Foreword

Tilbury has a proud history of power generation, with the first power plant opening on the current Tilbury Power Station site in the 1950s. Tilbury B started generating in 1969 and until 2011 operated as a coal-fired power station before conversion to biomass and eventual closure in 2013.

We believe that Tilbury is an excellent site for power generation because of its location close to areas of high electricity demand and its proximity to the 400 kilovolts (kV) National Grid substation, the gas transmission network and the River Thames for cooling water.

The UK energy market has dramatically changed since Tilbury B closed its doors five years ago. More renewable generation has been developed, older power plants have closed, and the future of coal is limited. For these reasons, we believe it is very important that RWE provides options for new power generation development at our Tilbury site to ensure that the country is provided with safe and more sustainable electricity for the long-term. The proposed Tilbury Energy Centre will help support a new energy system for the future with lower carbon, efficient, controllable, state of the art technology.

A new modern gas-fired station, battery storage development and quick start up gas plant would provide power to millions of homes and businesses, bringing significant investment and skilled jobs into the area.

As proposals for the Tilbury Energy Centre evolve, the project team and I are committed to keeping the local community informed. We will also ensure that everyone has the opportunity to provide feedback to help inform the development of our proposal. Your understanding, conversations, concerns and views are very important to us and will help us shape a meaningful consultation process.

The document provides a summary of what we propose and we hope this is a helpful guide to the Tilbury Energy Centre project and our approach to future consultation. For more information or to express your views please see the website www.rwe.com/tilburyenergycentre, email rwegenerationuk@rwe.com or telephone 08450 770 150.

We believe our development would provide the UK with a new power plant which will be essential to help the UK’s security of energy supply. We can’t do this alone, we would like to work hand in hand with you, the community that worked at and supported the former A and B power stations for over 60 years to provide a development that is fit for the future.

Severine Poncelet,
Tilbury Energy Centre
Project Director

“Breathing new life into the Tilbury site”
RWE is a leading power generation company, producing 15% of the UK electricity. It owns and operates the UK’s largest fleet of gas-powered stations along with a coal and a biomass plant. The gas fleet includes two of the most modern and highly efficient plants in Europe, capable of providing 4 gigawatt (GW) of efficient, flexible power (enough to serve 6 million homes) and respond quickly to changes in demand, giving the national grid greater flexibility. This is crucial to the country’s electricity supply, making RWE a key partner in helping the UK to transition to a low-carbon energy future.

RWE has a long history at Tilbury - a site with an even longer history of power generation. The Tilbury A power plant came online in 1956 and was supplemented by the Tilbury B plant in the late 1960s. The initial power station was closed in 1981 and subsequently demolished. The B plant continued generating and soon after the privatisation of the UK electricity industry in the early 1990s, its operation was taken over by RWE npower. In 2011, RWE upgraded the coal-fired power station to a biomass plant which reduced greenhouse gas emissions by over 70%. On August 13 2013, Tilbury B generated its final unit of electricity. After 46 years of operation on a site that had generated electricity for 57 years, the station closed.

RWE Generation is the UK’s second largest generator. In 2016, RWE UK generated 43.3 Terawatt-hour of electricity, around 15% of all the electricity generated in the UK.

RWE Generation has a strong position in the UK energy market with an overall installed capacity of over 8.5GW. Most of the fleet is made up of modern combined cycle gas turbines (CCGTs), along with some coal and a small amount of biomass.

RWE’s sites are located across England, Wales and Scotland and the business provides over 1,500 highly-skilled jobs in the UK.

The old Tilbury B coal power station had a generating capacity of 1,467MW.

In 2011, Tilbury B power station was converted from a coal-fired power station to run on 100% biomass fuel, using sustainably-sourced renewable wood pellets for the remainder of its lifetime under the Large Combustion Plant Directive (LCPD). The 100% biomass plant used wood pellets to generate up to 750MW.

RWE is among the top five energy companies providing gas-fired generation capacity in Europe.

