



Department for
Energy Security
& Net Zero

The Regs – How to play by the rules when planting and using biomass crops

*Biomass Connect
Webinar 4*

*Speakers: Caroline Ayre
Gill Alker*

*Date:
March 23rd 2023*

Webinar starts 4:00 PM

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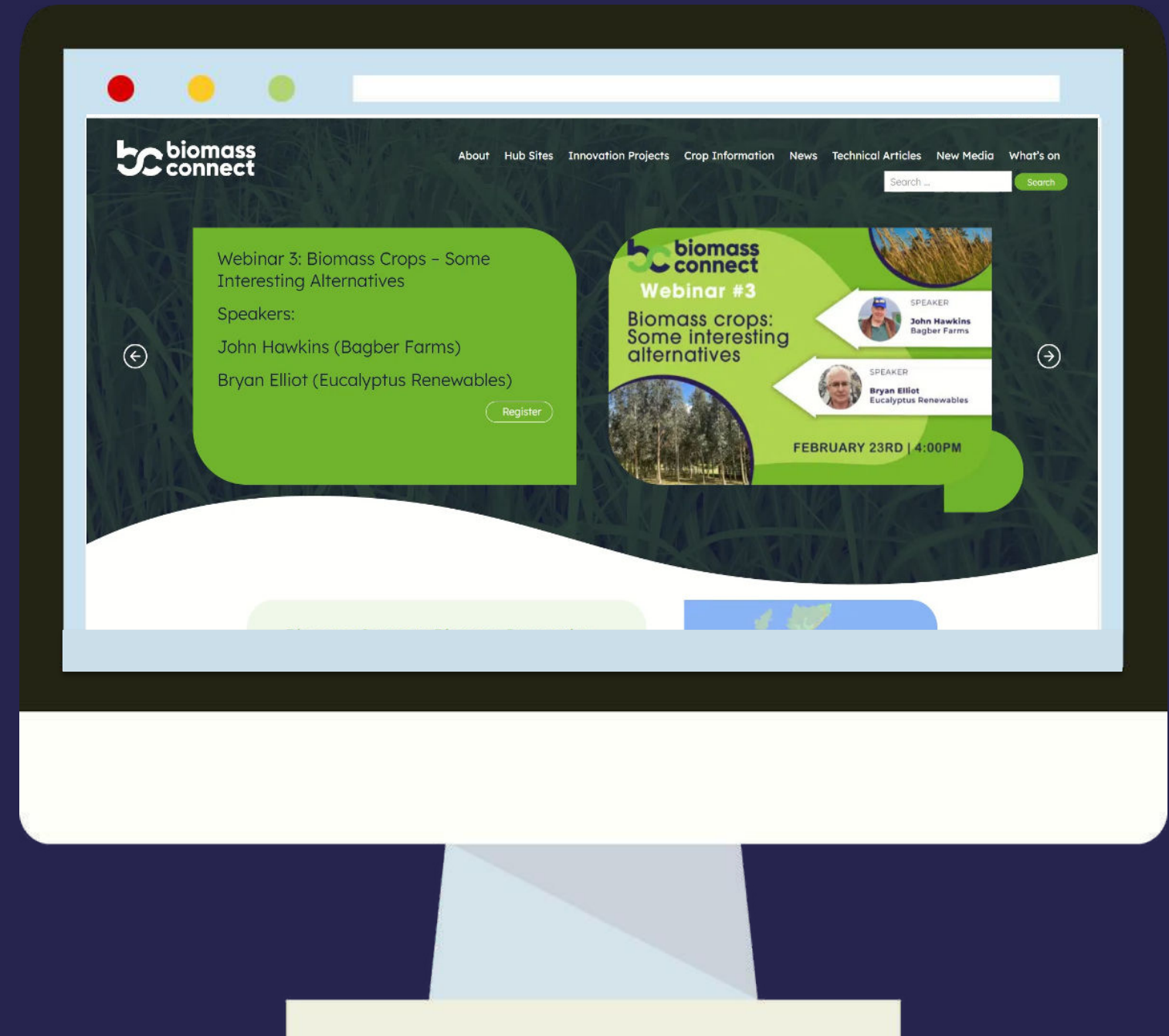
PART 4 Presentation by Gill Alker

