The Hirwaun Generating Station Order

APPLICATION TO MAKE A NON MATERIAL CHANGE TO THE HIRWAUN GENERATING STATION ORDER

Application

Planning Act 2008
The Infrastructure Planning (CHANGES TO, AND REVOCATION OF, DEVELOPMENT CONSENT ORDERS) REGULATIONS 2011

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Table of Contents

Non Material Change Application

1. INTRODUCTION

1.1 Hirwaun Power Limited ("**HPL**") of registered address 33, Cavendish Square, London, W1G 0PW, is the named undertaker in, and was the applicant for, The Hirwaun Generating Station Order 2015 (statutory instrument 2015 No. 1574), which was made on 23 July 2015. This was subject to the Hirwaun Generating Station (Correction) Order 2015 (SI 2015 No. 2070), made on 21 December 2015 (both together referred to herein as the "**Order**").

1.2 The Order was made pursuant to Sections 114, 115 and 120 of the Planning Act 2008 (the "**2008 Act**"), with the reasons for making the Order contained in the Secretary of State's letter dated 23 July 2015 bearing the Planning Inspectorate's ("**PINS**") reference number EN010059.

1.3 The Order grants development consent for the construction, operation and maintenance of a generating station with a gross rated electrical output of up to 299 MWe comprising up to five gas turbine generators ("**GTG**"), up to five exhaust gas emission flue stacks and other development that is part of the generating station (referred to in the Order as the "**authorised development**"). The authorised development is described in Schedule 1 to the Order, split out into numbered works.

1.4 The Order also authorises the compulsory acquisition of land required for the authorised development, as well as land that is required to facilitate or is incidental to the authorised development (being land required for the generating station's gas pipeline connection, above ground installation and electrical connection).

1.5 The authorised development would be located on land at the Hirwaun Industrial Estate, near Aberdare, South Wales. The entire project lies within the administrative boundary of Rhondda Cynon Taf County Borough Council. The location of the authorised development is shown on the Power Generation Plant Land Plan (Revision 3, Document Reference 2.2) and the various components that comprise the authorised development are shown on the Works Plans (Figure 2) (Revision 3, Document Reference 2.3).

1.6 HPL has interests in the land subject to the Order, pursuant to an option agreement for that part of the Order land on which the authorised development is to be located and part of the gas connection.

1.7 HPL has not yet concluded the exact number of turbines that will be constructed (the Order permits between one and five GTGs). Nonetheless, through the procurement process for the purchase of the necessary equipment, it has become apparent that in order to construct the single GTG scenario, minor alterations need to be made to some of the parameters and locations of various structures consented by the Order.

1.8 HPL hereby applies to the Secretary of State pursuant to Section 153 and paragraph 2 of Schedule 6 of the 2008 Act to make changes to the Order that are not material (the "**NMC Application**"). The NMC Application is subject to the Infrastructure Planning (Changes to, and Revocation of, Development Consent Orders) Regulations 2011, as amended (the "**Changes Regulations**").

1.9 Part One of this document sets out the non-material amendments to the Order sought by HPL and the rationale for doing so. Part Two explains why the changes that are requested have either a negligible or non-material effect upon the environment.

1.10 This document complies with Regulation 4 of the Changes Regulations.

PART ONE PROPOSED NON MATERIAL CHANGES TO THE ORDER

2. CONSULTATION AND PROCESS AS DESCRIBED BY THE CHANGES REGULATIONS

2.1 HPL will submit a Consultation and Publicity Statement, confirming HPL's compliance with Regulations 6 and 7 of the Changes Regulations in respect of the NMC Application. In summary, the following has, or is being, undertaken by HPL:

2.1.1 HPL notified PINS of the NMC Application on 30th June 2016.

2.1.2 HPL is publicising the NMC Application in South Wales Echo (being a newspaper local to the site of the authorised development) on 19th August 2016 and 26th August 2016, being two successive weeks. Copies of these notices will be included in the Consultation and Publicity Statement.

2.1.3 HPL sought the written consent of the Secretary of State pursuant to Regulation 7(3) of the Changes Regulations to consult a smaller body of consultees in respect of the NMC Application than would otherwise be required pursuant to Regulations 7(1) and (2) of the Changes Regulations. The request was sent to the Secretary of State on 11th July 2016, with the Secretary of State responding on 22nd July. The Secretary of State's response, and list of consultees HPL is therefore required to consult, is contained in Appendix One to this document.

2.1.4 Accordingly, HPL is consulting those persons identified in the Secretary of State's response. A copy of the notices sent to these consultees will be included in the Consultation and Publicity Statement.

3. THE HIRWAUN GENERATING STATION ORDER 2015

3.1 The Order consists of 40 operative provisions, each referred to as articles, and 8 Schedules.

3.2 Schedule 1 describes the authorised development. It consists of numbered works 1 to 2G. Those numbered works correlate with the works plans (Revision 3, Document Reference 2.3) (the "**Works Plans**"). The numbered works are replicated below for ease of reference:

Numbered work 1 *development comprising the demolition of all existing buildings and structures, including foundations, hardstanding and services,*

Numbered work 2A *development comprising—*

(a) *up to 5 gas turbine generators; and*

(b) *up to 5 exhaust gas emission flue stacks,*

Numbered work 2B *development comprising—*

(a) *an administration building;*

(b) *a store;*

(c) *a control room/office/workshop;*

(d) *telemetry apparatus;*

(e) *black start diesel generator;*

(f) *a natural gas receiving station and gas treatment compound containing—*

(i) *a pipeline inspection gauge (PIG) receiving facility;*

(ii) *isolation valves, metering, heating, filtering, compression, pressure regulation equipment;*

(iii) *electricity supply kiosk; and*

(iv) *control and instrumentation kiosks,*

Numbered work 2C *development comprising a switchyard / banking compound containing up to eight transformers, switchgear building and other plant required to manage the transmission of electricity,*

Numbered work 2D *development comprising a construction and maintenance compound including new hardstanding,*

Numbered work 2E *development comprising—*

(a) *security infrastructure, including cameras, perimeter fencing and a gatehouse;*

(b) *site lighting infrastructure, including perimeter lighting columns;*

(c) *internal roadways, car parking, pedestrian network, cycle parking, hardstanding and water treatment trailers;*

(d) *site drainage, attenuation pond and waste management infrastructure;*

(e) *electricity, water, wastewater and telecommunications and other services;*

(f) *a raw / fire water tank and demineralised water storage tank;*

(g) *landscaping including tree planting, fencing and other boundary treatments and ecological mitigation (including bat mitigation structure);*

(h) *tree and hedge removal;*

(i) *high voltage and low voltage cabling, equipment and controls and associated telemetry and electrical protection auxiliary cabling;*

(j) *underground gas pipeline connection, associated telemetry and cathodic protection test / transformer rectifier unit; and*

(k) *other ancillary equipment,*

***Numbered work 2F** development comprising new or modified permanent means of access to numbered work 2 including permanent road surface, drainage, gates and fencing,*

***Numbered work 2G** development comprising the maintenance strengthening or re-laying in a new location of the existing culvert forming that part of ordinary watercourse River Camnant within the Order limits, such works subject to maintaining the existing flow rate.*

3.3

3.4 Schedule 2 contains the Requirements. Requirement 4 relates to Detailed Design, and stipulates that the authorised development must be carried out in accordance with:

3.4.1 the Works Plans;

3.4.2 the rights of way, streets and access plan (Revision 3, Document Reference 2.7); and

3.4.3 the parameters specified in Table 2 of Requirement 4.

3.5 Pursuant to Article 3(2) of the Order, each numbered work identified in Schedule 1 of the Order must be situated within its corresponding numbered work area shown on the Works Plans. These numbered work areas are maximum limits of deviation, therefore the numbered work can be situated anywhere within its numbered work area identified on the Works Plans.

3.6 The numbered works must then be constructed within the parameters set by Table 2 in Requirement 4. For ease of reference, these parameters are replicated below:

Structure	Parameters (in respect of height, metres above 211m AOD)
Each gas turbine generator (where one or two gas turbine generators are constructed) (Part of numbered work 2A)	Maximum height: 19 metres AOD Maximum length: 30 metres Maximum width: 30 metres
Each gas turbine generator (where three, four or five turbine generators are constructed) (Part of numbered work 2A)	Maximum height: 10 metres AOD Maximum length: 36 metres Maximum width: 23 metres
Each exhaust gas emission flue stack (part of numbered work 2A)	Maximum Height: 35 metres AOD Minimum Height: 30 metres Maximum width: 10 metres
Control room/office/workshop (part of numbered work 2B)	Maximum Height: 6 metres AOD Minimum Length: 29 metres Maximum width: 23 metres
Natural gas receiving station and gas treatment compound (part of numbered work 2B)	Maximum height: 3 metres AOD Maximum length: 50 metres Maximum width: 46 metres
Black start diesel generator (part of numbered work 2B)	Maximum height: 5 metres AOD Maximum length: 13 metres Maximum width: 5 metres
Switchyard/banking compound (nnumbered work 2C)	Maximum height: 11.3 metres AOD Maximum length: 60 metres Maximum width: 60 metres

Structure	Parameters (in respect of height, metres above 211m AOD)
Switchgear Building (part of numbered work 2C)	Maximum height: 11.3 metres AOD Maximum length: 21 metres Maximum width: 15 metres
Gatehouse (part of numbered work 2E)	Maximum height: 4.5 metres AOD Maximum length: 9 metres Maximum width: 8 metres
Demineralised water tank (part of numbered work 2E)	Maximum height: 16 metres AOD Maximum length: 23 metres Maximum width: 23 metres
Raw/fire water tank (part of nnumbered work 2E)	Maximum height: 18 metres AOD Maximum length: 15 metres Maximum width: 15 metres
Bat mitigation structure (part of numbered work 2E)	Maximum height: 6 metres AOD Maximum length: 10 metres Maximum width: 5 metres

4. PROPOSED CHANGES TO THE ORDER

4.1 The proposed changes to the Order, and why they are needed, are described below.

4.2 Change One: Parameters of the gas turbine generator (part of numbered work 2A)

4.2.1 A structure known as a diffuser forms part of the gas turbine generator ("**GTG**"). The exhaust gas system guides the exhaust gas from the GTG through the diffuser to the flue stack. It also acts as a noise insulator from noise emitted by the GTG. For the one GTG scenario, the parameters of the GTG contained in Schedule 1 of the Order need to be amended in order to accommodate the additional length created by the addition of the diffuser element of the GTG.

4.2.2 In addition, a lube oil system is also attached to the GTG. This increases the width of the GTG by an additional 10 metres. This lubrication system, complete with tank, pumps, coolers, filters, valves and various control and protection devices, furnishes normal lubrication and absorption of heat rejection load of the gas turbine. Lubricating fluid is circulated to the three main turbine bearings, generator bearings, and to the turbine accessory gear and fuel pump. Also, lubricating fluid is supplied to the starting means torque converter for use as hydraulic fluid as well as for lubrication. Additionally, a portion of the pressurized fluid is diverted and filtered again for use by hydraulic control devices as control fluid.

4.2.3 In summary, **for the one GTG scenario only**, there is a need to increase the length of the GTG from a maximum of 30 metres to 50 metres to accommodate the diffuser system elements of the GTG and the width from a maximum of 30 metres to 40 metres to accommodate the lube oil system. This would involve a change to Table 2 in Requirement 4, Schedule 2 of the Order. However, there would be no change in the overall footprint of the Power Generation Plant as show in Figures 5 and 6 of the Environmental Report (see Appendix Two).

4.2.4 This change is non-material because:

(a) Whilst there would be an increase in the footprint of the GTG in the one GTG scenario, the footprint of each GTG in the five GTG scenario would not increase. The footprint of the single GTG would therefore still be smaller overall than the five GTG scenario.

(b) Figures 1, 2, 4, 5 and 6 of the Environmental Report show the proposed single GTG scenario and the proposed changes.

The screening exercise set out in Chapter 4 of the Environmental Report identifies the potential for a change in the environmental effects predicted in the Environmental Statement ("**ES**") for landscape and visual effects and air quality. The updated assessment for air quality (Chapter 6 of the Environmental Report) has concluded that overall, the Project, with the proposed changes, will continue to have a negligible likely impact on air quality in relation to both human and ecological receptors during construction, operation and decommissioning. This applies both for the Project alone and in combination with other proposed facilities in the vicinity of the Project site.

(c) The updated assessment for landscape and visual effects (Chapter 5 of the Environmental Report) has concluded that the potential significance of effects associated with the proposed changes are no greater than those previously assessed for the approved Project. No significant landscape effects are predicted to arise at operation. There would be no material change to the character of the view from the ES viewpoint locations that relate specifically to the Power Generation Plant. The magnitude and significance of impact would be lower than for the realistic worst case (five GTG scenario) reported in the ES. No significant visual effects are predicted to arise at operation. Potential cumulative landscape or visual effects in relation to the Power Generation Plant site would be the same as the original ES.

4.3 Change Two: Parameters of the Flue Stack (part of numbered work 2A)

4.3.1 The flue stack consists of a lower and an upper stack section. For the single GTG scenario, the lower section, being that part of the flue stack up to a height of 16.5 metres, is thicker (and therefore wider) than the upper section of the flue stack. This is because the lower stack section consists of greater layers of casing, which is self-supporting, and insulation.

4.3.2 At present, the Order does not account for this difference in width between the two sections of the flue stack. Accordingly, there is a need to increase the width of the flue stack from 10 metres to 11 metres up to a height of 16.5 metres for the single GTG scenario. This would involve a change to Table 2 in Requirement 4, Schedule 2 of the Order.

4.3.3 This change is non-material because:

(a) The visible stack height and width from each of the key viewpoint locations that relate specifically to the Power Generation Plant does not change.

(b) Figures 1, 2, 4, 5 and 6 of the Environmental Report show the proposed single GTG scenario and the proposed changes.

(c) The screening exercise set out in Chapter 4 of the Environmental Report identifies the potential for a change in the environmental effects predicted in the ES for landscape and visual effects, and air quality. An updated assessment for air quality (Chapter 6 of the Environmental Report) has concluded that overall, the Project, with the proposed changes, will continue to have a negligible likely impact on air quality in relation to both human and ecological receptors during construction, operation and decommissioning. This applies both for the Project alone and in combination with other proposed facilities in the vicinity of the Project site.

(d) An updated assessment for landscape and visual effects (Chapter 5 of the Environmental Report) has concluded that the potential significance of effects associated with the proposed changes are no greater than those previously assessed for the approved Project. No significant landscape effects are predicted to arise during operation. There would be no material change to the character of the view from the ES viewpoint locations that relate specifically to the Power Generation Plant. The assessed magnitude and significance of impact would be lower than the realistic worst case (five GTG scenario) reported in the ES. No significant visual effects are predicted to arise at operation. Potential cumulative landscape or visual effects in relation to the Power Generation Plant site would be the same as the original ES.

4.4 Change Three: Black Start Diesel Generator (part of numbered work 2B)

4.4.1 The application for the authorised development assessed a realistic worst case solution, which involved an assessment of up to five GTGs.

4.4.2 As one GTG is larger in capacity than the individual capacity of, say, five smaller GTGs, more than one black start diesel generator would be required to start up a generating station with a single GTG. Where two or more GTGs are constructed, as the GTG would be smaller in capacity, a single black start diesel generator can be used to start each GTG individually. In total, three black start diesel generators would be needed in the single GTG scenario only. However, there would be no change in the overall footprint of the Power Generation Plant as shown in Figures 5 and 6 of the Environmental Report.

4.4.3 The size of the black start diesel generator is also slightly longer than originally predicted; the length of each generator is 4 metres longer, meaning that the parameters need to increase from 13 metres to 17 metres. This applies to all GTG scenarios.

4.4.4 In summary:

(a) in the **single GTG scenarios only**, the number of black start diesel generators needs to increase from one to three. This would involve an amendment to Schedule 1 of the Order; and

(b) in **all GTG scenarios**, the size of the black start diesel generators needs to increase in length from 13 metres to 17 metres. This would involve a change to Table 2 in Requirement 4, Schedule 2 of the Order.

