Architecture

Veolia has focused on creating a high quality, innovative facility that recognises the character and sensitivity of its landscape setting whilst minimising visual impact.

Measures designed to mitigate this impact include the location and orientation of the building on the site, the curved profile of the building and the retention of the flood bunds along the river. Also the overall height of the proposed building is lower than would normally be the case, as major elements of the plant are below ground.

New landscape planting is also proposed to strengthen the existing vegetation to the north of the site and to reflect the native planting on the western side of the river.

Most of the building would be a maximum height of 24 metres with an arch rising to 27 metres. The chimney height will be 65 metres from ground level. As well as a visitor centre there will be a visitors' gallery on the eastern elevation, incorporating a glazed conservatory which will provide views into the internal process areas of the building.

For further updates on progress to date please visit our website. You can also subscribe to receive your bulletin via email, please send the message 'subscribe – NQ bulletin' to info.southdowns@veolia.co.uk

Enquiry help line number: 08453 550550

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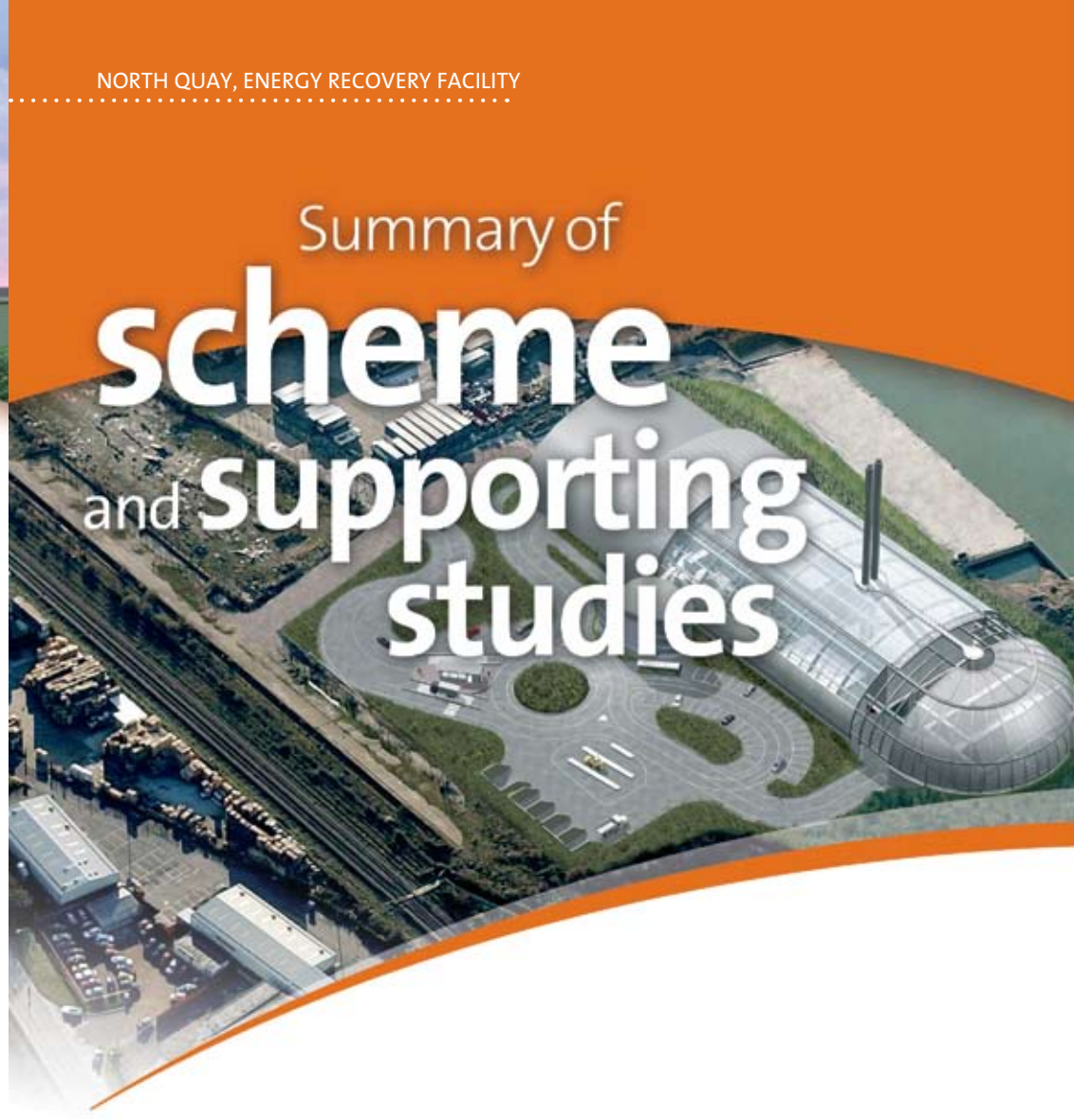
NORTH QUAY, ENERGY RECOVERY FACILITY

Summary of scheme and supporting studies



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The waste strategy

To avoid the use of landfill and increase recycling and recovery via:

- Reduce and reuse initiatives
- Sorting of dry recyclables
- Composting of green garden waste
- Energy recovery

Currently almost 400,000 tonnes of waste is generated by households each year in East Sussex and Brighton & Hove, of which around 31% was recycled in the year ending April 2008.