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How to find us

www.biomassconnect.org



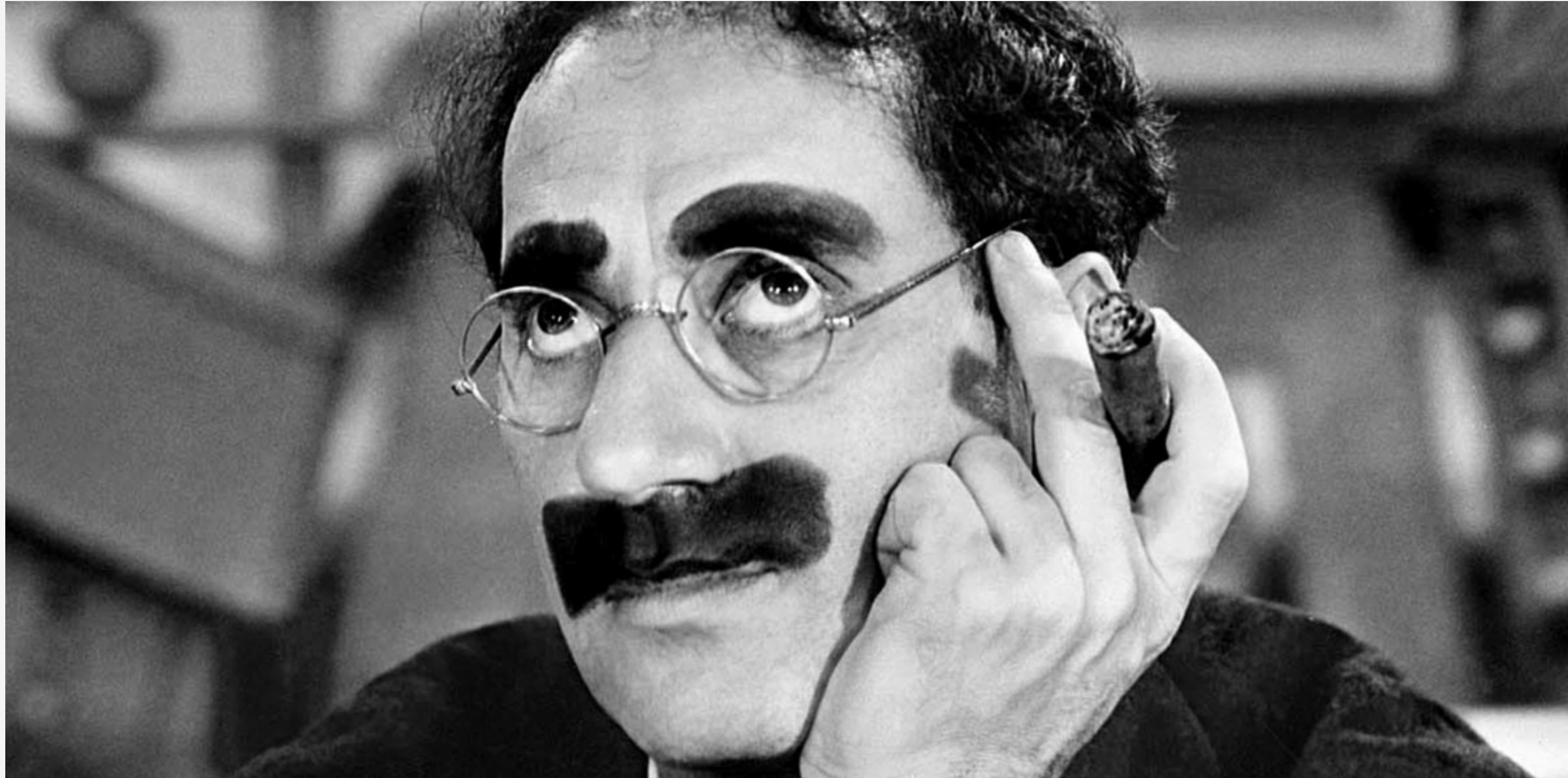


Introduction

Before you plant perennial crops or use the biomass in a combustion system you need to get your head around the legal nitty gritty. Whether it's environmental screening, sustainability criteria, emissions thresholds or production quality protocols, there is quite a lot of red tape to navigate.

Before embarking on a project, it's essential to recognise what's involved and understand the costs and timescales.





Speakers:



Caroline Ayre
Evolving Forests



Gill Alker
AMP Clean
Energy



What to do before you plant

Presented By Caroline Ayre



Planning and Assessment Timeline



Step 1

Decide on a crop for biomass and research.



Step 2

Follow the relevant UK standard to create a site plan.



Step 3

Create and submit an EIA application or consultation.



Step 4

Wait for approval before preparation and planting.

Constraints Check

The proposer should start by running a constraints check to identify potential sensitivities / what's going to stop or slow down the proposal.



SENSITIVE SITES

Proximity to protected sites, priority habitats, sensitive organic soils, designated areas and landscapes, and areas with public access rights.



IMPACT

Establishment impacts from soil cultivation on water quality, flood risk, loss of agricultural productive land, landscape aesthetics.



SCREENING

Plan in long term buffers for when cropping occurs – as visual screens or intercepts for water run-off and strengthen hedgerows and riparian zones.



EIAs make sure that project decision makers think about the likely effects on the environment at the earliest possible time

