

DORCHESTER TOWN COUNCIL

The Climate Emergency and Biomass at the Municipal Buildings

In May 2019 the first act of the new Council was to declare a Climate Emergency, committing itself to being carbon neutral by 2030.

The Municipal Buildings, which include the Corn Exchange, a valued community space and much loved historic building, represents nearly 60% of our carbon footprint. A significant reduction in carbon, particularly related to heating, is an essential part of any response to the Climate Emergency.

Coincidentally in 2018 the Council recognised that the existing gas boilers that heat the Municipal Buildings are reaching the end of their life. This comes at the same time as a major refurbishment of the building is planned to make the building weather tight and fit for being a first-class small Arts venue.

Our Climate Emergency Strategy, alongside options for the replacement of the boilers have been a consistent feature of Council business throughout 2019 and 2020, presenting regular opportunities for interested residents to raise questions and make points. Specifically the options for heating the Municipal Buildings were debated at length on several occasions before the Council settled on biomass.

Why Biomass?

The cheapest solution is to replace the existing boilers with a new efficient gas boiler, accept the impact on the climate for the next 15 plus years, and hope that a cheap green solution, probably hydrogen based, might eventually come on stream in the very long term. However gas is a fossil fuel which generates a significant carbon footprint, so this approach would not support the Council's Climate Emergency commitment. The Town Clerk was therefore asked to seek advice regarding currently available green energy solutions.

The Council sought advice from Low Carbon Dorset, part of Dorset Council, and their team carried out an audit of the building in 2019. The Corn Exchange and the Town Hall have high ceilings with insulation not practical, while the size and historic fabric of the building, particularly its windows, and its use as a public space make the building very energy hungry, with few options to reduce gas consumption.

Low Carbon Dorset considered all green options including Solar (which is at its least productive when energy is needed to heat the building) Ground Source Heating (not enough stable land available) and Air Source Heating (the building is too large and is also listed) before recommending Biomass as the only viable close to zero carbon option.

Biomass works by burning wood, which releases the carbon that has been absorbed by trees during their growth. Dry wood chip can be sourced locally as wood waste is a natural by product of Dorset's land management industry. It is important to the Council that the chips are produced sustainably and locally to minimise CO₂ emitted in transporting the c. 20 lorry loads of chip that would be needed each year. The money paid for the chip will also recirculate within the Dorset area economy rather than be sent to a national gas provider.

Biomass boilers have been around for many years but have been slow to catch on in the UK, principally due to the availability of cheap natural gas for heating. Modern Biomass boilers burn very efficiently and reliably and the model we are selecting will operate well within the very stringent controls on emissions of particulates, set by EU and UK government. The increase in particulates resulting from the new boiler will be negligible and will be dispersed using a flue.

Flues are an important part of the emissions process and the Council has taken on board and will adhere to comments made by the Dorset Council Environmental Health team (see appendix) during the Planning application process. The single flue for the boiler will be located towards the rear of the Corn Exchange, some distance from High East Street and superseding the gas flue located nearer High East Street.

The Council is exploring opportunities to supply hot water to 2 neighbouring buildings to help partners reduce their carbon footprints. One currently uses gas, while the other uses fuel oil, brought in by lorry.

The Clerk and his team has visited several sites to see Biomass boilers in action and speak to the owners and providers about any issues they had, as part of a thorough due diligence process, and reported back to councillors. Key among their responses is the need to source locally managed dry wood chip, which has been an important part of our own thinking.

Isn't hydrogen the answer?

In the long term yes, but not today and probably not for the next 20 years. At some distant point in the future there might be options to run a mixed gas-hydrogen boiler or receive a supply of gas mixed with hydrogen, but these solutions are in their infancy and are likely to require significant investment to be implemented at a national level. No hydrogen-only boiler will be available for many years to come. We look forward to the day when we can move to a cost-effective hydrogen based heating system, but it is not a solution that we expect to see during the lifetime of the new biomass boiler.

Isn't this Biomass boiler much more expensive than a replacement gas boiler?

