

## The Gloucestershire Example: The Case for an Alternative to Mass Burn Incineration

	<b>Planned UBB Mass Burn Incinerator</b>	<b>Hybrid Plant – eg Biocentre MBHT to biomass boilers</b>	<b>Discrete Plants – eg Biocentre MBHT to Fuel for local users</b>
<b>Overview</b>	Mass burn incinerator with no pre-sort of waste. Incinerator is “CHP ready” but with no local users of heat the unit is electricity only. Large 48m high building with large waste bunker	EfW plant with MBHT recycling and fuel refining plant at front end, leading to compact biomass boilers. Plastics, metals, water and glass recycled. Compact building max 19m high, with no waste bunker	Biocentre MBHT with recycling of valuable material, and fuel refining into a high quality >90% biomass fuel. Suitable for direct use at Dairy Crest or other local power users. <14m high building, very high energy efficiency
<b>Planning Consent Issues</b>	Sui Generis waste / power consent required. UBB plans have been unanimously rejected by Gloucestershire Planning committee and are now subject to an appeal.	Sui Generis waste / power consent required. Smaller building and inherently cleaner operations (no waste bunker), better conformance to planning guidelines inc waste hierarchy.	Biocentre plant requires standard industrial B2 use building so presents no significant planning delays. Building is <14m high so meets current consents.
<b>UBB/ GCC Contract</b>	Yes	Yes, as an alternative project, still an EfW producing power	No – new procurement process required
<b>Contract length / flexibility</b>	25 years. Huge building and civil engineering - plant is demanding on input material. Very inflexible to changing waste and recycling opportunities / technology	Flexible to improvements in technology and better recycling. Much lower cost of power plant and civils, can be reconfigured. Materials recovered for recycling. Fuel can be used by others.	Excellent. 10 years contract. Uses standard equipment which can be reconfigured and upgraded. Outputs have multiple uses – available for future improvements in technology
<b>Build Cost</b>	£170M	£80M	£25M
<b>Gate Fee</b>	25 year contract thought to be £100+ pt, £500M contract	Could be built under current contract, £100+ per tonne	Biocentre have stated a 10 year contract at £50 per tonne
<b>Height</b>	<48m	<19m	<14m
<b>Below ground works</b>	Substantial bunker for waste storage. First in, last out so environmental issues	No bunker or waste storage, first in first out processing. Fuel stored in fire protected stable condition	No bunker or waste storage. Fuel delivered to users.
<b>Build Time / Phasing</b>	3 year build from consent and funding	Phased build possible. 18 month to MBHT + 6 for power plant	<18 month build, 8 week planning cycle under existing B2 consent
<b>Throughput</b>	190 ktpa waste	Up to 260 ktpa waste	120 – 260 ktpa waste
<b>Carbon Footprint (GWP)</b>	Better than landfill, but lack of CHP and burning of plastics means the plant remains a net contributor to Global Warming gasses	Good, net atmospheric CO2 reduction. Higher efficiency of combustion (low moisture) and removal of plastics help. However there remains a lack of heat users	Exceptional net reduction of CO2. Removal of plastics and moisture, fuel use where the heat is needed delivers a much higher efficiency and improved carbon footprint.
<b>Recycling and waste hierarchy</b>	Very poor. All waste arriving at incinerator is put in the burner, no pre-sort. Some material is converted into low grade road aggregate. High grade recyclates eg heavy metals degraded irretrievably.	Very good. 47% of all input material is recycled – second chance recycling. This is in addition to source segregated waste recycling – giving total recycling rates typically in excess of 75%	Exceptional. The refined fuel can be directly used to substitute coal or virgin biomass, so is a recycle. Other materials inc metals, plastics, water and glass are recycled. Giving total end to end recycling rates >90%
<b>Local Economy</b>	Heat available, but not where it is needed	Recyclates can stimulate local economy	Recyclates and low cost biomass fuel can stimulate local economy
<b>Energy Efficiency</b>	Poor. Heat is not used. Waste is burnt when wet.	Satisfactory. Much more efficient burning of pre-dried material low in Chlorine. No heat users	Exceptional. Over 3.5X the useful energy output compared to the planned UBB incinerator.
<b>Renewable Energy</b>	Just 37% of the energy produced is renewable. Balance from burning plastics which should be recycled!	>90% of energy produced is renewable from biogenic sources	>90% of energy produced is renewable from biogenic sources. Over 3.5X the useful energy produced

