

Dear Mr Storey,

Re: Planning application for an Energy Recovery Centre at Walworth Industrial Estate, Andover, Ref: 16/00058/CMAN

I am writing on behalf of Biofuelwatch (www.biofuelwatch.org.uk) to object to SiBOR's planning application for a waste wood gasification power plant at Walworth Industrial Estate, Andover.

We are aware that local residents have been advised that objections will be considered right up to the Regulatory Committee hearing on 18th May, and we would therefore ask you to ensure that our objection, as well as the several hundred recent objections which local residents have submitted via our website in recent days, are shared with the Committee Members.

Our grounds for objecting to the application are:

- 1) Low efficiency of the proposed plant contravening regional planning policy as well as the 'good design' principle set out in national policy;
- 2) Failure to demonstrate compliance with the Waste Hierarchy and the Waste Proximity Principles, which are set out in national and regional planning policy.

We are aware of local residents' concerns about the local impacts, which we believe to be valid. However, as a national organisation rather than a Hampshire-based one, we have chosen to confine our grounds of objection to those listed above. Nonetheless, before discussing those grounds in detail, we wish to set out general concerns about the technology proposed by SiBOR and their implications for an assessment of local impacts.

SiBOR's proposed technology:

SiBOR describe the proposed plant as one using 'advanced conversion technology', namely gasification.

So far, not a single biomass or waste 'advanced conversion' plant has ever been operated successfully in the UK, despite numerous attempts. Biofuelwatch has extensively researched biomass gasification and pyrolysis schemes across the UK and has identified eleven such plants which, according to their developers, have been built since 2001, which were designed to generate electricity, and which were at least 1 MWe in size. Not a single one of these has been operated successfully. Out of the eleven plants, eight appear to have failed to generate any electricity at all. The others had been operating intermittently, at a small fraction of their capacity before being closed down¹.

Furthermore, a significant number of waste gasification have been developed and in several cases built across the UK². However, these have been no more successful than biomass ones: One was being operated on an off on the Isle of Wight, but could not be run at more than 8% of its capacity, which clearly cannot be regarded as 'successful

¹ <http://www.biofuelwatch.org.uk/wp-content/maps/uk-advanced-conversion.html> and <http://www.biofuelwatch.org.uk/2015/biomass-gasification-and-pyrolysis/> and <http://www.ref.org.uk/generators/searchoutput.php?mode=client&GeneratorName=&TechGroup=&rid=&TechCode=AG%2CBM®oid=&CHP=&dateaction>equals&AccreditationDate=yyyy-mm-dd&kwaction=eq&InstalledkW=&Subsidy=&CtryCode=&TurbineModel=&Location=&turbineaction=eq&NumTurbines=&Postcode=&tkaction=eq&TurbinekW=&Developer=&hhaction=eq&HubHeight=&Operator=&bdaction=eq&BladeDiam=&SiteOwner=&save=Search>

² <http://ukwin.org.uk/resources/table/>

operation'³. One gasifier was built by Scotgen in Dargavel, Scotland, and was closed down after its environmental permit was withdrawn, following hundreds of breaches of air emission permitting conditions, dozens of noise complaints, an explosion and a fire⁴. There is no operational waste gasifier of 1 MWe or greater capacity in the UK today.

Worldwide, heat-only gasification systems are associated with a much higher success rate than ones used for electricity generation. SiBOR have submitted a description of the boiler which they intend to use, issued by the manufacturers, Hurst. It states that this boiler is "*particularly suitable of heating applications in lumber dry kilns, veneer log vats, veneer dryers, greenhouses, factories, schools and office buildings*" and that it is designed for "*biomass waste with moisture contents ranging from 30-50%*". SiBOR therefore intend to use this boiler for a purpose for which it has not been designed, i.e. to generate electricity from waste wood, which has considerably lower moisture content.

We therefore do not believe that this development can be expected to be capable of complying with the emissions limits which are based on the Industrial Emissions Directive. Yet the Air Quality Assessment is based on the assumption that it will fully comply with those limits. We also note that SiBOR's Stack Height Calculation Sheet states that the gas discharge velocity will be 44.38 m/s. We have been advised by an engineer that this is approximately three times the gas discharge velocity of most similar-sized power plants. This would suggest a significantly higher continuous noise level than for most other power plants of this size.