Introduction

Veolia ES South Downs Limited has gained planning permission from East Sussex County Council to build an Energy Recovery Facility on land at North Quay, Newhaven. The Energy Recovery Facility is part of an integrated waste management solution for the area being introduced under the terms of a contract with East Sussex County Council and Brighton & Hove City Council. The application follows the submission of planning applications for other facilities in strategic locations which are under construction and once built will ensure tough Government targets for recycling, composting and landfill avoidance are met or exceeded.

After reuse, recycling and composting, which requires participation from residents, the majority of the residual household waste left over from East Sussex and Brighton & Hove will be collected and delivered to the Energy Recovery Facility. This will be able to process around 210,000 tonnes per year, once it is operational.

Turning waste into a resource

An Energy Recovery Facility burns waste under highly controlled conditions, and in so doing recovers heat energy in the form of steam, which is used to generate electricity. Should a viable outlet for district heating be identified in the future, that makes use of the North Quay Energy Recovery Facility, then heat can be produced for local heating schemes.

The proposed facility is designed to export around 16.5 megawatts of electricity. Supplied to the electricity distribution network, this is equivalent to powering more than 25,000 homes. The facility is designed to complement and not compromise recycling and composting and is part of a move to introduce more sustainable ways of dealing with residual waste. The benefits are less waste going to landfill and the generation of electricity which will provide heat and light for our homes, reducing demand for fossil fuels. In the future councils will be fined for over-dependence on landfilling.

The need for an Energy Recovery Facility

Currently landfill is running out in East Sussex and Brighton & Hove. This means that without an Energy Recovery Facility, waste would have to be transported long distances out of the area to be landfilled.

This would mean transporting the waste in articulated vehicles travelling many more miles than would otherwise be the case, thereby increasing energy consumption and exhaust emissions.

Climate change

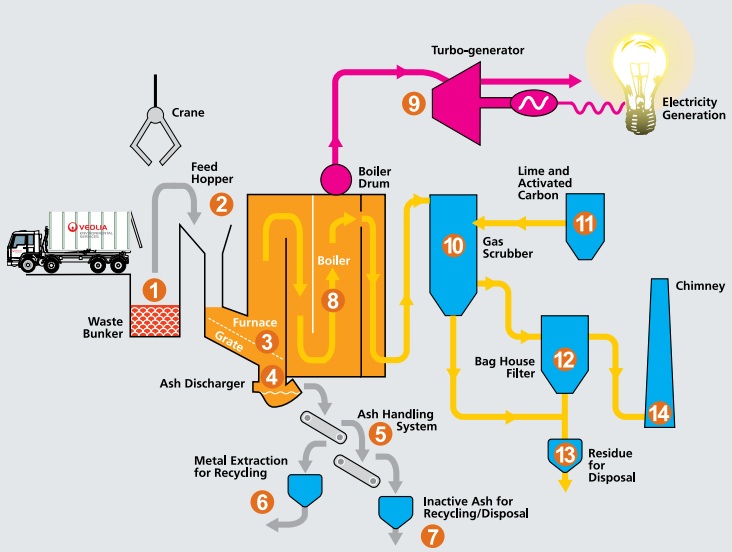
Climate change is clearly a fundamental international concern - as our planet's ambient temperature changes so does our climate, and this has potentially serious consequences, for example, in terms of food production and natural disasters.

There are many contributing factors to global warming, both natural and man-made. Energy Recovery Facilities have significantly lower greenhouse gas emissions than landfill disposal. Landfill produces methane which is 21 times more potent a greenhouse gas than carbon dioxide, the gas produced from combustion.

Energy generated by Energy Recovery Facilities offsets the production of energy elsewhere – therefore displacing other emissions. An additional benefit of energy recovery from waste is that 60-70% of household waste is 'biomass', and the energy produced from this fraction is considered by climate change experts to be "carbon-neutral".

The process - how it works

The Energy Recovery Facility will generate electricity sufficient to power more than 25,000 homes.