Environmental Impact Assessment

Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project.

An EIA consultation is split into two sections:

- An application to the regional authority for its view on whether your project is likely to have a significant effect on the environment.
- An application for consent from the appropriate body for the project to commence.

EIA Key Checks



HISTORIC ENVIRONMENT RECORDS

If there is HER present, seek advice on if records are adversely affected by tree planting/SRC cropping.

LOCAL BIODIVERSITY RECORDS

Find if specialist or protected species are recorded. Then seek advice on the likely impact of the project.

LOCAL LANDSCAPE DESIGN

Attempt to follow good practice design guidelines when planning establishment and management.

EIA Thresholds

Afforestation Threshold Table excluding forest roads and quarries.

Region	Threshold where any part of the land is in a sensitive area	Threshold for no part of land in sensitive area
England	0.5 hectares (Application for Opinion)	2 hectares (Application for Opinion)
Northern Ireland	Application for Opinion	Application for Opinion
Scotland	2 hectares in a National Scenic Area 0 hectares (no threshold) in all other sensitive areas	20 hectares
Wales	2 hectares where land is within a National Park or AONB 0 hectares in all other sensitive areas	5 hectares

Land Use Changes

Consideration needs to be given to what the future land use intention or 'end of life' is, and how this land use change will be implemented.

An EIA has to look at the full lifecycle of the proposal from establishment, through rotational management and potentially though permanent removal as well.