4.4.5 This change is non-material because:

(a) The increase in the number of black start generators with the single GTG scenario compared to the single generator with the five GTG scenario means that the footprint of the black start generators will increase. However, due to other changes, the overall area of the Power Generation Plant will not increase.

(b) Figures 1, 2, 4, 5 and 6 of the Environmental Report show the proposed single GTG scenario and the proposed changes.

(c) The screening exercise set out in Chapter 4 of the Environmental Report identifies the potential for a change in the environmental effects predicted in the Environmental Statement. No change in impacts is predicted as a result of these changes for each of the environmental topics considered. In respect to air quality there will be no change in emissions as a result of the change which will also not affect any ecological receptors. There will be no change in noise and vibration levels. The change will not affect any heritage assets.

(d) The proposed changes to the black start diesel generators are not considered to affect landscape or visual impacts given they are low level structures (5 metres) and would be screened by the existing buildings and vegetation at Hirwaun Industrial Estate (see Chapter 5 of the Environmental Report).

4.5 <u>Change Four: Natural gas receiving station and gas treatment compound (part of numbered work 2B)</u>

4.5.1 Whilst the Natural Gas Receiving Station and Gas Treatment Compound can be constructed as part of the prescribed parameters

of the Order set out in Table 2 of Requirement 4 of Schedule 2 to the Order, there is a requirement for there to be a separation distance between the various filter mechanisms to allow a flow of natural gas. The separation distance is required between the natural gas receiving station and the gas treatment compound. The buffer volume is provided in the gas piping downstream of the gas receiving station to ensure a smooth switch-over to the stand-by regulator within the allowable pressure gradients, should the safety shut off valve or the operating regulator close.

4.5.2 The gas treatment compound with the block and vent valve needs to be positioned as close as possible to the GTG, in order to reduce the piping between the final filter and the GTG.

4.5.3 For all GTG scenarios, two smaller compounds, rather than one larger compound, are therefore needed in order to accommodate the separation of the natural gas receiving station from the gas treatment compound.

4.5.4 The total area for the compound currently consented by the Order is 50 metres x 46 metres; a total of 2300 square metres.

4.5.5 The dimensions for two smaller compounds add up to 2,264 square metres in total, with the following dimensions:

(1) Compound 1 – Natural Gas Receiving Station (5 metres (height), 50 metres (length) and 36 metres (width));

(2) Compound 2 – Gas Treatment Compound (5 metres (height), 29 metres (length) and 16 metres (width)).

4.5.6 This would involve a change to Table 2 in Requirement 4, Schedule 2 of the Order.

4.5.7 This change, therefore, involves a reduction in the built footprint.

4.5.8 This change is non-material because:

(a) The natural gas receiving station and gas treatment compound will have a smaller overall footprint than the footprint permitted in the Order.

(b) Figures 1, 2, 4, 5 and 6 of the Environmental Report show the proposed changes.

(c) The screening exercise set out in Chapter 4 of the Environmental Report identifies the potential for a change in the environmental effects predicted in the Environmental Report. No change in impacts is predicted as a result of these changes for each of the environmental topics considered.

(d) The proposed changes to the natural gas receiving station and gas treatment compound are not considered to affect landscape or visual impacts given they are low level structures (5 metres) and would be screened by the existing buildings and vegetation at Hirwaun Industrial Estate (see Chapter 5 of the Environmental Report).

4.6 Change Five: Fin fan cooler (part of numbered work 2E(k))

4.6.1 The realistic worst case scenario of five GTGs and five stacks at 35m assessed in the ES accounted for GTG cooling with a built in cooling system within each GTG. This design is common for smaller GTGs. Throughout the original ES, the assessment of the GTG considered the built-in cooling system.

4.6.2 For a single GTG, the cooling system is not contained within the GTG but is in a standalone structure (Fin Fan Cooler) to allow for a closed water cooling system and to transfer the heat produced by the generator coolers and the gas turbine / generator lube oil system via the fin fan cooler to the ambient air.

4.6.3 The Fin Fan Cooler required for the single GTG scenario would be 13m long, 10m wide and 6m high.

4.6.4 Even with a stand-alone Fin Fan Cooler, the total built footprint of the single GTG scenario is smaller than the larger consented five GTG scenario (see Figures 5 and 6 of the Environmental Report).

4.6.5 This would involve an amendment to Schedule 1 of the Order and a change to Table 2 in Requirement 4, Schedule 2 of the Order for the single GTG scenario.

4.6.6 This change is non-material because*:*

(a) Whilst there would be an increase in the footprint of the GTG in the one GTG scenario, even with a stand-alone Fin Fan Cooler, the total built footprint of the single GTG scenario is smaller than the larger consented five GTG scenario (see Figures 5 and 6 of the Environmental Report).

(b) Figures 1, 2, 4, 5 and 6 of the Environmental Report show the proposed single GTG scenario and the proposed changes. The screening exercise set out in Chapter 4 of the Environmental Report identifies the potential for a change in

the environmental effects predicted in the ES for landscape and visual effects and air quality. The updated assessment for air quality (Chapter 6 of the Environmental Report) has concluded that overall, the Project, with proposed changes, will continue to have a negligible likely impact on air quality in relation to both human and ecological receptors during construction, operation and decommissioning. This applies both for the Project alone and in combination with other proposed facilities in the vicinity of the Project site.

(c) The updated assessment for landscape and visual effects (Chapter 5 of the Environmental Report) has concluded that the potential significance of effects associated with the proposed changes are no greater than those previously assessed for the approved Project. No significant landscape effects are predicted to arise at operation. There would be no material change to the character of the view from the ES viewpoint locations that relate specifically to the Power Generation Plant. The magnitude and significance of impact would be lower than for the realistic worst case (five GTG scenario) reported in the Environmental Statement. No significant visual effects are predicted to arise at operation. Potential cumulative landscape or visual effects in relation to the Power Generation Plant site would be the same as the original ES.

4.7 Change Six: Switchyard/banking compound (numbered word 2C)

4.7.1 The numbered work areas shown on the Works Plans, and environmental assessment undertaken as part of the application for the authorised development, were based on a realistic worst case solution to accommodate up to five GTGs.

4.7.2 Should HPL opt for the single GTG scenario, this considerably reduces the overall size of the footprint of the Power Generation Plant. In the event that this option is constructed, economically and practically it is not logical to site the switchyard so far away from the GTG.

4.7.3 Therefore, it is proposed that the numbered work area for numbered work 2C for the switchyard and banking compound is extended to the eastern edge of the site, bringing the switchyard and banking compound closer to the development area of the single GTG. The parameters of the switchyard and banking compound remain unchanged.

4.7.4 The benefit of this change is that it would result in a tighter footprint for the generating station.

4.7.5 This change is non-material because:

(a) The footprint of the switchyard and banking compound is unchanged. The changes are to the layout of the Power Generation Plant Site (plant buildings/ancillary structures), rather than the Order Limits.

(b) Figure 1, 2, 4, 5 and 6 of the Environmental Report show the proposed single GTG scenario and the proposed changes.

(c) The screening exercise set out in Chapter 4 of the Environmental Report identifies the potential for a change in the environmental effects predicted in the Environmental Statement. No change in impacts is predicted as a result of these changes for each of the environmental topics considered.

(d) This change would only affect structures that are of a lower height than the GTG and flue stack and in terms of visibility would be less noticeable from the viewpoints assessed in the ES and in the Environmental Report. No changes are made to the proposed embedded and secondary landscape mitigation.

5. EXPLANATION AS TO HOW THE ORDER IS TO BE CHANGED

5.1 The table below sets out the current wording as contained in the Order, alongside a summary as to how HPL considers the Order should be amended to accommodate the necessary changes. A draft of the order setting out these changes is included in the NMC Application.

Change Number	Building or Structure	Summary of what currently is authorised under the Order	Suggested Change
One	Gas Turbine Generator (GTG)	Table 2, Requirement 4, Schedule 2: Each gas turbine generator (where one or two gas turbine generators are constructed) (Part of numbered work 2A): Maximum height: 19 metres above 211 metres AOD Maximum length: 30 metres Maximum width: 30 metres	Amend Table 2, Requirement 4, Schedule 2 as set out in Appendix Four so as to permit the following parameters for a single GTG scenario: Maximum height: 19 metres above 211 metres AOD Maximum length: 50 metres Maximum width: 40 metres
Two	Flue Stack	Table 2, Requirement 4, Schedule 2: Each exhaust gas emission flue stack (part of numbered work 2A): Maximum height: 35 metres above 211 metres AOD Minimum height: 30 metres above 211 metres AOD	Amend Table 2, Requirement 4, Schedule 2, as set out in Appendix Four so as to permit the following parameters for a single GTG scenario: Maximum width: 11.0 metres up to and including a height of 16.5 metres above 211m AOD and 10 metres from a height of 16.5 metres above 211m AOD to a height of 35.0 metres above 211m AOD "

Change Number	Building or Structure	Summary of what currently is authorised under the Order	Suggested Change
		Maximum width: 10 metres	
Three	Black start diesel generator	1. Schedule 1: Numbered work 2B authorises development comprising….(e) black start diesel generator 2. Table 2, Requirement 4, Schedule 2: Black start diesel generator (part of numbered work 2B): Maximum height: 5.0 metres above 211 metres AOD Maximum length: 13.0 metres Maximum width: 5.0 metres	1. Amend Schedule 1, Numbered work 2B(e) as set out in Appendix Three. 2. Amend Table 2, Requirement 4, Schedule 2 as set out in Appendix Four so as to permit the following parameters for all GTG scenarios: Maximum length: 17 metres

Change Number	Building or Structure	Summary of what currently is authorised under the Order	Suggested Change
Four	Natural gas receiving station and gas treatment compound	Table 2, Requirement 4, Schedule 2: Natural gas receiving station and gas treatment compound (part of numbered work 2B): Maximum height: 3 metres above 211 metres AOD Maximum length: 50 metres above 211 metres AOD Maximum width: 46 metres	1. Amend Table 2, Requirement 4, Schedule 2 as set out in Appendix Four so as to permit the following parameters for all GTG scenarios: "Natural gas receiving station (part of numbered work 2B): Maximum height: 5 metres above 211 metres AOD Maximum length: 50 metres Maximum width: 36 metres" "Gas treatment compound (part of numbered work 2B): Maximum height: 5 metres above 211 metres AOD Maximum length: 29 metres Maximum width: 16 metres"

Change Number	Building or Structure	Summary of what currently is authorised under the Order	Suggested Change
Five	Fin fan cooler	Schedule 1: Numbered work 2E authorises development comprising...(k) other ancillary development	1. Amend Schedule 1, Numbered work 2E(K) as set out in Appendix Three. 2. Amend Table 2, Requirement 4, Schedule 2 as set out in Appendix Four so as to permit the following parameters for a single GTG scenario: Maximum height: 6 metres Maximum length 13 metres Maximum width 10 metres
Six	Switchyard/banking compound	Schedule 1: Numbered work 2C authorises development comprising a switchyard/banking compound containing up to eight transformers, switchgear building and other plant required to manage the transmission of electricity Article 3(2) requires each numbered work to be situated in the numbered area shown on the Works Plans	1. Amend the Works Plans to increase the area covered by numbered work 2C and produce revision 4 of the works plans; 2. Amend the definition of "works plans" in Article 2(1) to refer to "revision 4" 3. Amend Table 1, Requirement 4, Schedule 2 of the Order to refer to "revision 4" of the works plans.

5.2 A draft Hirwaun Generating Station (Amendment) Order has been submitted with this NMC Application incorporating the changes set out above. A track changed version of Schedule 1 of the Order is included at Appendix Three of this Application. A track changed version of Table 2 of Requirement 4 of Schedule 2 of the Order is included at Appendix Four of this Application.

5.3 A revised Works Plan has also been submitted with this Application.

6. PART 2 ENVIRONMENTAL REPORT

6.1 The Environmental Report provides an overview of the potential impacts of the proposed changes and compares these to the original ES submitted to support the application for the Development Consent Order. The following topics were screened out of requiring updated assessments as the proposed changes did not have the potential to result in any different effects to those identified in the original ES (the reasoning for this screening out is contained in Section 4 of the Environmental Report:

- Noise and Vibration;
- Ecology and Nature Conservation;
- Cultural Heritage and Archaeology;
- Water Quality and Resources;
- Geology, Ground Conditions and Agriculture;
- Traffic, Transport and Access;
- Socio-Economics; and
- Health and Waste.

6.2 Accordingly, the only environmental topics that have the potential to result in any different effects to those identified in the original ES are air quality and landscape and visual. The outcome of the updated assessments for air quality and landscape and visual confirmed that the significance of the impact would be reduced or would not result in new of different likely significant environmental effects to those previously reported. It is therefore considered that the proposed changes would constitute non-material changes. Reference is made to the Environmental Report in Appendix Two for a complete explanation and justification for this conclusion.

6.3 COMPLIANCE WITH THE REGULATIONS AND THE GUIDANCE

6.4 The proposed changes will not result in the need to acquire any additional land. The screening assessment has confirmed that no update is required to the Habitat Regulations Assessment as there is no change to the impacts on any sites of European importance.

7. CONCLUSION

7.1 The outcome of the screening and updated assessments confirms that the conclusions in the Environmental Statement remain valid for the proposed changes. The significance of the impact would be unchanged or reduced. It is therefore considered that the proposed changes are non-material amendments for the purposes of the Infrastructure Planning (Changes to, and Revocation of, Development Consent Orders) Regulations 2011. Accordingly, HPL submits that the proposed changes as outlined in section 4 of this Document can be consented by the Secretary as non-material changes.

Appendix 1

Letter Response from the Secretary of State confirming the consultees HPL is to consult with under Regulation 7 of the Changes Regulations

Department for
Business, Energy
& Industrial Strategy

Department for Business, Energy & Industrial Strategy
3 Whitehall Place,
Area C, 4th Floor
London SW1A 2AW
T: 0300 0068 5682
E: robert.pridham@decc.gsi.gov.uk
www.gov.uk/beis

Chris McKerrow
Project Manager
Watt Power
(By e-mail)

Your ref:
Our ref:

22 July 2016

Dear Mr McKerrow

RE: HIRWAUN POWER GENERATING STATION ORDER 2015 – PROPOSED NON-MATERIAL CHANGE APPLICATION

Thank you for your e-mail message of 11 July 2016 to Gareth Leigh and Laura Allen with two attachments on behalf of Hirwaun Power Limited ("the Applicant"). It is noted that the attached documents consist of: i) a Microsoft Excel spreadsheet of the proposed consultees (highlighted in green) in respect of changes to the development consent order for the Hirwaun Power Generating Station; and ii) separate advice on this matter from the Planning Inspectorate of 7 July 2016.

The Applicant has requested that the Secretary of State give written consent under regulation 7(3) of the Infrastructure Planning (Changes to, and Revocation of, Development Consent Orders) Regulations 2011 (as amended) ("the 2011 Regulations"), such that the Applicant does not need to consult those persons specified and highlighted in red in the spreadsheet, as it is not considered they will be directly affected by them.

The Secretary of State has considered the request and agrees that, with the exception of MOD Safeguarding and also Powys, Merthyr Tydfil and Caerphilly (who it is noted are listed in the spreadsheet as a "*relevant local authority"* within the meaning given by section 102(5) of the Planning Act 2008), the Applicant does not need to consult directly with those persons specified and highlighted in red in spreadsheet, as they will not be directly affected by the changes being proposed. Accordingly, this letter is written consent under regulation 7(3) of the Infrastructure Planning (Changes to, and Revocation of,

Development Consent Orders) Regulations 2011 such that consultation under regulation 7 of those persons specified is not required.

In taking this decision, the Secretary of State notes there will be public consultation on the proposals following submission of the application for non-material changes to the Order in line with the requirements in regulation 20 of the 2011 Regulations.

Finally, the Secretary of State`s consent in this matter should not be taken as indicating approval for any other aspects of the proposed changes to the Hirwaun Power Generating Station which fall to the Secretary of State for consideration and determination.