Who we are

RWE Generation has a strong position in the UK energy market with an overall installed capacity of over 8.5GW. Most of the fleet is made up of modern combined cycle gas turbines (CCGTs), along with some coal and a small amount of biomass.
The UK has made great steps to reduce and improve its consumption of electricity. However, despite increasing energy efficiency, electricity demand is projected to remain at current levels or rise over the coming years due to growth in the economy and electricity being increasingly used for transport and heating. Meanwhile, the government plans to phase out coal generation by 2025 and power stations across the country will reach the end of their lives. In addition, new nuclear plants will not begin supplying electricity to the country in the short term. There is therefore a need to invest in infrastructure that will bridge this energy gap whilst providing highly efficient energy development for the future.

The challenge of changing renewables
The UK is investing record amounts in upgrading to a low-carbon, flexible, and secure energy network. It has allocated millions of pounds into renewable energy generation and as it takes an increasingly important role in the country’s energy mix, we will need to develop complimentary sources of supply. This is because a network supported exclusively by renewables could see peaks in demand on a cloudy day or low demand during strong winds, meaning energy provision would be determined by external uncontrollable factors, not by demand.

How Tilbury Energy Centre can help
The 2,500 megawatt (MW) CCGT power station is a low-carbon, highly efficient generation mechanism that will deliver power to 3 million homes. A separate, smaller 299MW peaking plant will give the site flexibility in its responses to surges in demand as it can reach generating capacity in a matter of minutes. This will help ensure we have sufficient capacity to meet energy demand at all times. Finally, the storage facility will be able to capture surplus energy to be dispensed when needed. Altogether, this site will use some of the most efficient and advanced technology available to support the UK’s transition to a low-carbon future while maintaining a secure and flexible energy supply.

The Tilbury Energy Centre’s mix of technologies will fit in with the Government’s national policy framework by providing clean and flexible electricity generation. The Government’s National Policy Statements on Nationally Significant Infrastructure Projects, EN-1, EN-2 and EN-4, set out the Government’s policy for new major energy developments. These documents emphasise the United Kingdom’s ambition to deliver secure energy as it achieves its legally binding target to cut greenhouse gas emissions by at least 80% by 2050, compared to 1990 levels.

You can read these at https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure.
Why Tilbury is a good site

Tilbury has a history of power generation that stretches back over half a century – and for good reason. Situated in Essex and close to London, it is near a densely populated region with high energy demand that needs to be met. Its location on the north bank of the River Thames gives it access to plenty of water to cool a power station; enough to enable the highly efficient direct cooling method proposed by the Tilbury Energy Centre. Thanks to the A13 and the M25, the area has good transport links to the region and the country, facilitating the construction, operation and servicing of a power plant.

Its history of generation is also a major benefit. The proposed Tilbury Energy Centre has direct access to the National Grid electricity and gas transmission systems. Having both of these essential components for a gas-fired power station so close will reduce the amount of construction work required to complete the project.

The Tilbury Energy Centre will help meet the needs of the region. It is essential to maintain and develop energy generation capacity in the South East to minimise system losses and increase network efficiencies. Furthermore, a new power station at Tilbury is a key scheme in Thurrock Council’s adopted Core Strategy Development Plan. Considering its excellent location and history, it is only fitting that we breathe new life into Tilbury power station.

Over the past two years the former B station has been decommissioned and is in the process of being demolished. Land that was surplus to RWE’s requirements has been sold to the Port of Tilbury. RWE has retained land for future power station development because the Tilbury site is an excellent location for new power station development.
What we propose

The Tilbury Energy Centre will provide energy from three sources: a 2,500MW Combined Cycle Gas Turbine plant, a 299MW peaking plant, and a 100MW energy storage facility.

Prior to construction of the Tilbury Energy Centre, the vast majority of structures associated with the former Tilbury A and B power stations will be demolished to ground level and the site cleared in preparation for new construction activity. This is because structures associated with the former power stations are generally not suitable to house modern power generating equipment. Existing cooling water infrastructure will remain in place and will be reused where possible.

However, we have not ruled out construction of new cooling water intake infrastructure in the River Thames at this stage.