Collection and combustion

After various materials have been separated for recycling via kerbside recycling schemes or the network of Household Waste Recycling Sites, the majority of the remaining waste can be processed at the Energy Recovery Facility. The residual waste is tipped into a bunker (1) within the waste reception hall and placed by a crane into a feed hopper (2). It then passes down a feed chute onto the grate (3). The action of the grate mixes and agitates the waste to allow it to burn fully. The process reduces the waste volume received by up to 90%. The burnt-out ash passes through the ash discharger (4) onto an ash handling system (5). Here metals are extracted for recycling (6). All these processes take place within enclosed areas. The remaining ash is sent for processing and reuse within the construction industry or for disposal (7).

Electricity production and air pollution control

Hot gases produced in the combustion process pass through a water tube boiler (8) where they are cooled; the water heated by the gases then becomes steam. A turbo-generator (9) uses the steam to produce electricity both for the facility's consumption and for export to the electricity distribution network. There is also the potential to make steam or hot water available for district heating should this prove practicable.

The gases from the boiler go through an extensive flue gas cleaning process. This consists of a gas scrubber (10) where the acid gases are neutralised and activated carbon (11) is added to remove other pollutants. Finally, a fabric filter (12) removes any remaining particulates. The resulting residue (less than 3% of the original waste) captured in the flue gas cleaning process is then sent either to a specialist recycler or to a facility licensed to dispose of this type of waste (13). The cleaned gases are finally released to the atmosphere through the twin chimneys (14).

Planning application

The full planning application can be viewed at the East Sussex County Council offices in Lewes: County Hall, St Annes Crescent, Lewes BN7 1UE.

The Environmental Statement, Supporting Statement, Non Technical Summary, Design Statement and some plans and drawings are also available to view on our website.

www.veolia.co.uk/southdowns

The planning application and specialist studies

The planning application contained the following documents:

- Application form and certificates
- Environmental Statement and Technical Appendices
- Non Technical Summary of Environmental Statement
- Detailed plans of the site and proposed buildings

and was accompanied by a:

- Supporting Statement
- Design Statement
- Sustainability Statement
- Strategic and site specific Best Practical Environmental Option reports
- Alternative Sites Assessment Report

For further information about the planning application visit our website www.veolia.co.uk/southdowns or contact Veolia Environmental Services on 01273 410231

Specialist studies

The Technical Appendices to the Environmental Statement contain detailed specialist studies. Each study was undertaken by independent consultants. To ensure that the environmental impact assessment is as comprehensive and accurate as possible, extensive consultations have been undertaken with East Sussex County Council and other technical consultees on the issues to be considered in the studies and the methods used. Some of these studies are outlined on the following pages.

Air quality and health

A comprehensive study was carried out to assess existing air quality conditions (see map overleaf). Next, the emissions from the facility were identified and used as inputs to model the additional ground level concentrations. The study took into account various factors including climate and terrain. These predicted concentrations, in addition to the existing background levels, were compared with the various standards set by the European Union, the World Health Organisation and the Government to protect human health.
The conclusion was that ground level concentrations with this facility in place, along with any additional road traffic generated, would be well within air quality standards and guidelines set to protect human health.

A health risk assessment has been undertaken with respect to long-term exposure to the facility's emissions (the main emissions from the twin chimneys would be carbon dioxide and water vapour with minimal amounts of oxides of nitrogen, trace elements, heavy metals, dioxins and particulate matter). In line with the precautionary principle, this assessment was based on the maximum possible risk to any person.

Risk from dioxins and heavy metals, for example, was calculated by assuming that a person lived and stayed their entire life in the facility's zone of maximum influence and consumed significant amounts of their food from that same area. Based on this and other "worst case" scenarios, the assessment concluded that the Energy Recovery Facility is safe and will not contribute any significant risk to anyone's health.