Yours sincerely,

R Pridham

Rob Pridham
Case Manager, Energy Infrastructure Planning

Appendix 2

Environmental Report

THE HIRWAUN GENERATING STATION ORDER 2015

NON-MATERIAL CHANGE TO DEVELOPMENT CONSENT ORDER

FOR PLANNING

AUGUST 2016

WSP | PARSONS BRINCKERHOFF

THE HIRWAUN GENERATING STATION ORDER 2015

NON-MATERIAL CHANGE TO DEVELOPMENT CONSENT ORDER

Hirwaun Power Limited

Project no: 70023845
Date: August 2016

WSP | Parsons Brinckerhoff
The Forum
Barnfield Road
Exeter
EX1 1QR

Tel: +44 (0) 1392 229 700
Fax: +44 (0) 1392 229 701
www.wsp-pb.com

QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
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Date	July 2016	August 2016		
Prepared by	Amy Hallam	Amy Hallam		
Signature				
Checked by	Colin Turnbull	Colin Turnbull		
Signature				
Authorised by	Clare Hennessey	Clare Hennessey		
Signature				
Project number	70023845			
Report number	01			
File reference				

PRODUCTION TEAM

CLIENT

	Chris McKerrow
	Murray Davies

WSP | PARSONS BRINCKERHOFF

Associate	Amy Hallam
Associate Director	Colin Turnbull
Technical Director	Clare Hennessey
Technical Director	Bethan Tuckett-Jones
Principal Landscape Architect	Katie Lewis
Principal Archaeologist	Alison Plummer
Principal Noise Consultant	Pete Bushell

TABLE OF CONTENTS

FIGURES

APPENDICES

1 EXECUTIVE SUMMARY

1.1.1 Hirwaun Power Limited submitted an application for Development Consent for the Hirwaun Generating Station in March 2014. The Hirwaun Generating Station Order 2015 (the Development Consent Order) was made on 23 July 2015. The Development Consent Order grants consent for a gas-fired peaking plant with up to five gas turbine generators on land on Hirwaun Industrial Estate, near Aberdare, South Wales. The Hirwaun Generating Station would operate as a Simple Cycle Gas Turbine peaking plant and would be designed to provide an electrical output of up to 299 Megawatts.

1.1.2 Following the grant of the Development Consent Order, Hirwaun Power Limited has identified the following non-material, minor changes to the parameters of the Power Generation Plant element of the Hirwaun Generating Station:

- Increase in size of the Gas Turbine Generator (relates to single Gas Turbine Generator scenario only);
- Increase in width of flue stack at base (relates to single Gas Turbine Generator scenario only);
- Increase the permitted number of black start diesel generators from one to three (relates to single Gas Turbine Generator scenario only);
- Amend the permitted natural gas receiving station and gas treatment compound so as to permit the construction of two separate smaller compounds (relates to all Gas Turbine Generator scenarios);
- Include express reference to an external fin fan cooler (relates to single Gas Turbine Generator scenario only); and
- Amend the area for Work No 2C on the Works Plans in order to construct the switchyard closer to the Gas Turbine Generator (relates to single Gas Turbine Generator scenario only); and
- Dimensions of black start diesel generator (relates to all Gas Turbine Generator scenarios).

1.1.3 This report is submitted in support of a non-material change application under the Infrastructure Planning (Changes to, and Revocation of, Development Consent Orders) Regulations 2011 ('the Regulations'). The report provides an overview of the potential impacts of the proposed changes and compares these to the original Environmental Statement (ES) submitted to support the application for the Development Consent Order. The following topics were screened out of requiring updated assessments as the proposed changes did not have the potential to result in any different effects to those identified in the original ES (the reason for this screening out is explained later on in this Report):

- Noise and Vibration;
- Ecology and Nature Conservation;

- Cultural Heritage and Archaeology;
- Water Quality and Resources;
- Geology, Ground Conditions and Agriculture;
- Traffic, Transport and Access;
- Socio-Economics; and
- Health and Waste.

1.1.4 Accordingly, the only environmental topics that have the potential to result in any different effects to those identified in the original ES are air quality and landscape. The outcome of the updated assessments for air quality and landscape confirmed that the significance of the impact would be reduced or would not result in new of different likely significant environmental effects to those previously reported. It is therefore considered that the proposed changes would constitute non-material changes.

2 INTRODUCTION

2.1.1 Hirwaun Power Limited (HPL) submitted an application for Development Consent for the Hirwaun Generating Station in March 2014. The Hirwaun Generating Station Order 2015 (Development Consent Order) was made by the Secretary of State on 23 July 2015. The Development Consent Order granted consent for a gas-fired peaking plant with up to five gas turbine generators (GTG) on land on Hirwaun Industrial Estate, near Aberdare, South Wales. The Hirwaun Generation Station would operate as a Simple Cycle Gas Turbine (SCGT) peaking plant and would be designed to provide an electrical output of up to 299 Megawatts (MW). The plant would be fuelled by natural gas, supplied to the site by a new gas pipeline connecting the Power Generation Plant element of the Hirwaun Generating Station to the existing National Gas Transmission System (NTS).

2.1.2 Following the granting of the Development Consent Order, HPL has identified some non-material, minor changes to the parameters of elements of the Power Generation Plant (as described in Chapter 3).

2.1.3 This report is submitted in support of a non-material change application under the Infrastructure Planning (Changes to, and Revocation of, Development Consent Orders) Regulations 2011 ('the Regulations'). The report provides an overview of the potential impacts of the proposed changes and compares these to the original Environmental Statement (ES) submitted in support of the application for the Development Consent Order (Parsons Brinckerhoff, March 2014) which reported the findings of the Environmental Impact Assessment (EIA).

2.1.4 The original EIA considered a 'realistic worst case scenario' which was identified on a topic by topic basis. All of the environmental topics assumed that five GTGs was the realistic worst case scenario.

2.1.5 This report demonstrates that the potential impacts associated with the proposed

changes would either be reduced or would not result in new or different likely significant effects to those previously reported. The proposed changes can therefore be described as non-material for the purpose of Part 1 of the Regulations.

2.1.6 The Report is supported by the results of an environmental screening exercise (Chapter 4) and updated assessments for landscape and visual impacts (Chapter 5) and air quality (Chapter 6).

3 PROPOSED NON-MATERIAL CHANGES

3.1 INTRODUCTION

3.1.1 The proposed changes are shown on the following Figures:

- Figure 1 – Site Plan;
- Figure 2 – Gas Turbine Generator Plan;
- Figure 4 – Black Start Generator Plan and Elevations;
- Figure 5 – Gas Turbine Generator Overlay Plan; and
- Figure 6 – Overlay Gas Turbine Generator, Black Start Generator and Fin Fan Cooler Elevations.

3.2 PARAMETERS OF GAS TURBINE GENERATOR

3.2.1 A structure known as a ‘diffuser’ forms part of the GTG. The exhaust gas system guides the exhaust gas from the GTG through the diffuser to the flue stack. It also acts as a noise insulator from noise emitted by the GTG. For the single GTG scenario, the length of the GTG needs to be increased by 20 metres in order to accommodate the additional length created by the addition of the diffuser element of the GTG.

3.2.2 In addition, a lube oil system is also attached to the GTG. This increases the width of the GTG by an additional 10 metres (from 30 metres to 40 metres). This lubrication system, complete with tank, pumps, coolers, filters, valves and various control and protection devices, furnishes normal lubrication and absorption of heat rejection load of the gas turbine. Lubricating fluid is circulated to the three main turbine bearings, generator bearings, and to the turbine accessory gear and fuel pump. Also, lubricating fluid is supplied to the starting torque converter for use as hydraulic fluid as well as for lubrication. Additionally, a portion of the pressurized fluid is diverted and filtered again for use by hydraulic control devices as control fluid.

3.2.3 For the single GTG scenario only, there is a need to increase the maximum length of the GTG from 30 metres to 50 metres to accommodate the diffuser system elements of the GTG and the width from a maximum of 30 metres to 40 metres to accommodate the lube oil system.

3.3 PARAMETERS OF FLUE STACK

3.3.1 The flue stack consists of a lower and an upper stack section. The lower section, being that part of the flue stack up to a height of 16.5 metres, is thicker (and therefore wider) than the upper section of the flue stack. This is because the lower stack section consists of greater layers of casing, which is self-supporting, and insulation.

3.3.2 The parameters set out in Requirement 4 of the Development Consent Order, did not account for this difference. Accordingly, for the single GTG scenario only, there is a need to increase the width of the flue stack from 10 metres to 11 metres up to a height of 16.5 metres.

3.4 BLACK START DIESEL GENERATOR

3.4.1 As one GTG is larger in capacity than the individual capacity of, say, five smaller GTGs, more than one black start diesel generator would be required to start up a generating station with a single GTG. Where two or more GTGs are constructed, as the GTG would be smaller in capacity, a single black start diesel generator can be used to start each GTG individually. In total, three black start diesel generators would be needed in the single GTG scenario. This requires a change to Schedule 1 of the Development Consent Order (numbered work 2B).

3.4.2 The black start generator is used to start the GTGs in the event of a failure / blackout on the National Grid Electricity System.

3.4.3 The size of the black start diesel generator is also slightly longer than originally predicted; the length of each generator is 4 metres longer, meaning that the parameters need to increase from 13 metres to 17 metres. This applies to all GTG scenarios. This requires a change to Table 2 in Requirement 4 of Schedule 2.

3.4.4 In summary:

- → in the single GTG scenario only, the number of black start diesel generators needs to increase from one to three; and
- → in all GTG scenarios, the size of the black start diesel generators needs to increase in length from 13 metres to 17 metres.

3.5 NATURAL GAS RECEIVING STATION AND GAS TREATMENT COMPOUND

3.5.1 Whilst the final gas filter (which forms part of the of natural gas receiving station) can be constructed as part of the prescribed parameters, there is a requirement for there to be a separation distance between the various filter mechanisms to allow a flow of natural gas.

3.5.2 Two smaller compounds, rather than one larger compound, are therefore needed in order to accommodate the separation of the natural gas receiving station and the gas treatment compound.

3.5.3 The total area for the compound currently consented by the Development Consent Order is 50 metres x 46 metres; a total of 2300 square metres.

3.5.4 The dimensions for two smaller compounds add up to 2,264 square metres in total, with the following dimensions:

- Compound 1 – Natural Gas Receiving Station (5 metres (height), 36 metres (width) and 50 metres (length));
- Compound 2 – Gas Treatment Compound (5 metres (height), 16 metres (width) and 29 metres (length)).

3.5.5 This change, therefore, involves a reduction in the total built footprint.

3.6 FIN FAN COOLER

3.6.1 The realistic worst case scenario of five GTGs and five stacks at 35m assessed in the ES accounted for GTG cooling with a built in cooling system within each GTG. This design is common for smaller GTGs. Throughout the original ES, the assessment of the GTG considered the built-in cooling system.

3.6.2 For a single GTG, the cooling system is not contained within the GTG but is in a standalone structure (Fin Fan Cooler) to allow for a closed water cooling system and to transfer the heat produced by the generator coolers and the gas turbine / generator lube oil system via the fin fan cooler to the ambient air.

3.6.3 The Fin Fan Cooler required for the single GTG scenario would be 13m long, 10m wide and 6m high.

3.6.4 Even with a stand alone Fin Fan Cooler, the total built footprint of the single GTG scenario is smaller than the larger consented five GTG scenario (see Figures 5 and 6).

3.7 SWITCHYARD/BANKING COMPOUND

3.7.1 Should HPL opt for one GTG, this considerably reduces the overall size of the footprint of the Hirwaun Generating Station (in that the single GTG scenario has a smaller footprint even with the changes referred to herein than the five GTG scenario). In the event that this option is constructed, economically and practically it is not logical to site the switchyard in its current consented position, so far away from the GTG.

3.7.2 Therefore, it is proposed that the numbered work area 2C for the switchyard and banking compound is extended to the eastern edge of the site, bringing the switchyard and banking compound closer to the development area of the GTG. The parameters of the switchyard and banking compound remain unchanged.

3.7.3 The benefit of this change is that it would result in a smaller footprint for the Hirwaun Generating Station.

3.8 SUMMARY

3.8.1 Table 3.1 provides a summary of the proposed changes to the dimensions.

Table 3-1 Impact Assessment Screening

BUILDING OR STRUCTURE	SUMMARY OF WHAT IS CURRENTLY CONSENTED	CHANGE
Gas Turbine Generator (GTG)	Each GTG (where one or two GTGs are constructed) (Part of numbered work 2A): Maximum height: 19 metres (metres above 211 AOD) Maximum length: 30 metres Maximum width: 30 metres	For a single GTG only: Maximum height: unchanged Maximum length: increase from 30 to 50 metres. Maximum width: increase from 30 to 40 metres
Flue Stack	Each exhaust gas emission flue stack (Part of numbered work 2A): Maximum Height: 35 metres (metres above 211 AOD) Minimum Height: 30 metres (metres above 211 AOD) Maximum width: 10 metres	For a single GTG only: Maximum & minimum heights: unchanged. Maximum width: increase from 10 to 11 metres up to a maximum height of 16.5 metres (metres above 211 AOD). Maximum width remains at 10 metres from a height of 16.5 metres to 35 metres (metres above 211 AOD)
Black start diesel generator	One black start diesel generator (Part of numbered work 2B): Maximum Height: 5 metres (metres above 211 AOD) Maximum length: 13 metres Maximum width: 5 metres	In the single GTG scenario only, increase from a single black start diesel generator to three black start diesel generators For all GTG scenarios: Maximum height: unchanged Maximum length: increase from 13 to 17 metres Maximum width: unchanged
Natural gas receiving station and gas treatment compound	Natural gas receiving station and gas treatment compound (Part of	For all GTG scenarios: Split into two areas. Natural gas receiving

BUILDING OR STRUCTURE	SUMMARY OF WHAT IS CURRENTLY CONSENTED	CHANGE
	numbered work 2B): Maximum height: 3 metres (metres above 211 AOD) Maximum length: 50 metres Maximum width: 46 metres	station: Maximum height: 5 metres (metres above 211 AOD) Maximum length: 50 metres Maximum width: 36 metres Gas treatment compound: Maximum height: 5 metres (metres above 211 AOD) Maximum length: 29 metres Maximum width: 16 metres
Fin fan cooler	Built in coolers to the GTG	For single GTG, need to refer to stand alone fin fan cooler. “Ancillary equipment" to specifically include reference to external fin fan cooler containing the following measurements: Maximum height: 6 metres (metres above 211 AOD) Maximum length: 13 metres Maximum width: 10 metres
Switchyard/banking compound	Switchyard/banking compound (numbered work 2C) Maximum height: 11.3 metres (metres above 211 AOD) Maximum length: 60 metres Maximum width: 60 metres	Dimensions remain the same. Location of numbered work area 2C to be moved closer to the GTG.

4 SCREENING

4.1 METHODOLOGY

4.1.1 All topics assessed in relation to the application for the Development Consent Order were considered in terms of the proposed non-material changes (Chapter 3). The following steps were undertaken:

- All topics and potential impacts assessed in the ES submitted in support of the application for the Development Consent Order were screened against the parameters of the proposed changes referred to in Chapter 3 above. This included consideration of the environmental effects of the proposed changes to the project and where these effects could result in a different significance of effect to that identified in the original ES.
- Where there was a clear case that the significance of the effect would be unchanged or reduced, these topics were 'pre-screened' out of further assessment. The outcome of the pre-screening exercise is presented in Table 4.1 of this Chapter 4. In the case of landscape and visual impact, the pre-screening exercise was informed by photomontages and an account is provided in Chapter 5, which concluded that the five GTG scenario remained the realistic worst case and therefore the assessment in the original ES remains valid.
- Where further analysis was required to determine whether the significance of the effect would be unchanged or reduced, updated assessments have been provided in Chapter 5 and Chapter 6 of this Report.
- A search of the National Infrastructure Planning register of applications and a search of Rhondda Cynon Taff planning applications register has been undertaken. No new applications have been registered for Nationally Significant Infrastructure Projects or major planning applications that would be required to be considered in the assessment of cumulative effects. There are also no changes to the baseline information sufficient to require an update to the cumulative assessment.

