



FREQUENTLY ASKED QUESTIONS - SEVERNSIDE ENERGY RECOVERY CENTRE

THE APPLICATION

1. What is the application for?

The application is for an energy recovery centre (ERC) that will accept commercial and industrial waste from the West of England sub-region and burn it under controlled conditions to generate electricity and heat for use by local or national customers.

2. Where would the plant be sited?

The proposed development would be on a site located on Severn Road, adjacent to Seabank Power Station and the former Terra Nitrogen plant at Severnside, close to existing industrial buildings and served by good transport links. The application would see the redevelopment of an eight hectare site, which was previously used a fuel storage depot, and is currently in need of regeneration.

3. Why the Severnside site?

The area itself is the location of many large scale commercial and industrial operations ranging from chemical companies, power generators (renewable and fossil fuel based), warehousing and distribution as well as waste management companies.

Additional key factors which contribute to the Severnside site being proposed as the location for a new waste facility include:

- It is an existing brownfield site, in need of regeneration
- It contains a rail link, which offers an alternative to road transport of waste to and from the site
- It is close to existing national grid lines to export electricity that will be generated
- Other industrial sites in the area may be able to use the heat generated by the plant
- There are no listed buildings or scheduled ancient monuments on the site

4. Why do we need an ERC at Severnside?

Despite increased recycling participation rates, waste volumes in the UK are continuing to rise. Even when all the materials that can be recycled have, as far as possible, been removed from the waste stream, a significant amount of non-recyclable waste remains. At the same time there are EU targets to reduce the amount of waste going to landfill, so we need to find alternative methods for dealing with it.

The proposed ERC could make a significant contribution to providing new treatment and recovery facilities to manage commercial and industrial waste from the former Avon County Council sub-region — helping to reduce the use of landfill and the amount of landfill tax paid. In addition, in the coming years a significant



number of fossil fuel and nuclear power stations are also set to close. This will create a significant energy gap because we simply will not be able to generate enough power to meet our needs. Rather than regarding residual waste as something that should simply be disposed of, it represents a potential resource that can be used to generate a secure source of power.

The proposed Severnside ERC has the potential capacity to generate up to 32 megawatts of electricity that could provide power for the equivalent of 50,000 homes, as well as heat and steam (by-products of the energy recovery process) that could be captured and used as a renewable energy source for local businesses.

5. What size would it be?

The ERC has been designed in line with the regional waste management requirements, and would be therefore capable of processing up to 400,000 tonnes of non-recycled waste each year. In addition to the ERC, the site will include a visitor centre.

6. How much energy will be generated?

The proposed plant will generate up to 32 MW of electricity with the potential for heat to be distributed locally. For comparison, this is roughly equivalent to the electricity consumption of 50,000 homes - which equates to approximately half of households within South Gloucestershire.

7. How long will it take to build?

If planning permission is granted, construction of the proposed energy recovery facility would take approximately two and a half years, with a further six month period for commissioning the plant.

8. What sort of waste will the plant treat?

The plant is intended for commercial and industrial waste. It will not accept hazardous or clinical waste. It may also be able to help with the management of household waste in the future – depending on what local councils decide to be appropriate for the rubbish produced in their area.

9. Will the plant accept waste from other areas?

The capacity of the plant has been calculated to cope with the anticipated rise in waste from the sub-region over the next 25 years. Despite major improvements in recycling, there will be more residual waste to deal with in future due to anticipated growth in commerce and population growth over time.

The proposed plant is designed to provide the wider sub-region with a means of meeting its future commercial waste treatment obligations without being reliant on landfill. This means that, in its early years of operation, the centre will have the capacity to process a lot of the sub-regions non-hazardous commercial and industrial waste. However, the plant's main objective is to provide a local solution to a local problem.



10. How many jobs will it create?

Delivery of the ERC would see the development of a sustainable business that produces renewable energy, reduces landfill and helps boost the local economy by creating around 200 jobs during the construction phase and a further estimated 46 full-time jobs at least once the facility is in operation.

11. Why make the application now?

Under the EU Landfill Directive, South Gloucestershire has strict future targets to move away from using landfill as a principle means of disposal for waste. However, there is a practical limit to the amount of waste which can be recycled, and in order to meet landfill avoidance targets, treatment and recovery of value from residual waste left after intensive recycling efforts is required.

It takes a great deal of time to consult, plan, design and construct an energy recovery centre which can help achieve this objective, hence the submission of the application in a timely manner with the aim of being in operation before 2013.