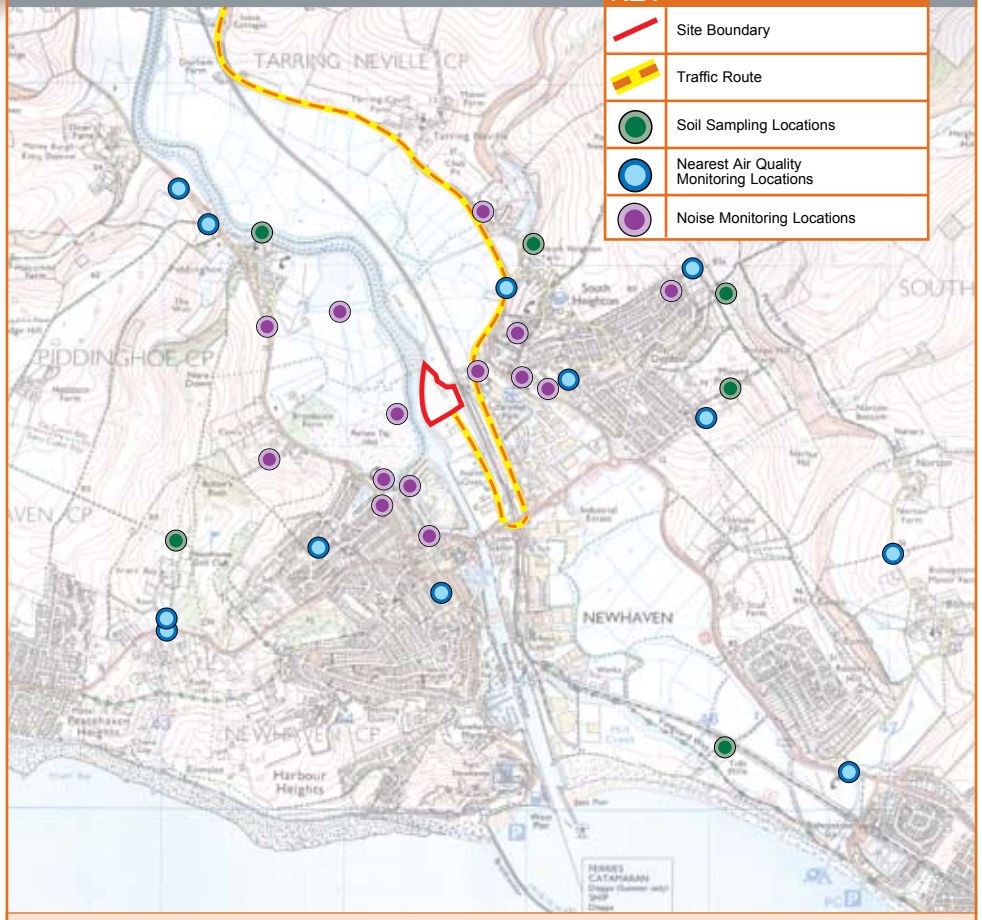
Controlling emissions

To operate the facility, Veolia will need to have an Integrated Pollution Prevention Control Permit from the Environment Agency, which ensures that potentially polluting substances are controlled to a safe level. Once approved and the facility is operational, Veolia must, and will, comply with stringent emission controls which will be monitored by the Environment Agency for the life of the facility.

Department of Environment, Food and Rural Affairs

"The Review did not find a link between the current generation of municipal solid waste incinerators and health effects" as stated in the Department of Environment, Food and Rural Affairs "Health Effects of Waste Management" report.

Specialist studies continued...



Traffic

The proposed development will generate traffic mainly between Monday and Friday, with a maximum of 224 lorry and 40 car trips on a weekday. (A trip is a one way journey either to or from the facility). During AM and PM rush hours there will be 16 and 19 trips an hour respectively. The maximum number of trips of 45 an hour will occur outside rush hour between 9am and 10am.

Background traffic counts at the A26 New Road/Drove Road junction have found at the AM and PM rush hour to be 722 and 793 trips an hour on average respectively, and 640 trips between 9am and 10am.

The proposed development therefore represents an increase in traffic flow of less than 2.5% at rush hours and only 7% during the hour when the facility generates the most traffic.

Natural heritage

A detailed survey of the existing nature conservation interest within the site and surrounding area was undertaken in 2004, along with monthly bird surveys along the River Ouse valley. The conclusion was that during construction and operation of the facility these habitats and species would not be adversely affected.

Contamination

A detailed investigation was undertaken in 2004 to determine the condition of the soils and groundwater underlying locations around the site. The results showed that low to moderate concentrations of certain pollutants remaining from previous industrial uses were present across the site.

Various measures have been agreed with the Environment Agency and the site has been cleaned up to standards acceptable for development. This involves managing the disposal of excavated materials and protecting workers and the environment during construction of the facility.

Noise

Background noise levels at various monitoring points (shown on the map) in the surrounding area have been recorded. These were compared to the noise levels expected from the construction and operation of the facility. No significant noise impact is predicted from the additional local traffic associated with the site. There will be no significant noise impact from the day or night time operation of the facility.

Flood risk

This site lies within a tidal flood area and therefore a flood risk assessment was carried out taking into account a 1 in 200 year flood scenario. To safeguard the site and help reduce any impact to neighbouring properties a comprehensive flood protection scheme will be implemented. The scheme will involve construction of flood protection features around the site, designed to protect the facility and reduce the velocity of water flow across the area of North Quay in the event of flooding.

Landscape and visual impact

The impact of the completed building and the twin chimneys on the surrounding landscape has been assessed. The facility would be visible from a number of locations in the surrounding area, hence great efforts have been made to design a building of high architectural quality which harmonises with the local environment.