An underground pipeline will be constructed to supply gas to the development. This will run 3km east to connect to the National Grid pipeline at a newly constructed above ground installation (AGI). This will ensure safe and efficient operation of the pipeline.

The project is also reserving land which will allow us to construct and operate carbon capture facilities should the technology become available in the future.

Tilbury Energy Centre block layout
The technology

CCGT
A Combined Cycle Gas Turbine (CCGT) plant uses the heat produced as a by-product of gas combustion to generate further energy. Compressed air and natural gas are ignited to turn a turbine and a generator which produces electricity. The high temperature exhaust from this process is then used to heat water, creating steam which drives a second turbine and generator.

By combining gas and steam cycles to produce energy, the efficiency of the plant is almost doubled in comparison to a single cycle turbine plant. The CCGT plant we propose will have a capacity of up to 2,500 megawatts which is sufficient to power up to 3 million homes.

Simplified CCGT schematic diagram

Peaking plant
The peaking plant is a crucial piece of infrastructure to ensure we have a flexible energy supply. The open cycle turbine technology (OCGT) is capable of reaching full operation from standby in a matter minutes. This will give the Tilbury Energy Centre the ability to respond to surges in demand or reductions in supply rapidly, helping prevent interruptions in the provision of electricity.

Energy storage
Energy storage enables the capture and storage of energy which will then be distributed when needed. In an evolving energy solution, storage facilities will be an important complement to smooth the peaks and troughs of renewable generation. Various technologies are available and emerging and we will investigate which best suits the requirements of the project. This is a new and evolving technology that RWE will invest in so that the Tilbury Energy Centre can play an active role in the UK’s future security of energy supply.

Find out more about the Tilbury Energy Centre and the environment on page 11
The Tilbury Energy Centre will be designed to minimise its visual impact. The stacks will be significantly smaller and thinner than the former Tilbury B chimneys. We are proposing up to three CCGT generating units and up to two open cycle gas turbines or peaking units. The boiler house will be approximately 55 metres high excluding stacks which would reach a maximum of 95 metres high. The Above Ground Installation where the 3km from the site pipeline connects to the national grid gas pipeline will be an approximately 40x40 metre area with a collection of valves, pumps and a kiosk.

A landscape and visual impact assessment will be undertaken to assess the potential impacts of the proposed power station and associated pipeline on the surrounding landscape and visual amenity. This assessment will determine the need for any mitigation measures and landscaping requirements will be identified for both the proposed power station and the AGI.
The Tilbury Energy Centre’s design and technology are significantly different and highly advanced in comparison to the former coal-fired power station at Tilbury. It will be cleaner, have less of an impact on the landscape, and need to adhere to strict environmental standards.

**Air quality**
The proposed Energy Centre will use gas to generate electricity. This produces carbon dioxide and water vapour along with small quantities of nitrogen oxides, carbon monoxide and non methane volatile organic compounds. These emissions will better national standards, and are a significant reduction compared to the old coal power station. It is estimated that it will produce 61% lower carbon dioxide, 94% lower nitrogen oxides, 99% lower sulphur oxide and 96% lower particulate emissions than the old Tilbury B plant. These will be released into the atmosphere through flues in tall stacks which will be diluted and dispersed by natural atmospheric processes.

The chart below shows a comparison of the emissions from Tilbury B Power Station and the Tilbury Energy Centre.

**Ecology**
RWE will use the best available techniques to minimise the Energy Centre’s impact on the local environment. For instance, the technology and design of the power station will avoid the need to emit chemicals to the aquatic environment and therefore there will be no need to chemically treat outflowing water to the River Thames.

Although no designated wildlife sites are present on or adjacent to the Tilbury site, there is an opportunity to create better and more connected places for wildlife. We will identify areas where it is feasible to support biodiversity, including through the management of habitats. Appropriate treatment for invasive species will be determined and all hedgerows affected by construction will be appropriately reinstated.