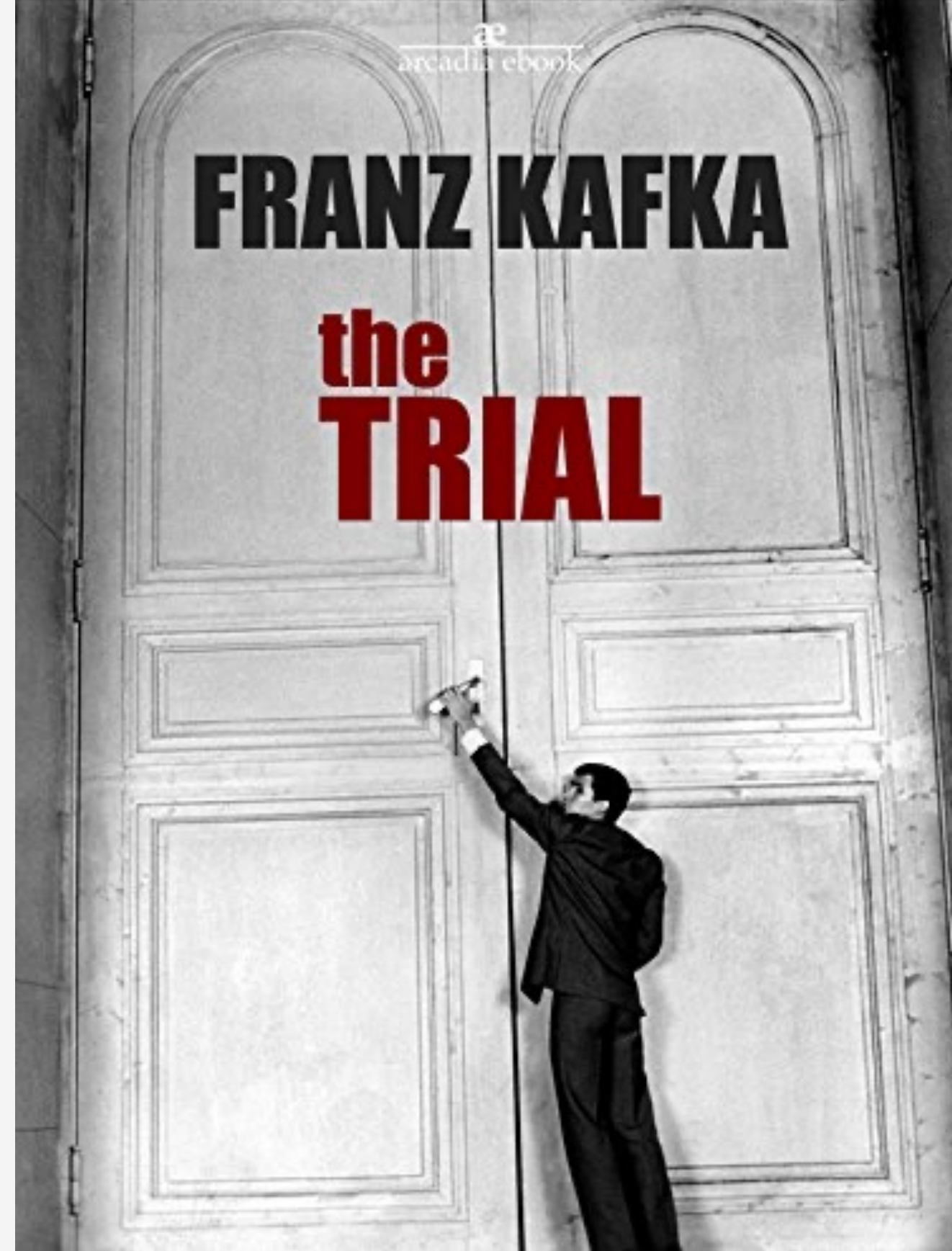