4.1.2 The majority of the proposed changes referred to in Chapter 3 relate only to the single GTG scenario:

- Changes in dimensions for the single GTG;
- Width of flue stack;
- Increase in number of Black Start Diesel Generators from one to up to three;
- A stand alone Fin Fan Cooler;
- Location of the Switchyard/Banking compound.

4.1.3 These proposed changes in the single GTG scenario have been screened and the

updated assessments undertaken in the context of whether the effects of the single GTG scenario would be different to those identified in the realistic worst case scenario identified in the ES for all environmental topics, being the five GTG scenario.

4.1.4 The following proposed changes referred to in Chapter 3 relate to all GTG scenarios:

- Dimensions of Black Start Diesel Generator; and
- Creating two compounds out of the single compound for the Natural Gas Receiving Station and Gas Treatment Compound.

4.1.5 These proposed changes have been considered in the context of the five GTG scenario and whether or not they would create different environmental effects to those identified in the ES.

4.2 SCREENING

IDENTIFICATION OF CHANGES AND EFFECTS RELEVANT TO ASSESSMENT

4.2.1 Table 4.1 sets out the results of screening assessment in respect of the proposed changes:

Table 4-1 Impact Assessment Screening

EIA TOPIC	CHANGE IN RELEVANT PROJECT PARAMETERS	KEY CHANGE IN EFFECTS	CHANGE IN IMPACT SIGNIFICANCE	UPDATED ASSESSMENT
Air Quality	**Single GTG scenario:** 1. Increase in dimensions of GTG; 2. Increase in width of part of flue stack; 3. Increase in number of Black Start Diesel Generators; 4. Stand alone fin fan cooler **All GTG scenarios:** N/A **Not relevant:** 1. Change in location of switchyard/banking compound has no effect on level of emissions; 2. Change in width of Black Start Diesel Generators has no effect on level of emissions; 3. Creation of two compounds for Natural Gas Receiving Station and Gas Treatment Compound has no effect on emissions.	Potential	Assessment has concluded no adverse impact on significance (see Chapter 6)	Y
Noise and Vibration	**Single GTG scenario:** 1. Increase in dimensions of GTG; 2. Increase in width of part of flue stack; 3. Increase in number of Black Start Diesel Generators; 4. Stand alone fin fan cooler	No change in level of noise and vibration (Requirement 15 of the Development	None	N

EIA TOPIC	CHANGE IN RELEVANT PROJECT PARAMETERS	KEY CHANGE IN EFFECTS	CHANGE IN IMPACT SIGNIFICANCE	UPDATED ASSESSMENT
	All GTG scenarios: N/A **Not relevant:** 1. Change in location of switchyard/banking compound has no effect on noise levels; 2. Change in width of Black Start Diesel Generators has no effect on noise levels; 3. Creation of two compounds for Natural Gas Receiving Station and Gas Treatment Compound has no effect on noise levels.	Consent Order controls operational noise, and remains unchanged)		
Ecology and Nature Conservation	**Single GTG scenario:** 1. Increase in dimensions of GTG; 2. Increase in width of part of flue stack; 3. Increase in number of Black Start Diesel Generators; 4. Stand alone fin fan cooler **All GTG scenarios:** N/A **Not relevant:** 1. Change in location of switchyard/banking compound does not affect air quality;	Potential effects related to air quality but assessment confirmed no significant change (see Chapter 6)	None	N

EIA TOPIC	CHANGE IN RELEVANT PROJECT PARAMETERS	KEY CHANGE IN EFFECTS	CHANGE IN IMPACT SIGNIFICANCE	UPDATED ASSESSMENT
	2. Change in width of Black Start Diesel Generators does not affect air quality; 3. Creation of two compounds for Natural Gas Receiving Station and Gas Treatment Compound does not affect air quality			
Water Quality and Resources	None of the proposed changes are relevant as they do not have any direct or indirect effects on water quality or resources.	No change in effects as water resources not affected	None	N
Geology, Ground Conditions and Agriculture	**Single GTG scenario:** 1. Change in location of switchyard/banking compound; **All GTG scenarios:** 1. Creation of two compounds for Natural Gas Receiving Station and Gas Treatment Compound **Not relevant:** 1. Increase in width of part of flue stack ; 2. Increase in dimensions of GTG; 3. Increase in number of Black Start Diesel Generators; 4. Stand alone fin fan cooler ; 5. Change in width of Black Start Diesel Generators. In respect of 1 to 5 above,	Reduction in building footprint, therefore impacts are reduced	None	N

EIA TOPIC	CHANGE IN RELEVANT PROJECT PARAMETERS	KEY CHANGE IN EFFECTS	CHANGE IN IMPACT SIGNIFICANCE	UPDATED ASSESSMENT
	whilst their respective dimensions increase, the built footprint reduces overall due to the smaller footprint of the Natural Gas Receiving Station and Gas Treatment Compound and, in the single GTG scenario, the close location of the switchyard.			
Landscape and Visual Assessment	**Single GTG scenario:** 1. Increase in dimensions of GTG; 2. Increase in width of part of flue stack; 3. Increase in number of Black Start Diesel Generators; 4. Stand alone fin fan cooler 5. Change in location of switchyard/banking compound; **All GTG scenarios:** 1. Creation of two compounds for Natural Gas Receiving Station and Gas Treatment Compound 2. Change in width of Black Start Diesel Generators	Potential	Screening assessment has concluded none (see Chapter 5)	Y
Traffic, Transport and Access	None of the proposed changes are relevant as they will not result in any changes to traffic movements.	No change	None	N
Cultural Heritage and Archaeology	**Single GTG scenario:** 1. Increase in dimensions of GTG;	No change in effects on	None	N

EIA TOPIC	CHANGE IN RELEVANT PROJECT PARAMETERS	KEY CHANGE IN EFFECTS	CHANGE IN IMPACT SIGNIFICANCE	UPDATED ASSESSMENT
	2. Increase in width of part of flue stack; 3. Increase in number of Black Start Diesel Generators; 4. Stand alone fin fan cooler 5. Change in location of switchyard/banking compound; **All GTG scenarios:** 1. Creation of two compounds for Natural Gas Receiving Station and Gas Treatment Compound **Not relevant:** 1. Change in width of Black Start Diesel Generators will not affect any heritage assets.	heritage assets		
Socio-Economics	None of the proposed changes are relevant as they will not result in any changes in employment or effects on local receptors.	No change	None	N
Health and Waste	None of the proposed changes are relevant as they will not result in any changes to impacts on human health or any increase in the production of waste.	No change	None	N

4.2.2 The following sections provide further commentary on the topics in Table 4.1

NOISE

4.2.3 As part of the original EIA, the Power Generation Plant was modelled based on a site layout utilising five No. air cooled, 59MW single cycle gas turbines and associated plant. Each turbine was modelled with a 30m high exhaust stack with a sound power level of 110 dB (Lw A) at the stack termination when running at base load. The predicted noise levels based on this configuration formed the noise limits for the Power Generation Plant as set out in the Requirements contained in the Development Consent Order

4.2.4 An alternative site layout and configuration is being considered, using fewer, but higher power rated turbines, which would be enclosed within a single engine house with a single exhaust stack. A manufacturer of this type of unit has confirmed that the alternative configuration will be able to meet the noise limits contained in the Development Consent Order, as noise from the GTG units is attenuated by the turbine casing, and so varies little with higher power output turbines. The main variable noise producing element is likely to be exhaust noise through the top of the stack. If a single exhaust stack is used, then the sound power level at the stack termination should not exceed 113 dB (Lw A) when running at base load.

4.2.5 Regardless of the plant configuration, the following embedded mitigation will be applied to minimise noise:

- The GTGs and major compressors are to be housed in individual acoustic enclosures specified at 85 dB(A) Sound Pressure Level at 1 m.
- Turbine filter and ventilation apertures are to be fitted with high performance silencers, and designed such that all sensitive receptors benefit from screening and/or directivity corrections.
- High performance silencers will be installed in the outlet duct(s) between the GTGs. Due to the impracticality of screening stack noise, discharge noise will be controlled using silencers tuned to attenuate low frequencies from the GTG exhausts.
- Unit transformers and generator transformers to be housed in an appropriate enclosure or three sided pen, to provide full screening to noise sensitive receptors.
- All plant items will be controlled to minimise noise of an impulsive or tonal nature, such that the rating level as defined in BS 4142:2014 is equal to the specific noise level.

4.2.6 It is confirmed that in the proposed changes in the single GTG scenario and the proposed changes in all GTG scenarios (as outlined in paragraphs 4.1.2 and 4.1.4 above) are not likely to result in any changes to the predicted noise effects as assessed in the ES. In any event, the proposed changes can all be accommodated within the noise restrictions set out in Requirement 15 of the Development Consent Order.

4.2.7 Therefore, there are no new or materially different likely significant effects from those set

out in the ES.

CULTURAL HERITAGE

4.2.8 The proposed changes are to the layout of the Power Generation Plant Site (plant buildings/ancillary structures), rather than a change to the Order Limits.

4.2.9 Accordingly, given the Order Limits have been assessed in the ES, it is confirmed that in the proposed changes in the single GTG scenario and the proposed changes in all GTG scenarios (as outlined in paragraphs 4.1.2 and 4.1.4 above) are not likely to result in any changes to the predicted effects on cultural heritage as assessed in the ES.

4.2.10 The remains of the WWII Royal Ordnance Factory lie within the Power Generation Plant Site. This includes the remains of standing buildings and the potential for below ground archaeology. This is the case with or without the proposed changes. There is, therefore, no change to the impact assessment for the effects of the Scheme on this or any other non-designated asset. There is also no change to the predicted direct impact on the setting of the non-designated or designated heritage assets. This applies during both construction and operation.

4.2.11 Accordingly, there is no change to the mitigation proposed, which is secured via Requirement 11 of the Development Consent Order.

ECOLOGY

4.2.12 The proposed changes are to the layout of the Power Generation Plant Site (plant buildings/ancillary structures), rather than the Order Limits. Of relevance to this assessment is the moving of the switchyard/banking compound from the western extent of the Order Limits in the single GTG scenario creating a much more compact Power Generation Plant area, the widening of the stack in the single GTG scenario, the addition of the stand alone fin fan cooler in the single GTG scenario and the increase in number of black start generators in the single GTG scenario.

4.2.13 The splitting of the natural gas receiving station and gas treatment compound will not result in any changes to the predicted effects on ecological receptors as it will not affect emissions and is therefore not relevant to the assessment.

4.2.14 As part of the original assessment for ecology, predicted impacts and effects (without mitigation) of project activities to ecological receptors included:

- Permanent and temporary habitat loss (within the Order Limits);
- Habitat fragmentation (dependent on receptor, but predominantly within the Order Limits);

- Incidental mortality of species during site clearance and construction (within the Order Limits);
- Direct and indirect disturbance from construction activities including visual, noise, vibration and lighting (up to several hundred metres, dependent on receptor);
- Pollution caused by dust (up to 100m from works footprint);
- Pollution caused by use of hazardous materials and incidental release of chemicals, fuels or waste materials (dependent on pathway, effects on hydrologically connected receptors could potentially occur several kilometres downstream); and
- Changes in hydrology from construction of the Power Generation Plant.

4.2.15 No changes to areas of permanent and/or temporary habitat loss will occur as a result of the proposed changes outlined in paragraphs 4.1.2 and 4.1.4 above. The original assessment assumed temporary land-take of all areas within the redline boundary. As the redline boundary remains the same, no changes to habitat fragmentation or incidental mortality of species is likely to occur.

4.2.16 Results of the revised air quality assessment shows that the emissions resulting from the proposed single GTG dimensions and single turbine outputs would be reduced compared to the original assessment of five turbine units. Marked reductions in annual mean and daily mean nitrogen oxides are predicted over all of the sites designated for nature conservation, including Blaen Cynon Special Area of Conservation (SAC) and its supporting features in the Hirwaun Industrial Estate Site of Importance for Nature Conservation (SINC). The impact of the proposed changes on nitrogen deposition would also be reduced.

4.2.17 The Habitat Regulations Screening Assessment (No Significant Effects Report submitted with the original application) has considered the potential for Likely Significant Effects on the SAC sites to occur, either alone or in combination with other developments and the assessment has identified that Likely Significant Effects, either alone or in-combination with other developments, are unlikely. The Air Quality Assessment and Water Quality and Resources Assessment of the ES underpinned the No Significant Effects Report. None of the proposed changes are relevant to water quality and the updated air quality assessment has concluded that the impacts would be unchanged or reduced. The outcome of the screening and updated assessments confirms that the conclusions in the ES remain valid and therefore the findings of the No Significant Effects Report also remain valid for the proposed changes.

OTHER TOPICS

4.2.18 As set out in Table 4.1, none of the proposed changes are relevant to the conclusions of the original EIA topics relating to traffic and transport, water quality, socio-economics, and health and waste.

4.2.19 Potential effects on geology, ground conditions and agriculture were considered in

relation to the splitting of the natural gas receiving station and gas treatment compound, and, in the single GTG scenario, the moving of the switchyard/banking compound. However, the effects would be unchanged as the Order Limits would not change and therefore it was concluded that an updated assessment would not be required.

5 LANDSCAPE

INTRODUCTION

5.1.1 This Chapter considers whether potential landscape and visual impacts arising from the proposed changes to the Power Generation Plant site would give rise to new or different environmental effects than those assessed in the ES.

5.1.2 The proposed changes to the Power Generation Plant site have been considered in relation to the landscape and visual assessment chapter of the ES submitted to support the application for the Development Consent Order. In terms of visibility, the most noticeable of the proposed changes compared to the parameters set out in the Development Consent Order would be changes to the dimensions of both the GTG and the flue stack (in the single GTG Scenario only). These are the tallest structures and it is important to note that there would be no change to their overall height.

5.1.3 Changes are proposed to other structures including:

- in the single GTG scenario - increase in number of black start diesel generators from one to three; a stand-alone fin fan cooler (new structure); the location of the banking/switchyard compound; and
- in all GTG scenarios - increase in dimensions of the black start diesel generator; the creation of two (out of the current single) natural gas receiving station and gas treatment compound.

5.1.4 All of the changes referred to in 5.1.3 would affect structures that are of a lower height than the GTG and flue stack and in terms of visibility would be less noticeable. In the single GTG scenario the tallest of these structures would be the proposed fin fan cooler, which would be a new stand-alone structure and would be located adjacent to the gas turbine building. In the five GTG scenario ancillary cooling systems would be built in and not visible.

5.1.5 No changes are made to the proposed embedded and secondary landscape mitigation for the Power Generation Plant.

5.1.6 This updated assessment has focussed on potential changes to views and visual amenity. Potential landscape effects have not been considered further for the following reasons:

- There would be no change to the location or extent of the Power Generation Plant. It would be built on land currently occupied by large industrial buildings which would be demolished to accommodate the proposed development. Potential impacts on landscape character and landscape elements (trees, woodland/plantations etc.) would be minor, the same as assessed in the ES;

- The proposed development would be in keeping with the character and scale of surrounding industrial and commercial development within Hirwaun Industrial Estate; and
- No significant adverse effects were reported on key landscape character receptors within the locality, including the Brecon Beacons National Park, Hirwaun Special Landscape Area and sensitive landscape characteristics identified through LANDMAP. The proposed changes would not result in new, or materially different, likely significant effects.

5.1.7 Potential effects would arise in relation to views and visual amenity at a limited number of locations. The ES identified potential effects on visual amenity would arise primarily in relation to the five 35m high stacks. Other lower structures within the Power Generation Plant, including the five GTG, would be substantially screened by the surrounding industrial buildings and coniferous plantations at Hirwaun Industrial Estate.

5.1.8 Assuming the proposed changes to the lower structures would be screened by the existing buildings and vegetation at Hirwaun Industrial Estate, the updated assessment has focussed on potential changes to views in relation to the tallest structures, the single flue stack and the GTG, as well as the fin fan cooler, which would be a new structure. The proposed changes that relate to all GTG scenarios are not considered to affect landscape or visual impacts given they are low level structures (5 metres). The assessment has, therefore, focussed on the proposed changes to the single GTG scenario, focussing on the flue stack, the GTG and fin fan cooler for the reasons explained above. The revised assessment does not affect the conclusions reported in the ES; no new significant visual effects are predicted to arise from the proposed changes.

