

1. Non-Technical Summary

This document presents the supporting information for an application made by RWE Generation UK PLC ('RWE'), to vary the Environmental Permit for Grimsby Power Station ('the Installation') (EPR/WP3036QH/V002) located to the northwest of Grimsby, the location of which is illustrated in Figure 1 (Appendix A). The variation application is being submitted to add a new Schedule 1, Part A combustion activity to the Environmental Permit, as advised in pre-application discussions with the Environment Agency (Reference: EPR/WP3036QH/V003).

The Installation is regulated under an existing Environmental Permit to operate 10 x 4.8 MW net thermal input (MW_{th}) natural gas fired engines with an aggregated net thermal input of 48 MW_{th} , operating for up to 1,500 hours per annum. This existing Medium Combustion Plant is herein referred to as 'Grimsby A'.

This Environmental Permit variation is being requested to add an additional four 9.9 MW_{th} gas fired engines and one 6.1 MW_{th} gas fired engine (i.e. a total additional net thermal input of 45.75 MW_{th}). This new plant is collectively referenced herein as 'Grimsby B'. Grimsby A and Grimsby B will form a single Installation but will be able to operate completely independently of one another with Grimsby B also operating for up to 1,500 hours per annum.

Both the Grimsby A and Grimsby B gas engines will be housed within individual containers, as shown in Figure 2 of Appendix A to this document.

The addition of the new Grimsby B gas fired engines will result in the overall net thermal input for the Grimsby Power Station increasing to 93.75 MW_{th} . As a result of this increase in net thermal input to >50 MW_{th} , the Grimsby Power Station will require an Environmental Permit variation to operate as a Part A(1) combustion activity for the Burning of any fuel in an appliance with a rated thermal input of 50 or more megawatts as defined under Schedule 1, Part 2, Section 1.1 Part A(1) of the Environmental Permitting (England and Wales) Regulations 2016 (as amended) ('EP Regulations').

The proposed revised Installation Boundary is illustrated in Figure 3 (Appendix A).

The existing Grimsby A gas engines have an electrical export capacity of up to 20 MW_e with the Grimsby B gas engines adding a further 20 MW_e electrical export capacity to the Site. Both Grimsby A and Grimsby B will operate as peaking plants to supply electricity to the National Grid during periods of peak demand. Peaking plants are generating plants that are operated at short notice when the National Grid rapidly requires additional electricity supply, during periods of high demand or when existing supplies onto the grid cease to generate. Reciprocating engines have been selected as the optimum technology for use at Grimsby B, due to the ability of such engines to be fast response units, essential for peaking plant duties.

Both Grimsby A and Grimsby B have associated raw lubricating oil and waste lubricating oil storage facilities. The existing Grimsby A raw lubricating oil and waste lubricating oil storage tanks are located to the north east of the Grimsby A generators. The Grimsby B raw lubricating oil and waste lubricating oil storage tanks will be installed on land to the south Grimsby B generators. Grimsby B will introduce five new 12.5 m high single-flue stacks (one per gas engine), which have been designated as Emission Points A11 to A15.

The Grimsby B site area will be gravel surfaced in keeping with the existing site surfacing for Grimsby A.

The Grimsby A plant was granted planning permission in December 2016, under application number DM/0104/16/FUL, with the scheme layout subsequently amended under a Section 73 application, to include for a configuration of a single row of 10 containerised generator sets, each with a generating capacity of 2 MW_e , resulting in a total capacity of 20 MW_e . Grimsby A is currently operational.

Planning permission for the Grimsby B site area (Ref: DM/0491/18/FUL) to add an additional 10 x 4.8 MW_{th} natural gas fired engines was previously granted, but the planning permission expired on the 29th June 2020. RWE are preparing to submit a new planning application for Grimsby B, (Ref: DM/0561/22/FUL) which will be made to the Local Authority, North East Lincolnshire Council (NELC), and is for the revised 5 generator layout. The planning application is not subject to an Environmental Impact Assessment (EIA) under Council Directive 85/337/EEC of 27 June 1985.