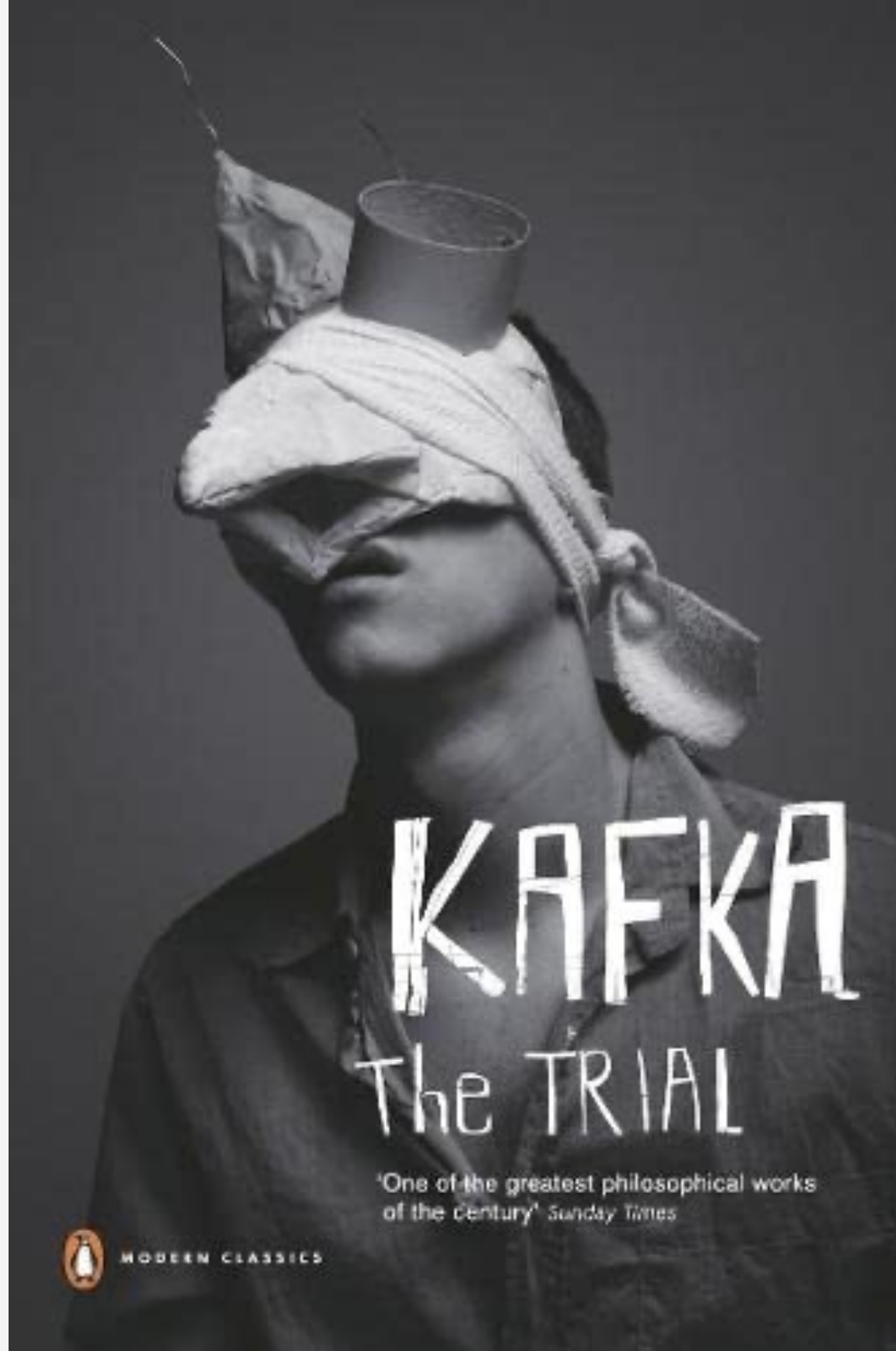
Useful Tools:



- **EIA Legislation**
<https://www.gov.uk/guidance/environmental-impact-assessments-for-woodland>
- **FC Land Information Search**
<https://www.forestergis.com/Apps/MapBrowser/>
- **UK Forestry Standard**
<https://www.gov.uk/government/publications/the-uk-forestry-standard>
- **SRC Coppice**
<https://www.forestresearch.gov.uk/publications/short-rotation-coppice-in-the-landscape/>
- **Woodland Creation Process**
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033301/A_Guide_to_Planning_New_Woodland_in_England_V1.0_Nov2021.pdf

ANY QUESTIONS?







Using Energy Crops

Presented By Gill Alker



Sustainability, Greenhouse Gas Emissions, Fuel Quality, LAQ Emissions and Ash

Biomass rules and regulations – designed to cover ALL biomass scenarios



Sustainability

Land criteria -is the biomass legally and sustainably harvested?
GHG emissions – CO2e emissions less than?



Fuel Quality

Is the fuel processed in the correct way to meet the fuel standards?



Local Air Quality Emissions

Before installation – planning permission
After Installation – is the combination of boiler x fuel quality and the system and flue designed to avoid particulate matter and NOx emissions. (emission certificate/emissions to air permitting)



Ash Disposal

Waste permitting

Setting the scene

Type of User (Heat, Electricity or both (CHP))

- Heat – RHI – Currently about 18,000 installations using biomass. Closed to new applicants, all RHI accounts end by 2041
- Heat – BUS – Open until 2025. £5k for smaller biomass boiler installations. Currently 100 installations
- Electricity – Renewable Obligation Certificates (ROCs) around 70 solid biomass installations, ROCs ended to new applicants 2016, all ROCs ending 2037
- Electricity – Open. Contracts for Difference (CfD) since 2014 – 2 operational using non-waste wood

Regulations – Size matters

Supplier, User or Both

Woody crops or Grassy crops

Non-accredited systems – environmental permitting still applies



Sustainability – RHI (heat)

Biomass Supplier List (BSL)

- For woody crops (SRC/SRF)
- Check that land criteria and GHG emissions of fuel meet RHI rules (GHG < 34.8 g CO₂/MJ heat)
- BSL numbers issued and a valid list is shared with Ofgem
- BSL number must appear on invoice/delivery note
- Customers must enter BSL number of fuel received into their quarterly RHI return
- Ofgem check BSL number against valid list before approving payment – no valid number, no payment
- Supplier must report quarterly amount supplied
- Annual subscription and quarterly fee based on amount supplied
- Regular audits (requires good record keeping)
- Must also have fuel quality accreditation Woodsure or EN Plus (more later)

Sustainable Fuels Register (SFR)

Same as BSL, except;

- For all non-woody crops
- SFR number issued
- Fuel quality accreditation not required

Self-Reporting and Fuel Measurement and Sampling

- Can be used for all sized systems, but **must** be used for >=1MW systems
- Customers responsibility to report all fuel **used**
- Reliance on suppliers to supply correct paperwork
- Administered by Ofgem
- Ofgem will check land criteria and GHG emissions
- Using BSL or SFR registered fuel is helpful, but not required
- Woodsure and EN Plus is required as above

BUS – No sustainability or fuel quality requirements, but installer is required to advise customer in writing that BSL fuel should be used.

UK ETS – Sustainability requirements similar to self-reporting

Sustainability – ROCs and CfDs (electricity and CHP)

Renewable Obligation (RO) or Contracts for Difference (CfD) – Electricity

Self-Reporting and Fuel Measurement and Sampling

- Similar check of land criteria and GHG emissions (<66.7 gCO₂e/MJ of electricity) as for RHI
- Woodsure/EN Plus is not required

Sustainable Biomass Program –SBP

- For woody crops
- Specifically for large industrial installations – helpful to assist customers with self-reporting



Fuel Quality and Fuel Standards

For RHI (Heat)

- Fuel quality must match what's in the emission certificate (part 3b) or environmental permit
- And moisture content of fuel must not exceed what's shown in section 3d
- Woodsure (chip) or EN plus (pellet)

For BUS

- Fuel should match emission cert
- For ROCs and CFDs
- Fuel quality must match what's in the environmental permit