Detailed surveys and assessments of the environment and heritage of the local area will be submitted to the Planning Inspectorate in our Environmental Statement. These will help determine the mitigation measures we need to implement as part of our proposals. We will seek to coordinate our mitigation proposals with any existing or planned local environment improvement projects. Altogether, these measures will ensure that the impact caused by the construction and operation of the Tilbury Energy Centre on the local environment are appropriately alleviated.

Projected Tilbury Energy Centre emissions compared to Tilbury B
The construction and operation of the Tilbury Energy Centre will have an effect on the local area. We will aim to maximise the opportunities created by the project and address any issues as quick as possible.

**Socio-economic**
RWE strives to be a good local neighbour and works closely with the communities in which it operates. Over the years, we have invested into community projects and the onsite environmental centre. This involvement will continue in several ways following the construction of the new Tilbury Energy Centre. A community fund will provide thousands of pounds of financial support to local initiatives each year. Furthermore, staff will personally engage in the community by volunteering in local charities, projects and schemes, and meeting with a local liaison group that will be created to give residents a voice in Tilbury’s power generation.

The Tilbury Energy Centre will create a net economic benefit to the area in terms of employment and supply chain activity. It is estimated that a workforce of up to 1,500 builders and contractors will be necessary during the site’s three-year construction. During operation, the new site will employ up to 100 staff in high-skilled roles, with many local contractors and businesses required to support its day-to-day operations. A new power station also opens new opportunities for young people on training schemes and RWE hopes to forge strong links with local schools to support Science, Technology, Engineering and Maths. Once operational, it is estimated that the power station will bring millions of pounds to the local economy.

**Transport**
The transport impacts caused by the construction of the site will be temporary and short term in nature. To alleviate these, we will develop and implement a traffic management plan which will state the hours and routes construction workers and construction vehicles will use to access the site. It will be agreed with Highways England and relevant local authorities before being submitted to the Planning Inspectorate with our proposal. In doing so, we will ensure that the disruption caused to local residents during the construction phase of our power station is minimised.

**Noise**
Temporary noise may occur from construction, the laying of the gas pipeline and commissioning activities, whilst once operational the power station will be much quieter than the former coal station.

We will assess all potential noise impacts on the existing environment, both during the construction and operational phases of the development. Our noise assessments will take into account impacts from traffic, vibration, and piling where appropriate. A management scheme will be implemented throughout to ensure noise remains within permitted levels and all noise control measures designed into the main plant will be incorporated into predictions to gather the true impact of operation on the surrounding area.
Get involved and have your say

Visit the website, watch our video and give us your views. www.rwe.com/tilburyenergycentre

Come to a public exhibition:

**Wednesday 28th February, 1pm – 7pm**  
The Tilbury Hub  
16 Civic Square, Tilbury, RM18 8AD

**Monday 5th March, 2pm – 8pm**  
West Tilbury Village Hall  
Rectory Road, West Tilbury, RM18 8UD

**Tuesday 6th March, 2pm – 8pm**  
Gravesend Old Town Hall  
24 High Street, Gravesend, DA11 0AZ

Project timeline

**26 February – 26 March 2018**  
Non-statutory consultation

**March 2018**  
Scoping report submission

**March – July 2018**  
Assessment of non-statutory consultation responses and mitigation

**Late summer 2018**  
Statutory consultation

**September – December 2018**  
Review of consultation responses and changes to application as appropriate

**Early 2019**  
Submission of planning application to planning inspectorate

**Q2 2020**  
Secretary of state decision

What next?

- We will gather all the feedback received during this consultation and analyse the key issues raised.
- Taking your views into account, we will carry out further surveys, studies and analysis.
- You will get another chance to have your say when we open a statutory consultation on our final plans in summer.

Find out more

For further information about our project, please visit:

- RWE Generation’s Tilbury project page - http://www.rwe.com/tilbury-energy-centre
- The Planning Inspectorate’s Tilbury page - https://infrastructure.planninginspectorate.gov.uk/

For further reading about the UK energy market:

- Energy UK - https://www.energy-uk.org.uk/energy-industry.html
- Ofgem - https://www.ofgem.gov.uk/

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