5.2 METHODOLOGY

5.2.1 The methodology for the assessment of potential visual effects from the proposed changes has followed the same process and applied the same criteria as the ES. Similarly, for the purpose of this assessment, impacts that are assessed as being either moderate adverse or above are considered significant.

5.2.2 This assessment has used selected viewpoints from the original ES that are representative of receptors with high and medium sensitivity near the Power Generation Plant site where moderate adverse effects were reported. They include publicly accessible locations representative of views of a highly valued, nationally designated landscape, the Brecon Beacons National Park, and public footpaths and Open Access Land at Hirwaun Common (VP21) and Pendryn Reservoir (VP14).

5.2.3 The ES reported nearby residential settlements would not have a view of the project due to screening by intervening landform, woodland or industrial development. Where views would be available, only a small part of the project would be visible or the view would be filtered by vegetation. For this reason only one of the selected viewpoints includes a residential receptor (VP14).

5.2.4 All viewpoints described in the ES Chapter 11 that relate specifically to the Power Generation Plant have been reviewed and it has been concluded that there are no new, or materially different, likely significant effects as a result of the proposed changes at any of those viewpoints.

5.2.5 This updated assessment has focussed on specific viewpoint locations from the original ES that are representative of receptors with high and medium sensitivity near the Power Generation Plant site where moderate adverse effects were reported. They include the following three viewpoint locations which are representative of views of a highly valued nationally designated landscape, the Brecon Beacons National Park, public footpaths and Open Access Land at Hirwaun Common and Pendryn Reservoir:

- Viewpoint VP14: Pendryn Reservoir;
- Viewpoint VP15: Hirwaun Common Special Landscape Area; and
- Viewpoint VP21: Myndd-y-glog Open Access Land, Brecon Beacons National Park.

5.2.6 The new photomontages for these viewpoints (see Appendix 5) include the same photographs of existing views that were included in the ES which were taken between June 2013 and January 2014, a photomontage of the approved project at year one when landscape mitigation planting would have little visual impact (a single GTG scenario and the five GTG scenario are shown), and a photomontage showing the proposed changes in respect of the single GTG scenario, also at year one. Please refer to ES Figure 11.4, Viewpoint Locations (Document reference 6.3.0, Volume C), and Photographs and Photomontages (Document reference 7.1) for the original photomontages for Viewpoints VP14, VP15 and VP21. The proposed changes are only shown in respect of the single GTG scenario as it is only in that scenario that the changes referred to in paragraphs 4.1.2 and 4.1.4 have the potential for any new or different environmental effects.

5.2.7 The same methodology has been used for the production of the original and new photomontages.

5.3 SUMMARY OF ORIGINAL ASSESSMENT

5.3.1 The ES concluded the Power Generation Plant would be located on the site of a former industrial building within Hirwaun Industrial Estate where it would be substantially screened by surrounding large-scale buildings and conifer plantations on the boundary of the industrial estate. Distant views over the industrial estate are available from higher ground at Hirwaun Common to the south and the Brecon Beacons National Park to the north.

5.3.2 The maximum height of the Power Generation Plant stack(s) would be 35m, which would be taller than adjacent buildings within the industrial estate. Generally, views would be limited to the upper part of the stacks which would be seen against the backdrop of higher ground in the Brecon Beacons National Park and Hirwaun Common. Views of the Power Generation Plant would not be available to residential receptors due to screening by landform, woodland and other industrial buildings at Hirwaun Industrial Estate. With

mitigation, residual visual impact would be not significant for nearby receptors.

5.3.3 The Power Generation Plant site lies within 2km of the Brecon Beacons National Park within a buffer zone (the External Zone) where control of light pollution is necessary to protect the dark sky within the National Park, which is one of its special qualities.

CONSTRUCTION

5.3.4 The ES assessment concluded demolition of redundant buildings on the Power Generation Plant site would have a positive benefit on views towards and from the National Park and surrounding rural areas. Construction activities would be temporary and would have a slight adverse effect on visual receptors.

OPERATION

5.3.5 As described in ES Chapter 4, the realistic worst case in visual terms would be five gas turbine generators each with a 35m high stack. Therefore, the ES assessment was based on this scenario with the stacks set out in a linear arrangement. They were considered to be the most prominent elements within the Power Generation Plant site and would be visible over a wide area. Although they would not cause a change to the skyline due to the nature of the valley/hill landscape, the top of the stacks would be visible above nearby mature woodland/coniferous plantations. They would be seen in the context of other industrial development and would be noticeably taller than the surrounding buildings.

5.3.6 The proposed Lighting Strategy will control potential light pollution within the Brecon Beacons National Park External Zone (refer to ES Appendices, Volume D, Appendix 11.2 (Document reference 6.2.0). The Lighting Strategy is secured via Requirement 16 of the Development Consent Order (Control of Artificial Lighting).

5.3.7 Table 5.1 summarises the significance of visual effects in relation to viewpoints VP14, VP15 and VP21 during construction and operation when the landscape mitigation had achieved its design objectives.

TABLE 5.1 SIGNIFICANCE OF VISUAL EFFECTS

VIEWPOINT	LOCATION	RECEPTOR / SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF EFFECT
VP14	Pendryn Reservoir (south side)	Residential and Recreational / Medium	Construction: Negligible	Slight Adverse Not Significant (temporary)
			Operation: Moderate	Moderate Adverse Significant
			Cumulative: Minor	Slight Adverse Not Significant
VP15	A4061 road near Hirwaun	Recreational / Medium	Construction: Negligible	Slight Adverse Not Significant

TABLE 5.1 SIGNIFICANCE OF VISUAL EFFECTS

	Common and Tower Colliery			(temporary)
			Operation: Moderate	Moderate Adverse Significant
			Cumulative: Minor	Slight Adverse Not Significant
VP21	Myndd-y-glog Open Access Land, Brecon Beacons National Park	Recreational / High	Construction: Negligible	Slight Adverse Not Significant (temporary)
			Operation: Negligible	Slight Adverse Not Significant
			Cumulative: Minor	Slight Adverse Not Significant

DECOMMISSIONING

5.3.8 The Power Generation Plant will be designed for an operating life of 25 years from commencement of operation. During decommissioning, temporary activities and potential visual impacts would be similar to those during construction. Landscape mitigation planting would be retained and would screen some views of the decommissioning activities.

5.4 UPDATED ASSESSMENT

5.4.1 The proposed changes to the approved layout of the Power Generation Plant site and parameters set out in the Development Consent Order are described in detail in Chapter 3 above and are shown in Figures 1, 2, 4, 5 and 6. In terms of visibility, the most noticeable differences are:

- The alternative layout of the Power Generation Plant (i.e. the moving of the switchyard/banking compound closer to the GTG) would be based around one GTG and one flue stack instead of up to five GTGs and flue stacks. The perimeter fence and mitigation planting would be in the same position as the approved project;
- The single GTG would be increased in length to 50 metres (previously 30 metres) and width to 40 metres (previously 30 metres); and
- The maximum width of the flue stack would be increased to 11 metres up to a height of 16.5 metres reducing to 10 metres for the remaining height. The height of the stack would be unchanged (35 metres).

5.4.2 Proposed changes to other lower structures within the Power Generation Plant site would be less noticeable and would include:

- In the single GTG scenario, three black start diesel generators would be required to start up the single GTG. Whilst this is an increase from one, this change is only where there is a single GTG. Accordingly, there would still be

considerably less infrastructure in the single GTG scenario than the five GTG scenario (the range of one to five GTGs being already consented in the Development Consent Order).

- In the single GTG scenario, the fin fan cooler would not specifically form part of the single GTG and would be replaced by appropriate external ancillary equipment. The dimensions would be 6 metres high, 13 metres long and 10 metres wide. Whilst in the single GTG scenario this cooling equipment is separate from the GTG (unlike in the two to five GTG scenarios where the cooling equipment are integrated into the GTG), there would still be considerably less infrastructure in the single GTG scenario than the five GTG scenario (the range of one to five GTGs being already consented in the Development Consent Order).
- For all GTG scenarios, the length of the black start diesel generator would be increased to 17 metres (previously 13 metres), the maximum height (5 metres) and width (5 metres) remain the same. This change of 4 metres is deminimus and would not be noticeable in the context of the built infrastructure.
- For all GTG scenarios, the single compound consented in the Development Consent Order for the natural gas receiving station and gas treatment compound (3 metres high x 50 metres long x 46 metres wide) would be replaced by two smaller compounds of the following dimensions which would be an overall reduction in the total built footprint.
  - Compound 1 – Natural Gas Receiving Station: 5 metres high x 36 metres wide and 50 metres long;
  - Compound 2 – Gas Treatment Compound: 5 metres high x 16 metres wide and 29 metres long.

5.4.3 The approach to landscaping, design and lighting for the Power Generation Plant would be the same as the approved project.

CONSTRUCTION

5.4.4 Construction and commissioning of the proposed Power Generation Plant would remain be the same between the project as currently consented and with the proposed changes. The same significant short term slight adverse visual effects on highly sensitive receptors would arise during this stage. Construction activities would have a direct effect on all areas required for the permanent works, as well as the construction area, and they would be temporary.

OPERATION

5.4.5 The new photomontages (refer to Appendix 5) illustrate the proposed Power Generation Plant in the single GTG scenario, which can be compared with the photomontage for one consented unit. The proposed changes would have little visual impact at year one when landscape mitigation planting was least effective and would reduce over time as the planting developed and achieved its full effect by year

fifteen.

5.4.6 The single wider stack (35m high) would be less noticeable in views from the surrounding landscape than the approved arrangement of up to five stacks (35m high).The proposed changes to the dimensions and locations of other smaller structures within the Power Generation Plan would not be discernible in views from any of the viewpoint locations considered in the ES due to distance.

5.4.7 Table 5.2 below sets out a comparison between the approved project and the proposed changes at operation in relation to each of the three viewpoint locations referred to in paragraph 5.2.5.

Table 5.2 Comparison of the Visual Impact of the Approved Power Generation Plant and Proposed Changes at Operation

VIEWPOINT / FIGURE	LOCATION / DIRECTION/ RECEPTOR/SENSITIVITY	APPROVED PROJECT	PROPOSED CHANGES
VP14 Figure 5.1	Pendryn Reservoir; North of the Power Generation Plant site; Residential and Recreational; Medium	The upper part of the flue stacks, turbines and main structures in the Power Generation Plant would be visible above the coniferous planting on the boundary of Hirwaun Industrial Estate. They would be visible against the backdrop of higher ground within the Brecon Beacons National Park.	Views of the GTG (maximum height 19m) would be screened by the mature conifer plantations surrounding Hirwaun Industrial Estate from year 1. Changes to the overall length and width of the building would not be apparent. The single flue stack (35m high) would be in approximately the same position as the central stack in the row of 5 stacks in the approved project. In this location most of the stack would be screened by coniferous woodland that surrounds Hirwaun Industrial Estate, leaving only the top of the stack visible. It would be the same height as the stacks assessed in the ES and the visible part of the stack top would be the same width as shown in the original ES photomontage. The proposed change to the width of the base of the stack to 11 metres (previously 10 metres) up to a height of 16.5 metres would not be visible and would be screened by the coniferous woodland. The flue stack would be the only element in the proposed changes that would be visible from this location and would be less noticeable than a row of up to five stacks of the same height. It is considered that the visual impact of a single flue stack would not be more adverse than the impact arising from up to five stacks. No change in the ES assessment.

VIEWPOINT / FIGURE	LOCATION / DIRECTION/ RECEPTOR/SENSITIVITY	APPROVED PROJECT	PROPOSED CHANGES
		Magnitude of change: Moderate Significance of effect: Moderate Adverse, significant	In respect of the single GTG with the proposed changes: Magnitude of change: Minor Significance of effect: Slight Adverse, not significant
VP15 Figure 5.2	A4061 road near Hirwaun Common and Tower Colliery; South of the Power Generation Plant site; Recreational; Medium	The Power Generation Plant would be less noticeable in this panoramic view of the Brecon Beacons National Park than the existing large-scale white industrial buildings it will replace. The upper part of the five flue stacks and GTGs would be visible between two coniferous plantations on the edge of Hirwaun Industrial Estate and could not be fully mitigated. Dense deciduous scrub woodland/hedgerows outside the industrial estate would screen most of the lower structures	The GTG (maximum height 19m) and flue stack (35m high) would be noticeable above the dense deciduous scrub woodland/hedgerows and could not be fully screened. The flue stack would be in approximately the same position as the central stack in the row of 5. It would be the same height as the flue stacks assessed in the ES and the visible part of the proposed stack top would be the same as the stacks shown in the original ES photomontage. The proposed change to the width of the base of the stack to 11 metres (previously 10 metres) up to a height of 16.5 metres would not be visible and would be screened by the coniferous woodland that surrounds Hirwaun Industrial Estate and intervening deciduous woodland/scrub vegetation. The single flue stack would be the only element of the proposed changes that would be visible from this location and would be less noticeable than the approved scheme comprising a row of up to five stacks of the same height. It is considered that the visual impact of a single stack would not be more adverse than the impact from up to five stacks. No change in

VIEWPOINT / FIGURE	LOCATION / DIRECTION/ RECEPTOR/SENSITIVITY	APPROVED PROJECT	PROPOSED CHANGES
		within the Power Generation Plant all year round.	the ES assessment.
		Magnitude of change: Moderate Significance of effect: Moderate Adverse, significant	In respect of the single GTG with the proposed changes: Magnitude of change: Negligible Significance of effect: Slight Adverse, not significant
VP21 Figure 5.3	Mynydd-y-glog Open Access land, Brecon Beacons National Park; North, north-east of the Power Generation Plant site; Recreational; High	Long distance views of the tallest structures in the Power Generation Plant would be available from this elevated location. The lower structures would be screened by intervening woodland, hedgerows and conifer plantations. The flue stacks (30m high) and GTGs (19m high would be discernible at this distance and would be seen in the context of other tall industrial structures at Hirwaun Industrial Estate.	At this distance most of the lower structures within the Power Generation Plant would be screened or almost indistinguishable from adjacent industrial buildings in Hirwaun Industrial Estate. The single flue stack (35m high) would be in approximately the same position as the central stack in the approved project. Although it would be distinguishable from this location, it would be less noticeable than a row of up to five stacks of the same height. The proposed change to the width of the base of the stack to 11 metres (previously 10 metres) up to a height of 16.5 metres would not be visible from this distance. It is considered that the visual impact of a larger GTG and single stack would not be more adverse than the impact arising from five smaller GTGs and five stacks. No change in the ES assessment.

VIEWPOINT / FIGURE	LOCATION / DIRECTION/ RECEPTOR/SENSITIVITY	APPROVED PROJECT	PROPOSED CHANGES
		Magnitude of change: Negligible Significance of effect: Slight Adverse, not significant	In respect of the single GTG with the proposed changes: Magnitude of change: Negligible Significance of effect: Slight Adverse, not significant

DECOMMISSIONING

5.4.8 The assessment of effects at decommissioning would be the same as those reported in the ES. The Power Generation Plant would be designed for an operating life of 25 years. During decommissioning, site activities would be similar to those during construction. Retention of the landscape mitigation planting would reduce visual impacts at this stage compared to the construction stage.

CUMULATIVE EFFECTS

5.4.9 The ES reported cumulative effects in relation to the Power Generation Plant and the proposed Enviroparks EfW, Hirwaun Energy Centre, Rhigos substation and overhead transmission line, which would be located within Hirwaun Industrial Estate, and more distant wind/solar energy projects. A search of the National Infrastructure Planning register of applications and a search of Rhondda Cynon Taff planning applications register has been undertaken. No new applications have been registered for Nationally Significant Infrastructure Projects or major planning applications that would be required to be considered in the assessment of cumulative effects.