3. FUELS													
a) Types of fuels used when testing (Where relevant, the fuel should be classified according to EN303-5, referencing the relevant EN14961 standard for specific classification (superseded by EN17225). We don't expect broader categories such as 'beech'.	Wood Chips A2 (EN ISO 17225-4:2014)												
b) Based on the testing, list the range of fuels that can be used in compliance with the emission limits of 30 grams per gigajoule (g/GJ) net heat input for particulate matter (PM), and 150 g/GJ net heat input for oxides of nitrogen (NO _x) (Where relevant, the fuel should be classified according to EN303-5, referencing the relevant EN14961 standard for specific classification (superseded by EN17225). We don't expect broader categories such as 'beech'.	Wood Chips A1 (EN ISO 17225-4:2014) and Wood Chips A2 (EN ISO 17225-4:2014)												
c) Moisture content of the fuel used during testing. (If multiple fuel types have been tested state all.)	<table border="0"> <tr> <td>HPKI-K 150</td> <td>w=36 %</td> </tr> <tr> <td>HPKI-K 180</td> <td>- *)</td> </tr> <tr> <td>HPKI-K 195</td> <td>- *)</td> </tr> <tr> <td>HPKI-K 225</td> <td>- *)</td> </tr> <tr> <td>HPKI-K 240</td> <td>- *)</td> </tr> <tr> <td>HPKI-K 300</td> <td>w=37 %</td> </tr> </table>	HPKI-K 150	w=36 %	HPKI-K 180	- *)	HPKI-K 195	- *)	HPKI-K 225	- *)	HPKI-K 240	- *)	HPKI-K 300	w=37 %
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HPKI-K 195	- *)												
HPKI-K 225	- *)												
HPKI-K 240	- *)												
HPKI-K 300	w=37 %												
d) Maximum allowable moisture content* of fuel that can be used with the certified plant(s) that ensures RHI emission limits are not exceeded. *This value may be obtained from ranges specified in relevant EN14961 standard for specific fuel classifications or EN303-5 when not applicable. Different fuel types should state different maximum allowable moisture contents.	All plants: Wood Chips A1: M25 (EN ISO 17225-4:2014) and Wood Chips A2: M35 (EN ISO 17225-4:2014)												

*) type test in accordance to EN 303-5:1999, item 5.1.3 and EN 303-5:2012, item 5.1.4

Table 2 — Specification of graded wood chips

	Property class, Analysis method	Unit	A		B	
			1	2	1	2
Normative	Origin and source, ISO 17225-1		1.1.1 Whole trees without roots ^a 1.1.3 Stemwood 1.1.4 Logging residues 1.2.1 Chemically untreated wood residues	1.1.1 Whole trees without roots ^a 1.1.3 Stemwood 1.1.4 Logging residues 1.2.1 Chemically untreated wood residues	1.1 Forest, plantation and other virgin wood ^b 1.2.1 Chemically untreated wood residues	1.1 Forest, plantation and other virgin wood ^b 1.2. By-products and residues from wood processing industry 1.3.1. Chemically untreated used wood
	Particle size, P ISO 17827-1	mm	to be selected from Table 1		to be selected from Table 1	
	Moisture, M ^c , ISO 18134-1, ISO 18134-2	w-%	M10 ≤ 10 M25 ≤ 25	M35 ≤ 35	Maximum value to be stated	
	Ash, A, ISO 18122	w-% dry	A1.0 ≤ 1,0	A1.5 ≤ 1,5	A3.0 ≤ 3,0	
	Bulk density, BD ^d , ISO 17828	kg/loose m ³ as received	BD150 ≥ 150 BD200 ≥ 200 BD250 ≥ 250	BD150 ≥ 150 BD200 ≥ 200 BD250 ≥ 250 BD300 ≥ 300	Minimum value to be stated	
	Nitrogen, N, ISO 16948	w-% dry	Not applicable	Not applicable	N1.0 ≤ 1,0	
	Sulfur, S, ISO 16994	w-% dry	Not applicable	Not applicable	S0.1 ≤ 0,1	
	Chlorine, Cl, ISO 16994	w-% dry	Not applicable	Not applicable	Cl0.05 ≤ 0,05	
	Arsenic, As, ISO 16968	mg/kg dry	Not applicable	Not applicable	≤ 1	
	Cadmium, Cd, ISO 16968	mg/kg dry	Not applicable	Not applicable	≤ 2,0	
	Chromium, Cr, ISO 16968	mg/kg dry	Not applicable	Not applicable	≤ 10	
	Copper, Cu, ISO 16968	mg/kg dry	Not applicable	Not applicable	≤ 10	