An air quality assessment, including detailed air dispersion modelling, has been undertaken and has included consideration of the emissions from both Grimsby A and Grimsby B plant. The modelling assessed the impact of pollutants emitted from the natural gas-fired engines namely oxides of nitrogen (NO_x as NO_2). While the two sites

will operate independently of one another, both Grimsby A and Grimsby B can operate concurrently dependent on National Grid demand for additional generating capacity. The air quality assessment demonstrates that Grimsby B is predicted to have no likely significant adverse effects on human health and sensitive ecosystems, either alone or in-combination with Grimsby A.

Modelled short-term nitrogen dioxide (NO₂) Process Contributions (PCs) are predicted to exceed 10% of the National Air Quality Strategy (NAQS) objective at Receptor R1 which represents the coastal footpath closest to the Site, however, the Predicted Environmental Concentration (PEC) is well below the NAQS at all modelled receptor locations. The maximum PC at the closest residential receptor (Receptor R3) is predicted to be less than 10% of the NAQS, and can, therefore, be screened as insignificant. Likewise, annual PCs are predicted to be less than 1% of the NAQS and, as such can also be screened as insignificant.

The modelling has also shown that maximum modelled NO_x ground level concentrations are insignificant at all but one ecological receptor, the Humber Estuary. Impacts at the Humber Estuary occur over a small area of mudflats which will contain little vegetation and given the inter-tidal nature of the estuary will have limited exposure to atmospheric NO_x. PECs are predicted to be below applicable critical levels.

An assessment of the potential noise generated by the Site was undertaken to support the revised planning application. The noise assessment determines that the Site would have a negative assessment level applicable at each receptor position with noise generation below the monitored background noise level and below that of the former Grimsby Power Station Combined Heat and Power (CHP) plant which the Grimsby A and, subsequent Grimsby B generators replace. The assessment therefore concludes that the operational sound from the Site would provide a negligible adverse impact. The assessment also concludes that the operational sound level range across the Humber Estuary, will be well within the 65dB(A) threshold level for the significance of noise impact on bird populations.

Both the Grimsby A and Grimsby B will utilise air-cooled cooling systems with closed-circuit cooling water loops, therefore the potential for visible plume emissions is considered to be negligible.

Due to the inherent nature of the proposed technology (gas engines) and the fuel employed, the likelihood of the generation of process wastewater is minimal. Therefore, no discharge of process water to controlled waters is proposed from the Site.

It is expected that water usage for the Site will be minimal, and limited to the intermittent replacement or replenishment of water within the cooling water circuits serving the generators. Any contaminated process effluent generated on Site, e.g. from maintenance activities, will be transferred to and stored in a dedicated temporary tank during maintenance work, prior to being taken off-site by licenced contractors for appropriate disposal.

The Site does not have an associated fuel storage area, due to the nature of the fuel (natural gas); with both Grimsby A and Grimsby B connecting to the existing site infrastructure which receives natural gas from the National Grid Transmission (NGT) gas network.

Due to the inherent nature of natural gas which will fuel the gas engines, there will be no residue following its combustion. Consequently, the Site is expected to produce insignificant quantities of process waste. There may be small quantities of waste generated from maintenance and welfare activities, which will be stored, managed and disposed of appropriately.

The key process waste is anticipated to be waste lubricating oil, which will be stored in dedicated above ground tanks, one serving Grimsby A and the second serving Grimsby B. Likewise, each site has a separate above ground tank for raw material storage, i.e. clean lubricating oil. The clean and waste bulk oil storage tanks are designed and fabricated to BS799-5, in accordance with CIRIA C736 paragraph 9.2.5, within a fabricated bunded area to hold at least 110% of storage tank capacity. All four tanks have a storage capacity of up to 5,000 litres each and will be located on concrete hardstanding overlain with gravel. There will be a dedicated area for each site for the delivery of clean lubricating oil and for removing used lubricating oil, however, the location and spill protection of each loading/unloading area is still to be determined. Each tank will have internal drip trays and bund alarms fitted. In addition, spill kits will be available on site and on the tanker.

The Installation will be operated in line with the RWE existing ISO14001:2015 accredited Environmental Management System (EMS) (certificate of conformity provided in Appendix C) including operating procedures to manage the various aspects of the operation of both Grimsby A and Grimsby B, including but not limited to emissions monitoring, accident management, waste minimisation and management, and infrastructure maintenance.

It should be noted that the Site design and layout is still under development and some elements are still to be finalised and these are highlighted in the document.