## Planned UBB Mass Burn Incinerator

All illustrations taken from Design and Access Statement, Jan 2012

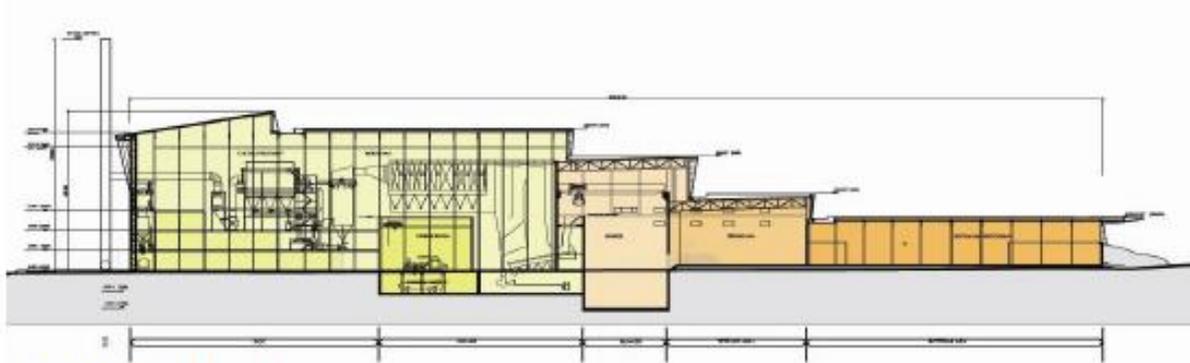


Figure 14 Longitudinal section



Figure 25 Final site arrangement indicating separate operational and staff/visitor access points



Figure 37 North West elevation



### Key Facts:

Building Height: 48m (max)

Stack Height: 70m

Total Floor Area: 14,680 m<sup>2</sup>

Input: 190 ktpa mixed waste

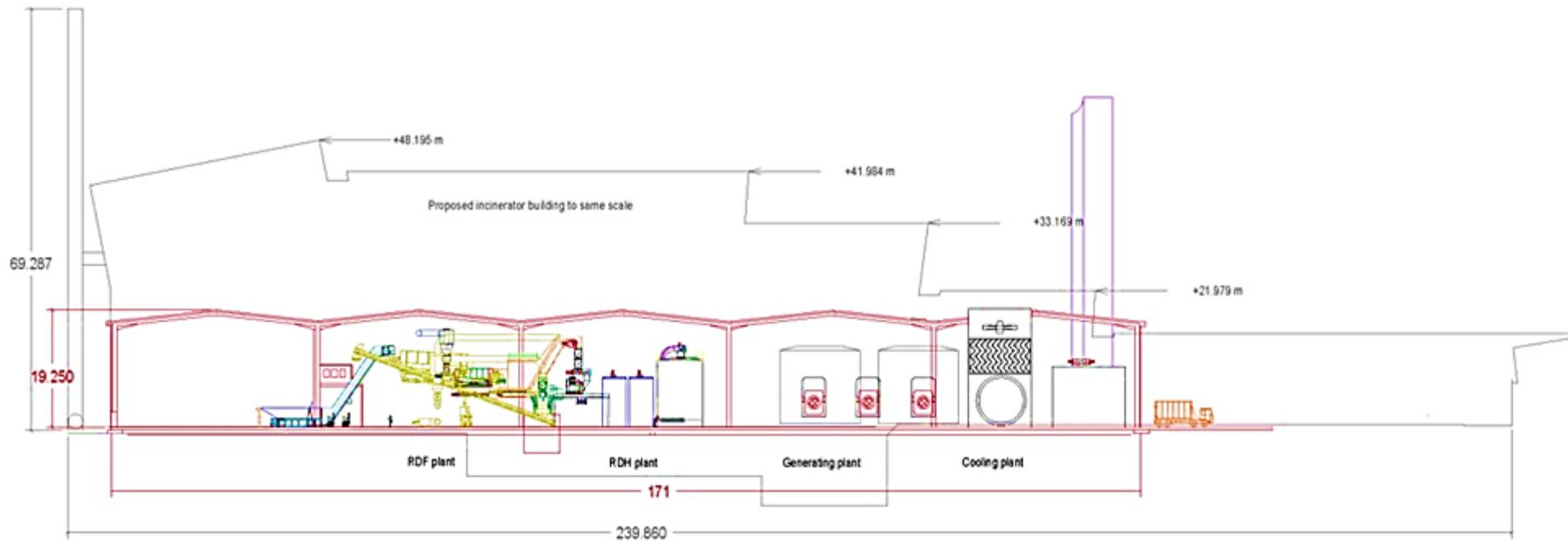
Energy outputs: 14.5 MW Electricity, CHP ready but no local heat users.

Other: Low grade aggregate, toxic APC residues

Renewable Energy proportion: 37% (Note, the original claim is around 56%, however this includes erroneous claims on energy from burning water in organics, see here)

## Proposed Alternative: Hybrid Plant, Biocentre MBHT to Biomass Boilers

Building profile in red compared to planned UBB incinerator. Not the hybrid plant has no below ground works, and could be reduced in height if necessary.



### Key Facts:

Building Height: 19.25m (max, can be reduced below ground works)

Stack Height: 40m tbc

Total Floor Area: c 14,000 m<sup>2</sup>

Input: up to 260 ktpa mixed waste      Energy outputs: c15MW Electricity, CHP ready but no local heat users.

Other: 47% high grade recyclates

Renewable Energy proportion: >90% (Note the amount of output electrical power would be higher if plastics are also burnt as they are in the incinerator, however this is not recommended)