5.4.10 From viewpoint VP14 views of the Power Generation Plant would be seen in conjunction with the Enviroparks EfW, the Hirwaun Energy Centre and the Rhigos substation overhead transmission line. The ES assessed the overall cumulative impact would be minor and the significance of effect would be slight adverse. The same developments would be visible from viewpoint VP15 and the cumulative effects were also assessed to be slight adverse.

5.4.11 From viewpoint VP21 the Enviroparks EfW, Hirwaun Energy Centre and overhead transmission line at Rhigos substation would be visible in conjunction with the Power Generation Plant. From further afield views of renewable energy projects would include the proposed INRG solar PV at Hendre Fawr, the Mynydd Wind farm to the south and Pen Y Cymoedd Wind Farm at Hirwaun Common. The ES assessed the overall cumulative impact would be minor and the significance of effect would be slight adverse.

MITIGATION AND RESIDUAL EFFECTS

5.4.12 The proposed changes to the Power Generation Plant would incorporate the same embedded mitigation in the design of all its elements and the same secondary landscape mitigation as described in the original ES, all of which are secured in the Development Consent Order through the Requirements

5.4.13 In respect of landscape and visual effects, embedded mitigation would include:

- → Utilising technology (SCGT) that will allow a significant reduction in stack height compared to other technology types and there will be no visible plume (Table 2 in Requirement 4 secures parameters (as proposed to be amended in this application));

- The architectural design of the buildings will assimilate the Power Generation Plant into the surrounding landscape (Requirement 4 secures detailed design and design principles);
- External lighting will be designed to reduce trespass and configured to avoid glare and spillage (Requirement 16 secures the Lighting Strategy); and
- The retention of existing trees where practical (Requirements 5 (Provision of Landscaping), Requirement 10 (Ecological Management Plan) and Requirement 12 (Construction Environmental Management Plan) are applicable in this regard.

5.4.14 The same measures as those set out in ES Figure 11.5 Landscape Mitigation Proposals (Document Reference 6.3.0 Figures, Volume C,) would be undertaken to address specific residual adverse effects of the proposed changes to the Power Generation Plant that cannot be designed out. They include:

- Retention of existing trees wherever possible;
- A belt of trees on the eastern side of the Power Generation Plant site to link in with the existing wood on the northern boundary to screen views from the A465 road across the Hirwaun Industrial Estate;
- A belt of trees along the western side of the Power Generation Plant site;
- A tree planting along the southern boundary of the site adjacent to Main Avenue; and
- The retention and reinstatement of semi-improved grassland on the northern boundary of the site.

5.4.15 Planting on the boundary of the Power Generation Plant site would be subject to National Grid planting constraints in relation to gas pipelines.

5.4.16 Residual landscape impacts would be no worse than those originally reported. The site was previously used as industrial land; therefore the impact on the landscape resource would be negligible. Residual impacts on landscape character would not be significant because the Power Generation Plant would be located within an area where it would be surrounded by similar industrial development. Subject to appropriate control of lighting during construction and operation in accordance with the Brecon Beacons National Park Authority's External Lighting Recommendations, potential impacts on the quality of the dark sky within the National Park would be the same as the approved project (and Requirement 16 requires the Brecon Beacons National Park Authority to be consulted over the Lighting Strategy prior to its approval).

5.4.17 Residual visual impacts arising from the proposed changes to the Power Generation Plant on high sensitivity receptors would also be no worse than originally reported. Visual effects would be localised and substantially screened by large scale industrial development adjacent to the Power Generation Plant site, landscape mitigation planting, and the surrounding offsite vegetation comprising conifer plantations, scrub

woodland and hedgerows.

5.5 CONCLUSIONS

5.5.1 It is concluded that the potential significance of landscape effects associated with the proposed changes are no greater than those previously assessed for the approved project. No significant landscape effects are predicted to arise at operation.

5.5.2 There would be no material change to the character of the view from the three selected viewpoints, or any of the other ES viewpoint locations that relate specifically to the Power Generation Plant. The assessed magnitude and significance of impact would be lower than the realistic worst case reported in the ES. No significant visual effects are predicted to arise at operation.

5.5.3 Potential cumulative landscape or visual effects in relation to the Power Generation Plant site would be the same as the original ES and there are no additional applications identified which require consideration in the assessment (see paragraph 5.4.9 above).

6 AIR QUALITY

6.1 INTRODUCTION

6.1.1 The air quality assessment for the original EIA considered the impacts of the Project during construction, operation and decommissioning due to:

- → Dust and particulate matter emissions generating during construction and decommissioning activities; and
- → Stack emissions (nitrogen oxides and carbon monoxide) from the operation of the Power Generation Plant.

6.1.2 Impacts on human and ecological receptors as a result of direct exposure to pollutants in ambient air and as a result of the deposition of pollutants to the surface of the ground and vegetation were considered.

6.1.3 The assessment of impacts during construction and decommissioning was undertaken using a qualitative risk based approach; operational impacts were assessed quantitatively using detailed dispersion modelling.

6.2 SCREENING OF CONSTRUCTION/DECOMMISSIONING IMPACTS

6.2.1 The original assessment concluded that during construction (and decommissioning) temporary, slight adverse effects were possible with embedded mitigation measures. As a result, additional mitigation, in the form of visual and automatic monitoring of dust emissions and the erection of solid hoarding on the northern edge of the site during demolition, was proposed. It was concluded that, with this additional mitigation, any

residual impacts would be of negligible significance.

6.2.2 The proposed changes to the dimensions of the various aspects of the Project will have no material impact on the assessment of construction and decommissioning impacts.

6.2.3 The original assessment was based on the approach set out in Institute of Air Quality Management (IAQM) Guidance on the assessment of construction impacts (2011). The assessment has four stages:

- Identification of receptors in distance bands from the works and their sensitivity to air quality impacts;
- Assessment of particulate matter emissions potential;
- Assessment of the risk of impacts in the absence of mitigation; and
- Assessment of the significance of the effects following mitigation.

6.2.4 Decommissioning impacts were assumed in the original assessment to be equivalent to the construction impacts.

6.2.5 The proposed dimension changes for the Project will not affect the potential receptors since, to ensure a conservative (likely worst case) assessment, these were assessed in relation to the Order Limits as a whole, rather than in relation to distinct works areas. Furthermore, the Project dimension changes will not affect the assessment of the dust emissions potential of the works i.e. the emissions potential from earthworks remains large (since the total site area was, and remains, greater than the IAQM criteria of 10,000m^2) and the emissions potential from construction remains small (since the total volume remains less than the IAQM criteria of 25,000m^3, the majority of which will be prefabricated). In addition, the dimension changes will not result in any increase in the maximum number of construction vehicles accessing the site in any given day (linked to the assessed risk of track-out of dust from the site on the wheels and undercarriage of vehicles).

6.2.6 With no change to receptors or emissions potential, the risks of dust impacts are unchanged from the original assessment and, as such, there is no requirement for additional mitigation.

6.2.7 To conclude, the Project, including revised dimensions, will have a negligible likely impact on air quality during construction and decommissioning.

6.3 OPERATIONAL IMPACTS

6.3.1 The potential operational impacts of the Project relate to the impacts of exhaust emissions from the GTG unit(s).

6.3.2 The ground level impact of an emission to air is determined by various factors including atmospheric conditions and the effective height of the release. For all meteorological conditions, the higher the effective release height, the lower the ground level impacts.

6.3.3 The effective height of the release is, in turn, determined by the physical height of the

release (the stack height), the height of nearby buildings and the buoyancy of the plume in providing initial plume rise before the exhaust gases become well mixed with the surrounding air.

6.3.4 It is well established that the buoyancy of a plume increases with increasing temperature of the exhaust gases and also with increasing volume flow. Therefore, to ensure a conservative (likely worst case) assessment of impacts, the original air quality assessment was based on a scenario employing five 59MW GTGs and it was assumed that the plumes from these generators do not merge. The revised Project dimensions do not affect the scenario employing five generators, but potentially affect the dispersion of pollutant from the single GTG scenario.

6.3.5 Whilst the single GTG scenario is, in general, expected to result in lower impacts than the five GTG scenario, due to the greater plume buoyancy described above, the increased dimensions of the single GTG may affect the downwash of pollutants in the wake of the unit. Increased downwash may increase ground level concentrations of pollutants, although these effects would be limited to the immediate vicinity of the GTG[1].

6.3.6 Additional dispersion modelling has been undertaken to conclusively demonstrate that a single GTG scenario (within the revised Project dimensions set out in Table 3-1) will result in air quality impacts that are equivalent to (or lower than) the five GTG scenario considered within the original assessment.

6.3.7 It should be noted that the increase in the external width of the flue stack (from 10m to 11m noted in the revised specified) applies to the lower section of the flue only. This has no impact on the dispersion of pollutants. Rather, the dispersion of pollutants is affected by the internal size of the flue at the point of exit to atmosphere (top of the flue). This is unaffected by the revisions.

6.3.8 The basic methodology for the additional dispersion modelling follows that used for the original assessment, with the generator emissions data updated to a single generator option (Table 6-1).

Table 6-2 Emissions Parameters (per Generator) for the Project.

PARAMETER	ORIGINAL ASSESSMENT	SINGLE GENERATOR OPTION
Number	5	1
Discharge Location	In a row, oriented approximately west-east from (293491, 206328) to	293726,206310

[1] The presence of buildings can affect plume rise and the initial dispersion of pollutants within the atmosphere. Turbulent wake zones can be created around buildings that force pollutants to the ground instead of allowing them to rise freely within the atmosphere. Building downwash occurs as the wind flows over and around buildings and impacts the dispersion of pollution from nearby stacks.

PARAMETER	ORIGINAL ASSESSMENT	SINGLE GENERATOR OPTION
	(293602,206316)	
Discharge Height (m)	30	35
Flue Exit Diameter (mm)	4486	8400 x 8400mm
Discharge Temperature (ºC)	479	580
Flow Rate (m3/s)	395	1780
Exit Velocity (m/s)	25	25
NOX Concentration (mg/Nm3)	50	50
NOX Emission Rate (g/s)	6.61 [33.1g/s for all generators]	32.0
CO Concentration (mg/Nm3)	100	100
CO Emission Rate (g/s)	13.23 [66.15g/s for all generators]	64.0

6.3.9 Building downwash was taken into account in the original assessment with the inclusion of five GTGs with a footprint 39m x 16m and height of 10m (above ground level). Each stack was located at the centre of a turbine unit and each turbine unit was oriented approximately north-south.

6.3.10 The single GTG has a maximum height of 19m and a revised footprint of maximum length 50m and width 40m. It is a limitation of the ADMS dispersion model that all buildings must be represented as cuboid in shape. As such, the representation of the generator in the dispersion model is, of necessity, a simplification of its actual dimensions.

6.3.11 In specifying the building dimensions for the modelling, it is essential that the simplified representation appropriately captures the likely generation of the turbulent building wake. As a result, for the Project, the GTG was represented as building of dimension 19m (H) x 60m (L) x 30m (W), oriented approximately north-south with the stack located on the northern end. It is emphasised that these dimensions are to be used for the assessment of ***dispersion of pollutants only*** and assume that the lower section of the stack effectively acts as part of the building – given the size of the stack footprint, this is appropriate.

6.3.12 Black start generators are scoped out of this assessment as they are only used very rarely for short periods e.g. to start the generators when the National Gas Transmission System fails. Testing will also be limited. The increase of one to three black start generators will also result in no increased adverse effects.

6.3.13 The addition of a fin fan cooler, the splitting of the natural gas receiving station and gas treatment compound, and change in location of the switchyard will not affect emissions.

6.4 SUMMARY OF ORIGINAL ASSESSMENT

6.4.1 The original assessment concluded that there are no significant adverse residual effects associated with the operation of the Project.

6.4.2 With the stack height set in the range 30m to 35m, and NOX emissions at the limit set by the IED (50mg/Nm3), the predicted effects of the Project on ambient air quality were negligible in significance. In particular, for ambient pollutant concentrations, total predicted environmental concentrations with the operation of the plant were well within the air quality objectives set in UK regulations for the protection of health and ecosystems.

6.4.3 For nitrogen and acid deposition, whilst existing levels were shown to exceed the critical load, the realistic worst case impacts of the Project were less than 1% of the critical load with a 35m stack and less than 1.1% of the critical with a 30m stack for nitrogen deposition and less than 0.6% of the critical loads for acid deposition.

6.4.4 The predicted impacts, both in isolation and cumulatively with other relevant development proposals were immeasurably small and hence considered imperceptible.

6.4.5 Overall, therefore, the assessment concluded that the Project will have a negligible likely impact on air quality in relation to both human and ecological receptors. This applies for the Project alone and in combination with other proposed facilities in the vicinity of the Project site.

6.5 UPDATED ASSESSMENT

IMPACTS ON HUMAN RECEPTORS

6.5.1 Table 6-3 shows the impact of the Project on maximum ground level concentrations of nitrogen dioxide with the original assessment (5 unit) and revised (1 unit) generator specifications. Nitrogen dioxide is the key pollutant for human health.

6.5.2 The revision to the specifications has no effect on the conclusions of the assessment. That is to say, there is a negligible risk of exceedance of the objectives/EU limit values and, as such, no significant health effects are anticipated with the operation of the Project. Indeed, maximum hourly impacts decrease significantly with the one unit option in comparison to the five unit option presented in the original assessment.

6.5.3 With the single GTG specification, the maximum annual mean process contribution (taking into account likely operating hours in the year) is unchanged from the original assessment (0.4µg/m^3 or 1% of the air quality objective of 40µg/m^3). The maximum hourly concentrations decrease from 18.6µg/m^3 to 7.2µg/m^3 (9.3% to 3.6% of the objective of 200µg/m^3).

6.5.4 Similarly, impacts on carbon monoxide concentrations remain imperceptible with the one

unit option.

Table 6-3 Maximum predicted concentrations of nitrogen dioxide, assessed against UK and EU air quality standards over 5 years of meteorological data.

SCENARIO	PROCESS CONTRIBUTION			PREDICTED ENVIRONMENTAL CONCENTRATION		
	Minimum	**Maximum**	**Max as % of Obj.**	**Minimum**	**Maximum**	**Max as % of Obj.**
	Annual Mean Nitrogen Dioxide (µg/m^3). Objective = 40µg/m^3					
Original (5 units)	0.2	0.4	1.0%	10.7	10.9	27.3%
Revised (1 Unit)	0.3	0.4	1.1%	10.8	10.9	27.3%
	Hourly Mean Nitrogen Dioxide (µg/m^3). Objective = 200µg/m^3					
Original (5 units)	13.7	18.6	9.3%	34.7	39.6	19.8%
Revised (1 Unit)	5.0	7.2	3.6%	26.0	28.2	14.1%

Minimum value = the lowest maximum annual average concentration modelled over the 5 years (2008 – 2012); maximum value = the highest maximum annual average concentration over the 5 years. Predicted Environment Concentration = Process Contribution plus Background Concentrations.

IMPACTS ON ECOLOGICAL RECEPTORS

6.5.5 Table 6-4 and Table 6-5 show the impact of the Project on annual mean and daily mean nitrogen oxides respectively over the various designated ecological sites for the original (five GTG) and revised (single GTG) generator specifications.

6.5.6 The impacts of the specification revision are beneficial, with marked reductions in annual mean and daily mean impacts over all of the sites designated for nature conservation, including Blaen Cynon Special Area of Conservation (SAC) and its supporting features in the Hirwaun Industrial Estate Site of Importance for Nature Conservation (SINC). In addition, total pollutant concentrations remain well below the air quality objectives/standards for the protection of ecosystems, whether the single GTG or five GTG scenario is in operation.

6.5.7 Since nitrogen deposition is directly proportional to the modelled concentration of nitrogen oxides, the impact of the specification revision on nitrogen deposition will also be beneficial.

6.5.8 For example, over Blaen Cynon SAC, nitrogen deposition due to the Project was modelled to be 0.06kgN/ha/yr (1.2% of the critical load of 5kgN/ha/yr) with the five unit option. With the 1 unit option, this reduces to 0.01kgN/ha/yr (0.2% of the critical).