Yes it is, partly because of the cost of the boiler and partly because of building works needed to house the boiler and store the wood chip. However the Council is in discussions to secure 40% of the costs from Low Carbon Dorset (from a fund set up with EU money) as it is part of a package of energy efficiency works being carried out on the building. We will also apply for Renewable Heat Incentive (RHI), a government run scheme to promote renewable heat, and have already set aside money in our Reserves to meet the remainder of the cost. The fact that both EU and Government provide funds for biomass gives us added confidence that it is an appropriate solution.

What else has the Council delivered from its Climate Emergency Action Plan?

The Council has recently installed a ground source heating system at Weymouth Avenue Recreation Pavilion, providing heating for the local cricket club. Undertaking this project helped us to understand why Ground Source was not a suitable alternative for the Municipal Buildings.

We have also

- Installed 72 solar panels on our Louds Mill Depot roof
- Purchased 2 battery operated vehicles as part of a programme to convert all of our vehicles to electric by 2030

- Commenced a programme of replacing all of our petrol-based grounds maintenance equipment with battery equivalents, again by 2030
- Installed two water boreholes, one in the Borough Gardens and the other at Weymouth Avenue Rec, to reduce mains water consumption
- Delivered a whole raft of small energy reduction initiatives across our buildings and outdoor facilities
- Provided grant support for Dorchester Youth Centre to move all of their lighting to LED, as well as providing grant support to other community groups for similar initiatives
- Funded and provided technical and practical support for a number of tree planting initiatives

As part of the Municipal Buildings project we will also be installing solar panels, stratification (hot air recirculation) fans, LED venue and arts performance lighting, all to reduce electricity consumption on site, as well as undertaking insulation works in small roof spaces and on heating pipes.

The Municipal Buildings Biomass scheme is by far the biggest project we will undertake, but we have developed lots of knowledge over the last few years that is helping us to make the right decisions.

A final message

The biomass boiler scheme is a positive move and will provide a very clean renewable heat source for this wonderful building; we should be proud of it. Closing the building is not an option; it is our duty to maximise its use and maintain its historic fabric (that includes keeping it warm and dry inside). The biomass boiler is just one feature of a major refurbishment of the Municipal Buildings. We are a 'doing' council and will not let the building fall into disrepair.

We have taken the decision, based on professional advice, to have a renewable heat source and are maximising available grants and incentives that recognise Biomass as a sustainable solution. It will reduce the cost to the local tax payer and is the best available option. At no point have any of the professionals that we have come into contact with raised NOx as an issue of concern in a built up area.

Richard Biggs
Mayor of Dorchester

Adrian Stuart
Town Clerk
21 January 2021

ENVIRONMENTAL HEALTH CONSULTATION RESPONSE**Location: Dorchester Town Hall, High East Street, Dorchester, Dorset, DT1 1HF****Application Reference & Proposal: WD/D/20/002160****Erection of Two storey extension and internal and external alterations. New bio-mass boiler installation in new extension.****Recommendation:** (x in a box)

	No comment
	Comment
x	Recommend conditions and or modifications (set out below)
	Refusal (reasons set out below)

Comments:

Due to the proximity of nearby dwellings, the following conditions are recommended:

Conditions:

Before installation of plant or such like equipment, a noise report shall be submitted in writing and agreed by the planning authority. The report should contain details of background sound measurements of when the plant is likely to be in operation, against the operational plant sound level. This report should surmise the likely external noise impact on sensitive receptors in the area and provide mitigation to prevent loss of amenity and prevent creeping background noise levels.

Before installation of a flue or such like equipment, a report shall be submitted in writing and agreed by the planning authority. The report should contain details of chimney height measurements. This report should surmise the likely external impact on sensitive receptors in the area and provide mitigation to prevent loss of amenity.

Informatives:

The written report should follow the BS4142 format to ensure inclusion of all requirements of the condition. Where the plant is not to operate 24/7 it is suggested that a timer is installed to control hours of operation.

The developer is guided to the chimney height calculation documents known as D1

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Title: Technical Officer

Date: 12 October 2020

Please return to: planningteamd@dorsetcouncil.gov.uk

