Modern Biomass Heating

An REA Briefing for MPs on the biomass heat sector and its potential for the UK

What is biomass heat?

Modern biomass boiler systems burn fuel such as **wood pellets, wood chips, logs or waste wood** to provide **space heating** and **hot water** in both domestic and non-domestic **buildings**. They can also generate high temperature heat for **industrial processes**.

Biomass heat, as with all bioenergy, is defined as **low carbon**, in accordance with **IPCC methodologies** and UK greenhouse gas conversion factors. At the point of use, the biogenic carbon released from biomass is already part of the natural carbon cycle and is absorbed by the growth of the feedstock. This is as opposed to the carbon that is released from the combustion of fossil fuels which would have otherwise remained in the ground.

Current state of the biomass heat industry in the UK

- In 2022, modern biomass boilers produced **32,000 GWh of renewable heat**, the single largest contributor to low carbon heat, representing 60% of all renewable heat generation in 2022[i].
- As of March 2024, there were 17,460 biomass boilers installed under the non-domestic RHI (76.5% of total installations)[ii] and 13,239 biomass boilers accredited under the domestic RHI (11% of total accreditations)[iii]. Alongside 259 biomass boilers under the Boiler Upgrade Scheme (0.8% of total installations)[iv]
- It provides an estimated **7,449 jobs** and contributes an estimated **£1,029 million** to the economy[1].

Reasons to support biomass heat

Biomass heat is an established renewable technology that could provide many benefits to the UK including:

- ✓ **Net Zero targets -** the decarbonisation of heat remains one of the largest challenges facing the UK in delivering its net zero ambitions – with only 8.36% of heat consumption generated by renewables in 2022. Successfully decarbonising all UK heat demand will need a wide range of low carbon technologies, ensuring the right technology is used in the right situation.
- ✓ **Biomass Strategy –** the Biomass Strategy recognised a clear role for biomass heat both in the short and medium term for buildings not readily suitable for heat pumps, and where there are limited alternatives for industrial decarbonisation.
- ✓ **Complex to decarbonise properties –** biomass boilers are an efficient and sustainable alternative to buildings unsuitable for heat pumps – including those that require high heat loads and have low energy efficiency standards, such as listed buildings or large public buildings; as well as the 220,000 off-gas-grid properties that government estimates will not be suitable for heat pumps[v].
- ✓ **Decarbonising rural areas –** biomass boilers are an optimal solution for off-gas-grid or poorly insulated homes, and typically replace oil boilers – under the domestic RHI 55% of biomass boilers were used for his purpose[vi].
- ✓ **Reduce grid constraints -** biomass also provides a solution where grid capacity constraints make new connections for electrification of high heat loads difficult, reducing stress on local grid infrastructure.
- ✓ **High-heat loads -** biomass boilers work particularly well at medium-to-large scales due to higher heat loads, making them suitable for use in larger properties including hospitals, schools, hotels, B&Bs, care homes and other non-domestic situations.
- ✓ **Industrial decarbonisation –** biomass can provide the high process heat loads required in the food and beverage industries & is an ideal technology in sawmills where significant quantities of waste wood arise.
- ✓ **Circular economy -** biomass has strong links to the forestry sector and helps support rural jobs, as feedstocks are typically local - one biomass boiler installation can support 10-15 supply chain jobs[vii].
- ✓ **Forestry benefits -** biomass production encourages managed forestry, leading to healthier and more productive woodlands that sequester more carbon, produce better quality building timber and deliver a more diverse ecosystem than unmanaged woodlands[viii].

Key policy asks for the sector

Since the closure of the RHI there has been no adequate route to market for the industry. Whilst biomass boilers are eligible under the Boiler Upgrade Scheme (BUS) the grant is lower than that available for heat pumps, and is sufficient for larger scale boilers. Furthermore, there are limited routes to market for industrial scale biomass boilers. In order to realise the potential of the sector and allow it to contribute to decarbonising the UK, the sector requires:

- **Publication of the Bioenergy Cross-Sector Sustainability Framework**
  Following the publication of the Biomass Strategy in 2023 the sector is still waiting for the publication of a consultation on the cross-sector sustainability framework.

- **Change the requirements of the Industrial Energy Transformation Fund**
  The Industrial Energy Transformation Fund (IETF) is helping support fuel switching, however the requirement that operational temperatures must be ≥240°C limits biomass deployment.

- **Expand the Boiler Upgrade Scheme to accelerate residential decarbonisation.**
  This should ensure all technologies, including biomass and other energy efficiency measures, are able to access the new higher grant level of £7,500. This could work in conjunction with Labour's Warm Homes Plan.

- **Promote commercial decarbonisation with the introduction of a fuel switching tariff.**
  The Government should incentivise non-domestic heat for small and medium-sized enterprises with a fuel switching tariff to enable organisations to switch from fossil fuels to a range of low carbon alternatives including biomass boilers.

- **Deliver industrial decarbonisation by designing a Heat Contracts for Difference mechanism.**
  The Government should incentivise large-scale industrial heat decarbonisation projects through the establishment of a Heat Contracts for Difference (CfD) mechanism, open to all low carbon technologies, including biomass, and all large-scale industries. This would replicate the success of the power CfD in procuring affordable capacity.

- **Reform Local Area Energy Planning**
  The Government should urgently deliver planning reforms to enable Local Area Energy Planning for renewable heat projects such as biomass boiler sites and heat networks.

About the REA

The REA (The Association for Renewable Energy and Clean Technology) represents a wide variety of organisations, including generators, project developers, fuel and power suppliers, investors, equipment producers and service providers. There are around 500 corporate members of the REA, making it the largest renewable energy trade association in the UK.

The REA has dedicated member forums focused on a wide range of different renewable and clean technologies. This includes the REA Wood Heat Forum, which represents developers, installers and suppliers of the modern biomass heat industry.

[i] REA Review 2023 https://www.r-e-a.net/wp-content/uploads/2023/10/REview23-FINAL.pdf
[ii] Ofgem ND RHI Annual Report 2024 https://www.ofgem.gov.uk/sites/default/files/2024-07/NDRHI_Annual_Report_Scheme_Year_13.pdf
[iii] Ofgem Domestic RHI Annual Report 2024 https://www.ofgem.gov.uk/sites/default/files/2024-07/DRHI_2023-24_Annual_Report.pdf
[iv] DESNZ Boiler Upgrade Scheme Statistics 2024 https://www.gov.uk/government/collections/boiler-upgrade-scheme-statistics
[v] Biomass Strategy 2023 https://www.gov.uk/government/publications/biomass-strategy
[vi] DESNZ RHI Statistics https://www.gov.uk/government/collections/renewable-heat-incentive-statistics
[vii] Biomass Heat Works (2022) Wood Heat Conference Update on Biomass Heat Works Campaign https://www.r-e-a.net/wp-content/uploads/2020/10/S4-WH2020-Neil-Holland-Biomass-Heat-Works.pdf
viii Forest Ecology and Management (2023) https://www.sciencedirect.com/science/article/pii/S0378112723004383?via%3Dihub