Fuel Standards EN ISO 17225

- Describe source of biomass (e.g. wood, seeds, algae)
- Dimensions of particles including dust and oversize
- Moisture content
- Ash content
- Bulk density
- Chemical composition (N, S, Cl etc)



Woodsure, EN Plus and Ready to Burn

- Fuel quality assurance certification schemes – woody fuels
- Desk-based and on-site audits
- Subscription fees
- EN plus for wood pellets, Woodsure for logs, chip, brickettes.
- RHI requires Woodsure accreditation when chip, logs and brickettes are used (since 1st April 2022).
- EN Plus requirement temporarily suspended until Nov 2023
- Ready to Burn scheme – Domestic burning of logs >2m³, <20% m.c.

Local Air Quality Emissions – RHI, ROCS and CfD

- Primarily NOx and particulate matter (PMs), but also CO and Sox
- Planning permission may require air quality assessment report to check impact on local air quality
- Energy Crops are never waste, so waste permitting and exemption should not apply.
- But for systems >1MW (thermal energy input – so approx. 800kW output), the MCPD applies and larger => LCPD
- Permit describes fuel, combustion and filtering equipment and testing requirements
- Emissions must be tested by qualified test house every 3 years
- For RHI systems without permits and **BUS** the emission certificate comes into play – shows NOx and PM emissions for boiler x fuel combination
- NOx < 150 g/GJ and PM <30 g/GJ
- If fuel is not on emission cert, new cert required

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Emission point as referred to in table S1.1. & location	Source/ technology	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method Note 1
CHP1-TM06382 57482	New medium combustion plant which are engines fuelled on natural gas	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	95 mg/m ³	Periodic	Every 3 years	MCERTS BS EN 14792
		Carbon monoxide	No limit set	Periodic	Every 3 years	MCERTS BS EN 15058
Boiler BB1 - TM06382 57482	New medium combustion plant other than engines and gas turbines fuelled on solid biomass	Sulphur dioxide	No limit set	Periodic	Every 3 years	MCERTS BS EN 14791
		Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	300 mg/m ³	Periodic	Every 3 years	MCERTS BS EN 14792
		Dust	30 mg/m ³	Periodic	Every 3 years	MCERTS BS EN 13284-1
		Carbon monoxide	No limit set	Periodic	Every 3 years	MCERTS BS EN 15058



Ash disposal

- Once cool, ash can be disposed in commercial waste stream with permission of waste contractor
- For small systems (burn less than 50kg/hour), can be spread to land with a U10 (and U4) exemption at low rates
- For larger systems, can also be spread to land using SR2010No4 permit
- Or used for construction in certain circumstances
- Re-use on land or in construction is very dependent on composition of ash

Health and Safety

- Fire – moisture and stack height
- Spores and dust
 - Fuel
 - Ash
- CO in fuel stores



Summary

- Supplier-User partnerships important
- Good record keeping vital
- There are many different bioenergy pathways – not all have positive environmental impacts
- All pathways scrutinised in roughly the same way by regulators
- Burdensome, but ‘good’ pathways more likely to succeed



**ANY
QUESTIONS?**





Forthcoming webinars

- Perennial energy crops and water
(Flood mitigation and water quality)
- Interesting alternatives #2 Seaweed and Hemp
- Biomass Strategy – What's in it for farmers (ELMs, SFI, biodiversity net gain, stacking)

September 2023

Our Partners:



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