Table 6-4 Maximum predicted concentrations of annual mean nitrogen oxides (µg/m^3), assessed over 5 years of meteorological data. Objective = 30µg/m^3

DESIGNATED SITE	PROCESS CONTRIBUTION				PREDICTED ENVIRONMENTAL CONCENTRATION			
	Original	As % of Obj.	Revised	As % of Obj.	Original	As % of Obj.	Revised	As % of Obj.
Blaen Cynon SAC (and SSSI)	0.56	1.9%	0.09	0.3%	14.56	48.5%	14.09	47.0%
Coedydd Nedd SAC (and SSSI)	0.05	0.2%	0.01	0.0%	14.05	46.8%	14.01	46.7%
Cwm Cadlan SAC (and SSSI)	0.08	0.3%	0.02	0.1%	14.08	46.9%	14.02	46.7%
Hirwaun Ind. Est.	0.24	0.8%	0.06	0.2%	14.24	47.5%	14.06	46.9%
Hirwaun Ponds N	0.02	0.1%	0.00	0.0%	14.02	46.7%	14.00	46.7%
Hirwaun Ponds	0.01	0.0%	0.00	0.0%	14.01	46.7%	14.00	46.7%
Hirwaun Common	0.04	0.1%	0.00	0.0%	14.04	46.8%	14.00	46.7%
Werfa Farm	0.05	0.2%	0.01	0.0%	14.05	46.8%	14.01	46.7%
Rhigos Tramway	0.03	0.1%	0.00	0.0%	14.03	46.8%	14.00	46.7%
Gelli-ben-uchel	0.09	0.3%	0.01	0.0%	14.09	47.0%	14.01	46.7%
Ancient W'lands	0.33	1.1%	0.07	0.2%	14.33	47.8%	14.07	46.9%

Maximum value = the highest maximum annual average concentration over the 5 years. Predicted Environment Concentration = Process Contribution plus Background Concentrations.

Table 6-5 Maximum predicted concentrations of daily mean nitrogen oxides (µg/m^3), assessed over 5 years of meteorological data. Standard = 75µg/m^3

DESIGNATED SITE	PROCESS CONTRIBUTION				PREDICTED ENVIRONMENTAL CONCENTRATION			
	Original	As % of Obj.	Revised	As % of Obj.	Original	As % of Obj.	Revised	As % of Obj.
Blaen Cynon SAC (and SSSI)	14.14	18.9%	4.39	5.8%	42.14	56.2%	32.39	43.2%
Coedydd Nedd SAC (and SSSI)	3.28	4.4%	0.90	1.2%	31.28	41.7%	28.90	38.5%
Cwm Cadlan SAC (and SSSI)	1.63	2.2%	0.92	1.2%	29.63	39.5%	28.92	38.6%

DESIGNATED SITE	PROCESS CONTRIBUTION				PREDICTED ENVIRONMENTAL CONCENTRATION			
Hirwaun Ind. Est.	7.44	9.9%	6.49	8.7%	35.44	47.3%	34.49	46.0%
Hirwaun Ponds N	0.97	1.3%	0.11	0.2%	28.97	38.6%	28.11	37.5%
Hirwaun Ponds	0.96	1.3%	0.08	0.1%	28.96	38.6%	28.08	37.4%
Hirwaun Common	3.17	4.2%	0.50	0.7%	31.17	41.6%	28.50	38.0%
Werfa Farm	5.04	6.7%	1.29	1.7%	33.04	44.0%	29.29	39.1%
Rhigos Tramway	2.81	3.7%	0.70	0.9%	30.81	41.1%	28.70	38.3%
Gelli-ben-uchel	3.29	4.4%	0.68	0.9%	31.29	41.7%	28.68	38.2%
Ancient W'lands	5.60	7.5%	2.60	3.5%	33.60	44.8%	30.60	40.8%

Maximum value = the highest maximum annual average concentration over the 5 years. Predicted Environment Concentration = Process Contribution plus Background Concentrations.

CUMULATIVE EFFECTS

6.5.9 The original assessment explicitly modelled the cumulative impact of the Project with other facilities in the vicinity of the Project site. The conclusion of the assessment was that the impacts of the operation of the generator(s) are imperceptibly small and will not give appreciable effects on either human health or sensitive ecological habitats, irrespective of the cumulative impacts with background concentrations and other developments.

6.5.10 A search of the National Infrastructure Planning register of applications and a search of Rhondda Cynon Taff planning applications register has been undertaken. No new applications have been registered for Nationally Significant Infrastructure Projects or major planning applications that would be required to be considered in the assessment of cumulative effects.

6.5.11 Since the maximum contribution of the single GTG scenario to ground level concentrations is the same as, or less than, the contribution of the five GTG scenario presented in the original assessment, the conclusions relating to the cumulative impact of the Project with other facilities presented in the original assessment remain unchanged.

MITIGATION AND RESIDUAL EFFECTS

6.5.12 No significant impacts are predicted to arise as a result of the operation of the Project and, as such, the Project does not warrant mitigation beyond that implicitly included in the design, namely a stack height between 30 and 35m inclusive, and emissions control to maintain emissions within the limits set by the IED. This applies with the revised specifications.

6.6 CONCLUSIONS

6.6.1 The proposed changes have no material impact on the conclusions of the original ES.

6.6.2 Overall, the Project, with proposed changes, will continue to have a negligible likely impact on air quality in relation to both human and ecological receptors during construction, operation and decommissioning. This applies both for the Project alone and in combination with other proposed facilities in the vicinity of the Project site

7 CONCLUSIONS

7.1.1 The outcome of the screening and updated assessments confirms that the conclusions in the ES remain valid for the proposed changes. The significance of the impact would be unchanged or reduced. It is therefore considered that the proposed changes are non-material amendments for the purposes of the Infrastructure Planning (Changes to, and Revocation of, Development Consent Orders) Regulations 2011.

FIGURES

Drawing Number: 7004321A | Revision: 0 | Figure 1

Hirwaun Industrial Estate

Ystad Ddiwydiannol Hirwaun

NORTH

NG RHIGOS SUBSTATION

SITE FENCE

FLUE STACK

FIN FAN COOLER

GAS TREATMENT COMPOUND

RAW/FIRE WATER TANK

SITE ACCESS

AREA FOR SCREENING

CONTROL ROOM/ OFFICE/WORKSHOP

BAT HOUSE

CULVERT

GAS TURBINE BUILDING

FOURTH AVENUE

BLACK START GENERATORS

DEMIN WATER TANK

AREA FOR SCREENING

GATE HOUSE

SWITCHGEAR BUILDING

GAS RECEIVING STATION

ELECTRICAL CONNECTION ROUTE

MAIN AVENUE

SITE ACCESS

Twyn Bryn-hir

SITE ACCESS

ELECTRICAL CONNECTION ROUTE

El Sub Sta

El Sub Sta

SWITCHYARD/BANKING COMPOUND

GAS CONNECTION ROUTE

PERMANENT ACCESS FOR GAS CONNECTION

RHIGOS ROAD

Bryn-Hir

212.4m

Pont yr Ochain

20 0 20 40 60 80 100m

ORIGINAL SCALE 1:1000

ORDER LIMITS

GAS CONNECTION ROUTE

NG SITE BOUNDARY

NG FENCE

PROPOSED LOCATION FOR BAT HOUSE

GRAVEL AREA

Rev	Date	Description	By	Chk	App
0	15/08/16	First Issue	SPS	RAB	RAB

INDICATIVE

PARSONS BRINCKERHOFF
Westbrook Mills
Godalming
Surrey GU7 2AZ
Tel: 44-(0)1483-528400
Fax: 44-(0)1483-528989

Client: Hirwaun power

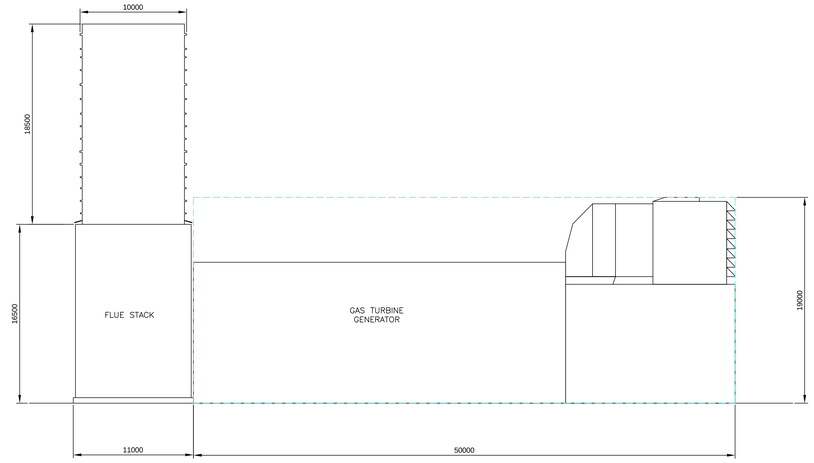
Site/Project: Hirwaun Power Project

Title: OVERALL PLAN Reg5(2)(o)

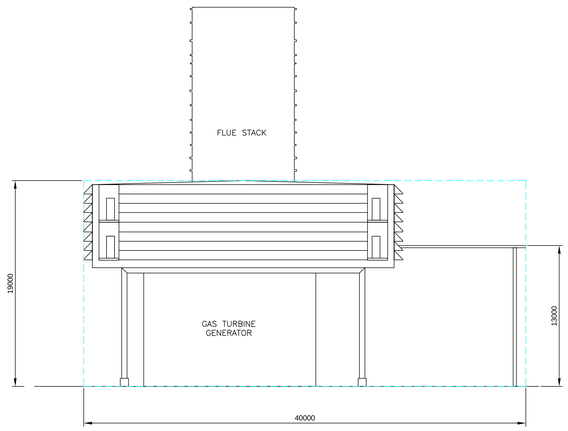
Drawn: SPS		Checked: RAB	
Designed: RAB		Approved: RAB	
Date: 15/08/2016	Scale: 1:1000	A1	Sheet: 1 OF 1
Project Number: 7004321A	Drawing Number: Figure 1		Revision: 0

7004321A | Figure 2 | 0

AMENDED DCO DIMENSIONS



NORTH ELEVATION



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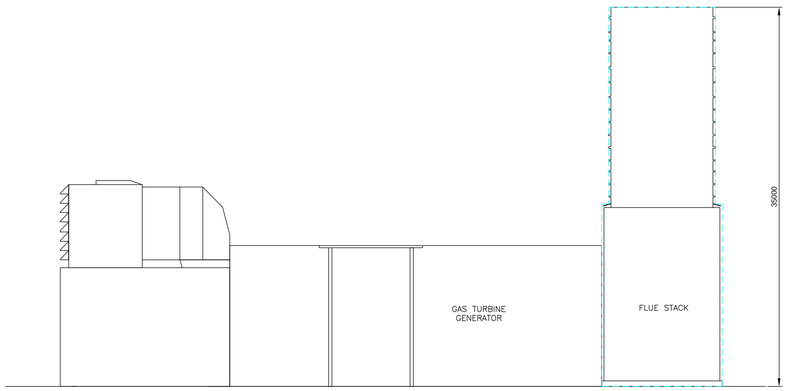

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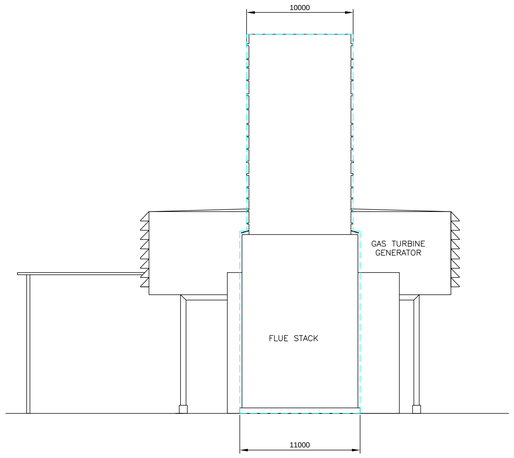

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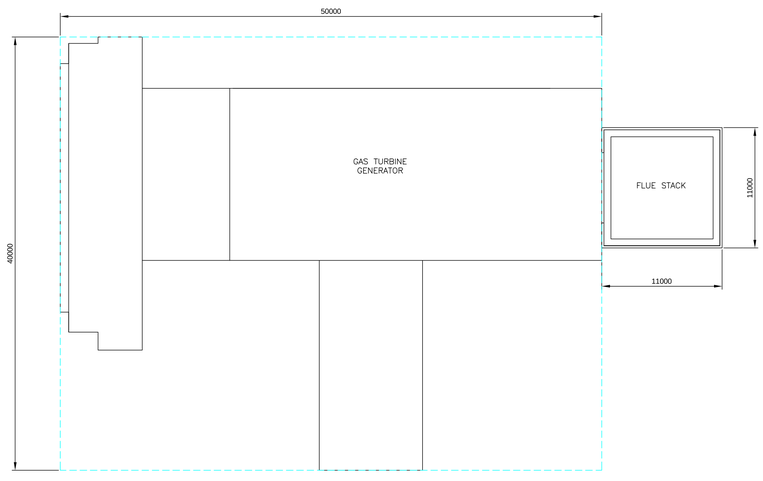


PLAN

5 0 5 10 15 20m

ORIGINAL SCALE 1:200

Rev	Date	Description	By	Chk	App
0	15/08/16	First Issue	SPS	RAB	RAB

INDICATIVE

PARSONS BRINCKERHOFF
Westbrook Mills
Godalming
Surrey GU7 2AZ
Tel 44-(0)1483-528400
Fax 44-(0)1483-528689

Client: Hirwaun power

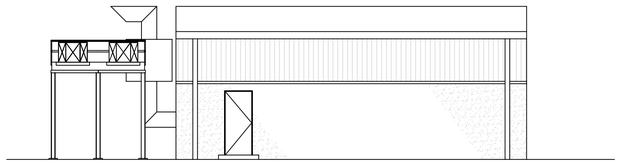
Site/Project: Hirwaun Power Project

Title: GAS TURBINE GENERATOR PLAN & ELEVATIONS Reg5(2)(o)

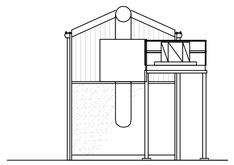
Drawn: SPS		Checked: RAB	
Designed: RAB		Approved: RAB	
Date: 15/08/2016	Scale: 1:200	A0	Sheet: 1 OF 1

Project Number:	Drawing Number:	Revision:
7004321A	Figure 2	0

Revision	0
Drawing Number	Figure 4
Project Number	7004321A



NORTH ELEVATION



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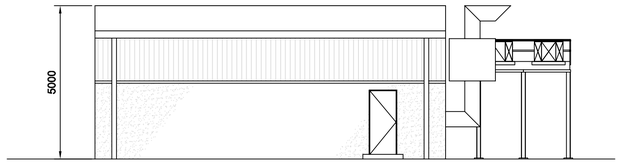
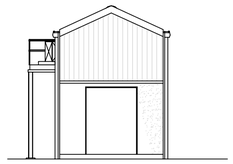
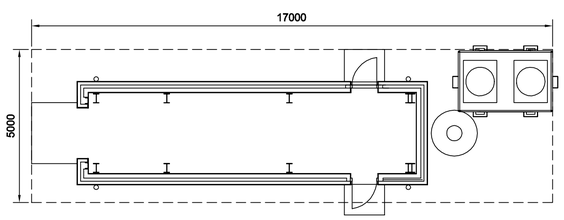


SOUTH ELEVATION



WEST ELEVATION



PLAN

LEGEND

_ _ _ _ _ _ _ MAXIMUM DIMENSIONS AS SET OUT IN REQUIREMENT 4 SCHEDULE 2 OF THE DRAFT AMENDED DCO.

