS111.pdf) (from source segregated, untreated clean white pallets, packaging etc) | Fuel | Aggregated combustion capacity has a net rated thermal input of 50MW or more | PPC Part A Section 1.1 A | Schedule 22 - permit | No |
| Single appliance has a net rated thermal input of between 20 and 50MW | PPC Part B Section 1.1B(a) | Schedule 27 operating a medium combustion plant - permit |
| Single appliance has a net rated thermal input of between 1 and 20MW | PPC Part B Section 1.1B(d) | Schedule 27 operating a medium combustion plant - permit |
| Single appliance has a net rated thermal input of less than 1MW | Clean Air Act (Local Authority) | Clean Air Act (Local Authority) – N/A |
| **Biomass Type** | **‘Fuel’ or ‘Waste’** | **Scale** | **Pre-EASR Regulation** | **EASR Regulation and SEPA authorisation level** | **Chapter IV** |
| Waste wood and particleboard (MDF, chipboard, OSB) which meet the definition of ‘biomass’ in the Industrial Emissions Directive | Waste | Capacity of more than 3 tonnes per hour | PPC Part A Section 5.1A(c) | Schedule 20, Part 4, paragraph 24(a) - permit | No |
| Capacity between 50kg – 3 tonnes per hour | PPC Part B Section 5.1B(a)  | Schedule 11 waste management activity - registration |
| Capacity is less than 50kg/hour | WML Paragraph 51 Exemption | Schedule 11 waste management activity - notification |
| **Biomass Type** | **‘Fuel’ or ‘Waste’** | **Scale** | **Pre-EASR Regulation** | **EASR Regulation and SEPA authorisation level** | **Chapter IV** |
| Paper and CardboardMixed construction and demolition & municipal wood wasteFencing, transmission poles, railway sleepers | Waste | Any throughput | PPC Part A Section 5.1A(a) or (b)  | Schedule 11 waste management activity or EASR, Sch.20, Part 4, paragraph 24 if thresholds exceeded:Disposal or recovery of waste in waste incineration plants or in waste co-incineration plants—(a)for non-hazardous waste with a capacity exceeding 3 tonnes per hour,(b)for hazardous waste with a capacity exceeding 10 tonnes per day. | Yes |

# Appendix 1 Summary of Relevant Legislation

The Environmental Authorisation (Scotland) Regulations 2018 (EASR) prescribe specified industrial activities for control. In terms of this guidance the following schedules are most relevant:

* Schedule 11 defines provisions for waste activities including incinerators and co-incinerators
* Schedule19 defines provisions for “industrial emissions activities” giving scope and interpretation for Schedules 20-24 which covers all activities described in the Industrial Emissions Directive
* Schedule 20 defines activities described in Annex 1 of the Industrial Emissions Directive 2010 2010/75
* Schedule 21 defines provisions for large combustion plant greater than50MW
* Schedule 22 defines provisions for incinerators and co-incinerators, transposing Chapter IV of the IED. It ensures that strict controls are applied to almost all installations that incinerate or co-incinerate waste by stringent technical requirements that apply to individual sites, e.g. emission limit values, continuous monitoring requirements.
* Schedule 25 defines provisions for energy efficiency, implementing article 14 of the Energy Efficiency Directive 2014
* Schedule 26 defines provisions for “other emissions activities” – domestically regulated former Part A and Part B activities from the Pollution Prevention and Control (Scotland) Regulations 2012
* Schedule 27 defines provisions for medium combustion plant 1-50MW as described in the Medium Combustion Plant Directive 2015 2015/2193.

## The Clean Air Act and Environmental Protection Act

Combustion of biomass may give rise to air quality concerns and this may lead to Local Authorities refusing planning permission (where required), particularly in urban areas. The [Clean Air Act 1993](http://www.opsi.gov.uk/ACTS/acts1993/Ukpga_19930011_en_1.htm) (“CAA93”) may have regulatory control over smaller biomass burning plant that fall outwith the EASR. Local Authorities are the regulating body for that Act. The most relevant parts of the CAA93 are those that allow Local Authorities to set up Smoke Control Areas, where premises are committing an offence if they emit smoke unless using an approved **smokeless fuel**, or an **approved appliance.**

Relatively few Local Authorities have set up Smoke Control Areas; you can find these shown in a map on the [Scottish air quality website](https://www.scottishairquality.scot/), as are **Air Quality Management Areas**. The Act also contains other powers regarding the control of emissions from larger domestic and industrial boilers. Under CAA93 chimney heights have to be approved by the local authority where burning in a furnace any solid matter at a rate of 45.4kg per hour.

Where an activity is authorised under EASR, Parts I, II and III of the CAA93 (on dark smoke, grit, dust, fumes and smoke control) cease to apply from the date on which the authorisation is granted. For existing installations the determination date would be the date on which the permit was granted.

Local authorities may be able to deal with smoke, from activities not regulated under EASR, causing a statutory nuisance under the provisions of the Environmental Protection Act 1990, Part III.

Useful advice is given in this [guidance on Biomass and Air Quality from Environmental Protection UK](https://www.iaqm.co.uk/text/guidance/epuk/biomass_developers_leaflet.pdf).

# Appendix 2 Thresholds

Consumption limits identified in EASR, Schedule 20, part 4, paragraph 1 relate to megawatts of energy produced while paragraph 24 and waste management activity thresholds set out in the Authorisation Guide relate to consumption weight against time. There is no direct correlation between these values however an approximation can be made on the basis of calorific value which Kempe’s Engineers’ Year-book gives as 14.3 MJ.kg-1 for woodchips with a 25% moisture content and estimates are provided in Table 2 below.

**Table 2: Megawatts and kilogramme/hour conversion**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **kg.hr-1** | 50 | 500 | 720 | 1000 |
| **MW** | 0.2 | 2 | 2.8 | 4.0 |

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