UK Targets under the EU Landfill Directive:

- By 2010, landfill only 75% of the waste sent to landfill in 1995
- By 2013, landfill only 50% of the waste sent to landfill in 1995
- By 2020, landfill only 35% of the waste sent to landfill in 1995

THE TECHNOLOGY

12. What technology is proposed and how does it work?

An energy recovery centre (ERC) recovers energy in the form of electricity and / or heat generated from residual waste. The process involves burning residual waste under controlled thermal conditions, and plays an important role in diverting waste away from landfill. National policies acknowledge that energy recovery from waste will play an increasingly important role in the UK.

After being loaded by crane into a feed hopper, the waste is dried and burned at temperatures of approximately 1,000°C in a furnace. Hot gases produced during this process travel through the boiler transferring heat to water running through the boiler pipes. The hot water is turned to steam and the steam drives a turbine that generates the electricity. It's at this point that some of the heat could be taken off and exported to adjoining industry.

The ash leaving the bottom of the furnace drops into a tank, after which magnets extract metals for recycling whilst the remaining ash is taken off the site for recycling as aggregate in construction materials.

Gases produced during combustion are thoroughly cleaned by a gas cleaning system, passing through several stages of treatment and rigorous filter systems before being released via the external stack. All emissions are controlled to rigorous European standards and are continuously monitored. Collected particles from the fabric filter are stored in a silo before being sent for specialist treatment and disposal.



13. Where else is this technology used?

The technology for the proposed development is very well-established, having been developed and refined over many years. There are currently 25 plants operating in the UK, and 420 across Europe.

14. Isn't this just an incinerator?

No, because incineration – or burning - is only one component of the process. It's a bit like calling a car an 'engine' – there is more to it than that. The plant will generate electricity and heat which can be used by local consumers or, in the case of the electricity, put into the national grid. It also includes the required cleaning technology to ensure that any gases released through the stack comply with rigorous European standards.

15. Are there any local customers for the heat?

Yes, discussions have been held with end users who could accept the heat to replace that which they would normally generate using fossil fuels, such as gas or oil.

A plant which operates in this manner is known as a Combined Heat and Power (CHP) plant, which is widely recognised as being one of the most efficient methods of generating energy. CHP developments are being strongly encouraged to increase energy efficiency in the UK.

ERCS AND THE ENVIRONMENT

16. What about the visual impact?

The visual impact of the proposed facility was assessed as part of the Environmental Impact Assessment which has been submitted as an accompaniment to the planning application.

However, a building of the size proposed cannot be wholly screened from view. The plant would be visible from a number of locations, although most people will only view the facility from a long distance, so the visual impact would be very low.

There are limited locations from which the building would change the views and this will be taken into account in the design and colouring of the plant. In addition the landscape of the immediate area – which is predominantly populated by commercial and industrial buildings – will be taken into account when it comes to assessing the design and orientation of the proposed building in order to minimise the extent of its overall visual impact.

17. What about increased traffic?

Apart from a short period during the construction and commissioning phase, we do not anticipate a significant increase in traffic.

A key feature of the Severnside site is its access to good transport links. The site itself includes an existing railhead to which SITA UK has unrestricted access. Re-connection of the railhead to the existing Severn Beach line would allow SITA UK



to use it as a mode of transport to and from the site — reducing the number of HGVs required to serve the site. As well as reducing the amount of pressure the new facility may put on existing roads this will also reduce the number of HGV miles travelled, along with the associated vehicle emissions.

To support the planning application, SITA UK has carried out a comprehensive Transport Assessment (TA), looking at the accessibility and sustainability of the site, the potential traffic flows it will generate and impact on the surrounding roads and junctions. The results of the TA will be fed into a comprehensive transport strategy, which will be put in place to minimise the level of traffic generated by the development.

18. Doesn't incineration discourage recycling?

Not when the ERC is correctly scaled to the needs of the local community. In fact, when used as part of an integrated waste management strategy it can have a positive impact on waste prevention and recycling rates.

Despite the efforts of local people and businesses there will always be a significant amount of waste that cannot be recycled. Where possible, this residual waste should be diverted from landfill into more sustainable methods of treatment like energy recovery.

19. Would the plant be safe?

Modern ERCs are not like the incineration plants of old and use technologies that ensure the waste is consumed extremely efficiently and that emissions are monitored and controlled. They operate under an Environmental Permit, and must meet the very stringent requirements of the EU Waste Incineration Directive. Emissions limits for some pollutants for energy recovery centres under this directive are actually lower than those for traditional energy plants, making energy from waste 'cleaner' than traditional power stations.

20. What about the ash left over after incineration – is that harmful?

Incinerated Bottom Ash (IBA) is an inert material remaining at the end of the combustion process. Bottom ash is not classified as hazardous waste and it can be recycled in a variety of ways. Recent examples of re-use include IBA as a secondary aggregate replacement material, as a sub-base for roads and as material for temporary roads construction on landfill sites.

Recycling of bottom ash is regulated by the Environment Agency.