2 0 2 4 6 8 10m

ORIGINAL SCALE 1:100

Rev	Date	Description	By	Chk	App
0	15/08/16	First Issue	SPS	RAB	RAB

INDICATIVE

PARSONS BRINCKERHOFF
Westbrook Mills
Godalming
Surrey GU7 2AZ
Tel: 44-(0)1483-528400
Fax: 44-(0)1483-528989

Client: Hirwaun power

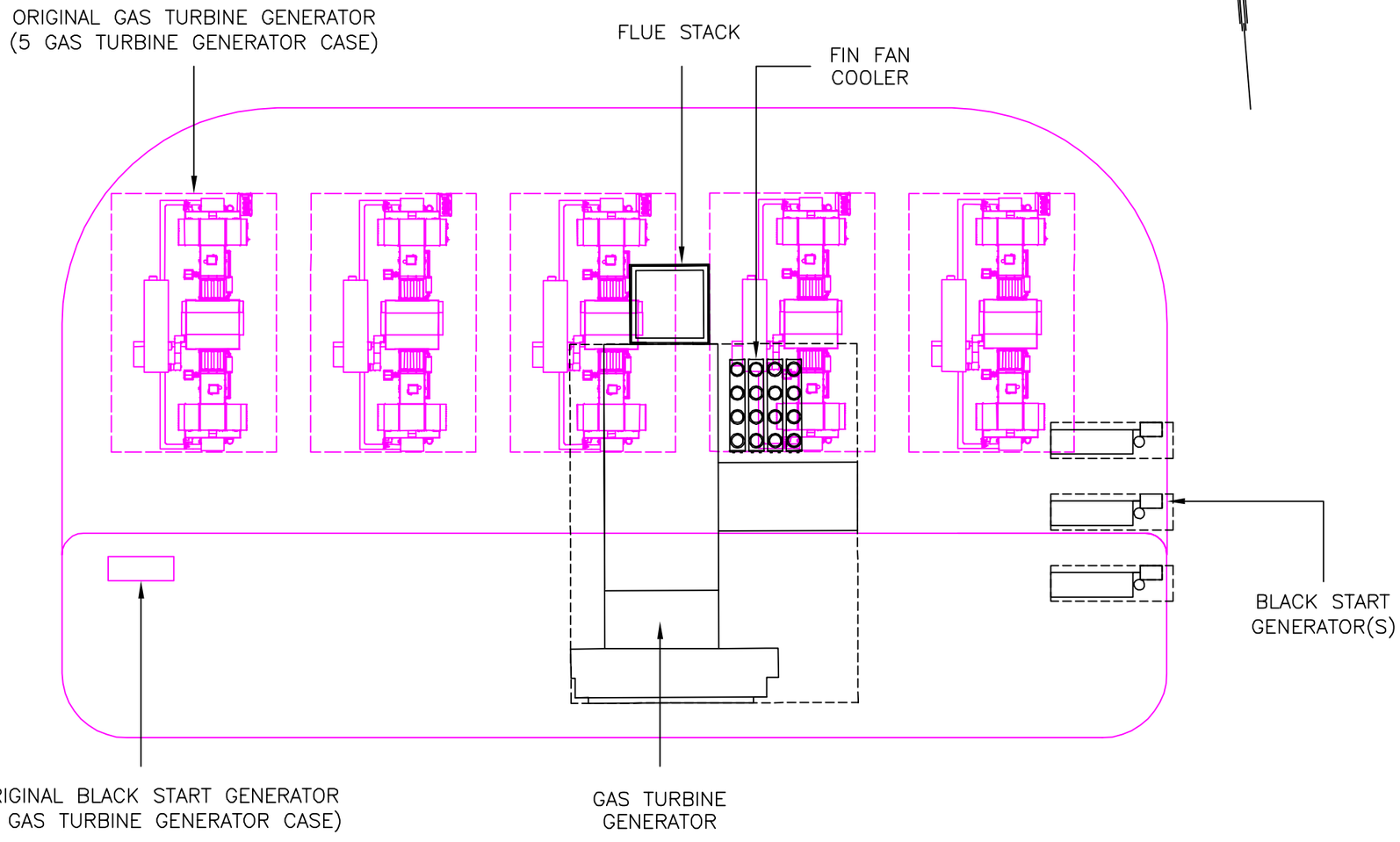
Site/Project: Hirwaun Power Project

Title: BLACK START GENERATOR PLAN & ELEVATIONS Reg5(2)(o)

Drawn: SPS		Checked: RAB	
Designed: RAB		Approved: RAB	
Date: 15/08/2016	Scale: 1:100	A1	Sheet: 1 OF 1

Project Number:	Drawing Number:	Revision:
7004321A	Figure 4	0

Project Number:	Drawing Number:	Revision:
7004321A	Figure 5	0



10 0 10 20 30 40 50m

ORIGINAL SCALE 1:750

FOOTPRINT AS PER INDICATIVE LAYOUTS OF AMENDED SINGLE GAS TURBINE GENERATOR, FIN FAN COOLER AND 3 AMENDED BLACK START GENERATORS 2506m²

FOOTPRINT AS PER INDICATIVE LAYOUTS OF 5 GAS TURBINE GENERATORS AND ORIGINAL BLACK START GENERATOR 4200m²

------ MAX DIMENSIONS

Rev	Date	Description	By	Chk	App
0	15/08/16	FIRST ISSUE	SPS	RAB	RAB

INDICATIVE

PARSONS BRINCKERHOFF
Westbrook Mills
Godalming
Surrey GU7 2AZ
Tel: 44-(0)1483-528400
Fax: 44-(0)1483-528989

Client: Hirwaun power

Site/Project: Hirwaun Power Project

Title: GAS TURBINE GENERATOR OVERLAY Reg5(2)(o)

Drawn:	SPS	Checked:	RAB
Designed:	RAB	Approved:	RAB
Date: 15/08/2016	Scale: 1:750	A3	Sheet: 1 OF 1

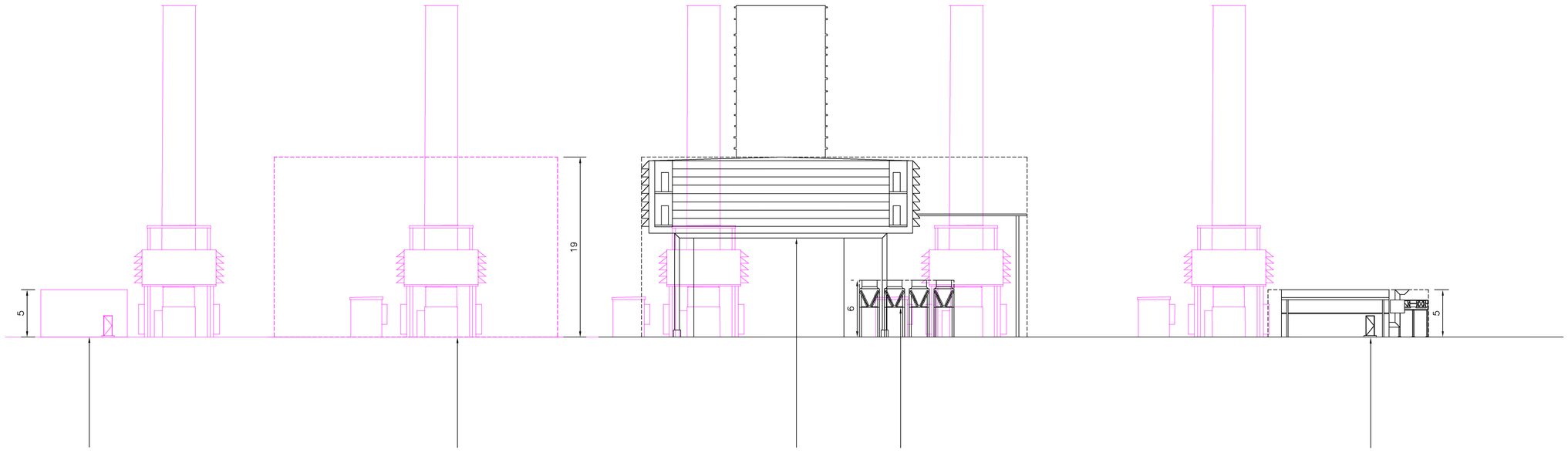
Project Number:	Drawing Number:	Revision:
7004321A	Figure 5	0

Project Number: 7004321A | Drawing Number: Figure 6 | Revision: 0

ELEVATIONS OF SINGLE GAS TURBINE SITE CASE FOR AMENDED DCO

ELEVATIONS OF FIVE GAS TURBINE GENERATORS SITE CASE FOR CONSENTED DCO

MAX DIMENSIONS



ORIGINAL BLACK START GENERATOR (5 GAS TURBINE GENERATOR CASE)

ORIGINAL GAS TURBINE GENERATOR (5 GAS TURBINE GENERATOR CASE)

GAS TURBINE GENERATOR

FIN FAN COOLER

BLACK START GENERATOR(S)

5 0 5 10 15 20m

ORIGINAL SCALE 1:250

Rev	Date	Description	By	Chk	App
0	15/08/16	First Issue	SPS	RAB	RAB

INDICATIVE

PARSONS BRINCKERHOFF
Westbrook Mills
Godalming
Surrey GU7 2AZ
Tel: 44-(0)1483-528400
Fax: 44-(0)1483-528989

Client: Hirwaun power

Site/Project: Hirwaun Power Project

Title: GAS TURBINE GENERATOR, BLACK START GENERATOR AND FIN FAN COOLER ELEVATIONS Reg5(2)(o)

Drawn: SPS		Checked: RAB	
Designed: RAB		Approved: RAB	
Date: 15/08/2016	Scale: 1:250	A1	Sheet: 1 OF 1

Project Number:	Drawing Number:	Revision:
7004321A	Figure 6	0

Appendix 3

Proposed Amendments to Schedule 1 of the Order

SCHEDULE 1

Article 3

AUTHORISED DEVELOPMENT

In the County Borough of Rhondda Cynon Taf—

A nationally significant infrastructure project as defined in sections 14(1)(a) and 15 of the 2008 Act consisting of a generating station with a gross rated electrical output of up to 299MWe comprising—

Numbered work 1 development comprising the demolition of all existing buildings and structures, including foundations, hardstanding and services,

Numbered work 2A development comprising—

(a) up to 5 gas turbine generators; and

(b) up to 5 exhaust gas emission flue stacks,

Numbered work 2B development comprising—

(a) an administration building;

(b) a store;

(c) a control room/office/workshop;

(d) telemetry apparatus;

(e) 3 black start diesel generators where one gas turbine generator is constructed and 1 black start diesel generator where two, three, four or five gas turbine generators are constructed~~black start diesel generator~~;

(f) a natural gas receiving station and gas treatment compound containing—

(g) a pipeline inspection gauge (PIG) receiving facility;

(h) isolation valves, metering, heating, filtering, compression, pressure regulation equipment;

(i) electricity supply kiosk; and

(j) control and instrumentation kiosks,

Numbered work 2C development comprising a switchyard / banking compound containing up to eight transformers, switchgear building and other plant required to manage the transmission of electricity,

Numbered work 2D development comprising a construction and maintenance compound including new hardstanding,

Numbered work 2E development comprising—

(a) security infrastructure, including cameras, perimeter fencing and a gatehouse;

(b) site lighting infrastructure, including perimeter lighting columns;

(c) internal roadways, car parking, pedestrian network, cycle parking, hardstanding and water treatment trailers;

(d) site drainage, attenuation pond and waste management infrastructure;

(e) electricity, water, wastewater and telecommunications and other services;

(f) a raw / fire water tank and demineralised water storage tank;

(g) landscaping including tree planting, fencing and other boundary treatments and ecological mitigation (including bat mitigation structure);

(h) tree and hedge removal;

(i) high voltage and low voltage cabling, equipment and controls and associated telemetry and electrical protection auxiliary cabling;

(j) underground gas pipeline connection, associated telemetry and cathodic protection test / transformer rectifier unit; and

(k) other ancillary equipment including external fin fan cooler,

Numbered work 2F development comprising new or modified permanent means of access to numbered work 2 including permanent road surface, drainage, gates and fencing,

Numbered work 2G development comprising the maintenance strengthening or re-laying in a new location of the existing culvert forming that part of ordinary watercourse River Camnant within the Order limits, such works subject to maintaining the existing flow rate.

Appendix 4

Proposed Amendments to Table 2 in Requirement 4 of Schedule 2 of the Order

Building or Structure	***Maximum height (metres above 211m AOD***	***Minimum height (metres above 211m AOD)***	***Maximum length (metres)***	***Minimum length (metres)***	***Maximum width (metres)***	***Minimum width (metres)***
Each gas turbine generator (where one gas turbine generator is constructed) (part of numbered work 2A)	19.0	-	50.0	-	40.0	-
Each gas turbine generator (where ~~one or~~ two gas turbine generators are constructed) (Part of numbered work 2A)	19.0	–	30.0	–	30.0	–
Each gas turbine generator (where three, four or five gas turbine generators are constructed) (part of numbered work 2A)	10.0	–	36.0	–	23.0	–
Each exhaust gas emission flue stack (where one gas turbine generator is constructed) (part of numbered work 2A)	35.0	30.0	–	–	~~10.0~~11.0 metres up to and including a height of 16.5 metres above 211m AOD and 10 metres from a height of 16.5 metres above 211m AOD to a height of 35.0 metres above 211m AOD	–

Building or Structure	***Maximum height (metres above 211m AOD***	***Minimum height (metres above 211m AOD)***	***Maximum length (metres)***	***Minimum length (metres)***	***Maximum width (metres)***	***Minimum width (metres)***
Each exhaust gas emission flue stack (where two, three, four or five gas turbine generators are constructed) (part of numbered work 2A)	35.0	30.0	=	=	10.0	=
Control room/office/workshop (part of numbered work 2B)	6.0	–	29.0	–	23.0	–
Natural gas receiving station ~~and gas treatment compound~~ (part of numbered work 2B)	~~3.0~~5.0	-	50.0	~~–~~ -	~~46.0~~36.0	~~–~~ -
Gas treatment compound (part of numbered work 2B)	5.0	-	29.0	-	16.0	-
Black start diesel generator (part of numbered work 2B)	5.0	–	~~13.0~~17.0	–	5.0	–
Switchyard / banking compound (numbered work 2C)	11.3	–	60	–	60	–
Switchgear Building (part of numbered work 2C)	11.3	–	21.0	–	15.0	–
Gatehouse (part of numbered work 2E)	4.5	–	9.0	–	8.0	–

Building or Structure	***Maximum height (metres above 211m AOD***	***Minimum height (metres above 211m AOD)***	***Maximum length (metres)***	***Minimum length (metres)***	***Maximum width (metres)***	***Minimum width (metres)***
Demineralised water tank (part of numbered work 2E)	16.0	–	23.0	–	23.0	–
Raw/fire water tank (part of numbered work 2E)	18.0	–	15.0	–	15.0	–
Bat mitigation structure (part of numbered work 2E)	6.0	–	10.0	–	5.0	–
External fin fan cooler (where one gas turbine generator is constructed) (Part of work 2E)	6.0	–	13.0	–	10.0	–

Appendix 5

Photomontages

Existing Photograph

Location of Proposed Power Project Infrastructure

Location Plan

Photomontage Year One

Power Project Infrastructure Consented Under the DCO for Five GTGs

Photomontage Year One

Proposed Power Project Infrastructure for One GTG

Hirwaun Power Limited | Figure 5.1 Sheet 2 of 3 | Size A3 | VP14 On Penderyn Reservoir embankment south side above PRoW | Grid reference : 293887, 207006 | Distance To Site : 0.772km

Photomontage Year One

Power Project Infrastructure Consented Under the DCO for One GTG

Photomontage Year One

Proposed Power Project Infrastructure for One GTG

Hirwaun Power Limited | Figure 5.1 Sheet 3 of 3 | Size A3 | VP14 On Penderyn Reservoir embankment south side above PRoW | Grid reference : 293887, 207006 | Distance To Site : 0.772km

Existing Photograph

Location of Proposed Power Project Infrastructure

Location Plan

Photomontage Year One

Power Project Infrastructure Consented Under the DCO for Five GTGs

Photomontage Year One

Proposed Power Project Infrastructure for One GTG

Photomontage Year One

Power Project Infrastructure Consented Under the DCO for One GTG

Photomontage Year One

Proposed Power Project Infrastructure for One GTG

Existing Photograph

Location of Proposed Power Project Infrastructure

Location Plan

Photomontage Year One

Power Project Infrastructure Consented Under the DCO for Five GTGs

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Photomontage Year One

Proposed Power Project Infrastructure for One GTG