Low efficiency of the proposed plant contravening regional planning policy as well as the 'good design' principle set out in national policy:

SiBOR's planning documents do not give a figure for the conversion efficiency of the plant. An engineer we consulted advised us that the conversion efficiency could be as low as 20% (depending on the assumed average moisture content of the waste wood), but that the planning documents contain insufficient data to calculate the efficiency figure with any accuracy.

In general, gasification power plants that rely on a steam turbine rather than a gas engine or gas turbine tend to have lower efficiencies than conventional power plants which use a steam turbine.

The conversion efficiency would rise if SiBOR were to export process heat, i.e. if they were to operate the plant as a combined heat and power plant. However, neither SiBOR's planning application nor the planning conditions recommended in the Planning Officer's Report to Hampshire County Council's Regulatory Committee would commit the developers to exporting any heat. SiBOR merely states that it will make heat "*available for export to any future district heating network*". They emphasise that such a heating network does not form part of this planning application. SiBOR has not supplied any assessment of the potential for heat export, nor any indication as to whether there are potential customers nearby who have stated an interest and who would be willing to invest in heat pipes. SiBOR have not indicated that they themselves would be prepared to pay or raise funds for developing a district heating network.

The Planning Statement submitted as part of SiBOR's Environmental Impact Assessments highlights the importance of generating energy from waste efficiently:

It cites from the Government Review of Waste Policy in England 2011, which "*supports efficient energy recovery from residual waste*", stating: "*The Government's aim is to get*

³ <http://www.ref.org.uk/generators/view.php?rid=R00163RAEN>

⁴ http://www.heraldscotland.com/news/13151880.Bid_to_restart_Scotland_s_dirtiest_waste_incinerator/
[Note that the plant has not been restarted.]

the most energy out of genuinely residual waste." It also refers to the need to comply with the EU Waste Framework Directive (WFD):

"The document states that the distinction between having R1 status or having a plant being classified as a disposal facility is important for planning purposes and in the application of the proximity principle. It is therefore important that operators strive towards demonstrating that energy from waste is a recovery operation according to the WFD definitions."

Furthermore, the Planning Statement highlights Policy 28 of the Development Plan – Hampshire Minerals and Waste (adopted 2013), which states:

"Energy recovery development should... wherever practicable, provide combined heat and power."

We would add to SiBOR's list of relevant planning documents the National Overarching Policy Statement for Energy⁵. This states that "good design" should be used for all energy projects, which requires them to be "efficient in the use of natural resources and energy used in their construction and operation".

As we have shown, SiBOR's application would not commit them to operating the plant as a combined heat and power plant. The developer fails to state what the conversion efficiency will be, however the figures for annual feedstock tonnage and electricity output suggest that it could be as low as 20%. This would be below what a conventional biomass power plant of 10 MWe can achieve.

Crucially, SiBOR fail to show that the plant could be defined as an 'energy recovery' as opposed to a 'waste disposal' facility using the R1 calculation set out in the Waste Framework Directive, i.e. that it would achieve an R1 energy efficiency factor greater than 0.65.

In this context, we would like to point to a 2012 technical report published by the Confederation of European Waste to Energy Plants (CEWEP)⁶, which states:

"Small sized WtE [waste from energy] plants (<100,000 Mg/a) have the lowest R1 factor of 0.63, as a non-weighted average, so that only 59 (50.0%) out of 118 plants reach R1 ≥ to 0.60...For plants producing electricity only it is very difficult to meet R1 as only 37.3% meet R1 ≥ 0.60."

Please note that the proposed 10 MWe plant would consist of two units of 5 MWe capacity and up to 42,000 tonnes per year of feedstock use each. The small size of the individual units will reduce the overall conversion efficiency.

2) Failure to demonstrate compliance with the Waste Hierarchy and the Waste Proximity Principles, which are set out in national and regional planning policy.

The Waste Hierarchy Principle requires all waste to be used as high up the waste hierarchy as feasible. Recycling is higher up in the hierarchy than energy recovery which, in turn, is higher up the hierarchy than waste disposal. This principle underpins planning policy related to waste, including the Hampshire Minerals and Waste Plan (adopted 2013), the National Planning Policy for Waste 2014 (paragraphs 1, 3, 8 and Appendix A),

⁵ www.gov.uk/government/uploads/system/uploads/attachment_data/file/37046/1938-overarchingnps-for-energy-en1.pdf, Section 4.5.1

⁶ CEWEP Energy Report III, Results of Specific Data for Energy, R1 Plant Efficiency Factor, and NCV of 314 European Waste-to-Energy (WtE) Plants, Dieter O. Reimann, 2012

and the Waste Management Plan for England 2013 (pages 11-14). The same policies also endorse the proximity principles, according to which waste should be managed as close to the location where it arises as is practically feasible.

As shown above, SiBOR has failed to prove that its proposed plant constitutes energy recovery as opposed to mere waste disposal. If the developer cannot meet the definition of 'energy recovery' using the R1 calculation of the Waste Framework Directive, then we cannot see how this proposal can possibly be deemed to comply with the waste hierarchy principle, regardless of the regional availability of waste wood.

Even if the efficiency was high enough for the plant to qualify as 'energy recovery', we believe that SiBOR should have provided evidence that its plant will not divert waste wood away from recycling, nor result in long-distance import of waste wood which would otherwise be managed no further up the waste hierarchy, or at the same level of the waste hierarchy, but closer to where it arises. Thus, even if the proposed plant was an energy recovery development, we believe that SiBOR has failed to show that it complies with the waste hierarchy and waste proximity principles.

SiBOR states that it intends to use Grade A, B, and C waste wood which would otherwise go to landfill. However, the developer provides no evidence to back up this claim. The only 'evidence' which it cites is Policy 27 of the Hampshire Minerals and Waste Plan (adopted 2013) which identifies at least 390,000 tonnes/year of new non-hazardous waste recovery capacity. As the Planning Officer's report notes, "*175,000 tonnes of additional capacity for disposal through recovery*" have been consented in Hampshire since this policy was adopted.

However, these figures refer to all types of non-hazardous waste. SiBOR gives no indications about how much waste wood is available locally or regionally.

A Defra review of waste wood in the UK, published in 2012⁷, confirmed that waste wood is an important feedstock for different industries, above all for panelboard production, and that the UK is already a net importer of wood fibre, including waste wood. The review summarises a 2011 report by Tolvik which estimated that if only 25% of the biomass capacity planned at the time was developed, there would be a waste wood shortfall by 2015. Since then, there has been considerable expansion of biomass capacity across the UK. Defra warned that the shortfall could be even greater because of insufficient waste wood recovery. Defra also cited reports by Pöyry and WRAP with similar findings.

The Wood Panel Industry Federation has previously warned that all of their 8,700 jobs are at risk from biomass electricity, which competes for the same feedstocks⁸.

In the south and south-east of England several power plants have been consented which would use waste wood as a feedstock. Those include a 60 MWe plant in Tilbury which is currently under construction and which is to burn 350,000 tonnes of waste wood a year, and a waste wood power plant under construction at Ridham Dock, Kent, which is to burn 172,000 tonnes a year. In Sittingbourne, Kent, 4Evergreen Technologies have planning consent for a biomass plant that is permitted to burn up to 48,000 tonnes of waste wood. Furthermore, SITA has a contract with RWE to ship waste wood from the ports at Ridham and Brightingsea to the 65 MW Markinch Biomass Power Station in

⁷⁷ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/82571/consult-wood-waste-researchreview-20120731.pdf

⁸

http://www.makewoodwork.co.uk/DDT_Show_Entry_1F_news_feed.asp?GalleryName=Latest_News&EntryID=617&ImageSeqNo=1

Scotland. In Avonmouth, a gasifier has been approved which would use 74,000 tonnes of waste wood a year.

We believe that the onus of demonstrating compliance with the waste hierarchy and proximity principles is on the developer and that SiBOR has failed to do so.

Yours sincerely,

Almuth Ernsting
Co-Director
Biofuelwatch