

1 Introduction

1.1 Planning application overview

- 1.1.1** The Welsh Government is submitting a cross boundary outline planning application (with all matters reserved), to both Powys County Council (PCC) and Neath Port Talbot County Borough Council (NPTCBC) for the development of a Global Centre of Rail Excellence (GCRE) at the site of Nant Helen Surface Mine, Onllwyn. At this site coaling operations are coming to an end and final restoration by Celtic Energy was consented in June 2020 under a section 73 application 19/1899/REM.
- 1.1.2** In April 2020, Celtic Energy submitted two planning applications reference 20/0738/FUL (Powys) and P/2020/0362 (Neath Port Talbot) (both consented in July 2020) for a complementary earthworks scheme to provide a comprehensive, flexible and adaptable landform across the entire site that could support a wide range of future uses which included the GCRE, establishing the earthworks formation and associated drainage and landscaping for two of the key components of the rail testing facility, namely the high speed and infrastructure test loops and rail line connections.

1.2 Site location and context

- 1.2.1** The proposed development site is within the Dulais Valley, straddling the Neath Port Talbot and Powys border, with the Brecon Beacons National Park Authority boundary immediately to the north. It consists of areas within the Nant Helen Open Cast mine with ground levels that vary between 220m and 335m AOD, plus the Onllwyn Washery and Distribution Centre (58ha), which serves as a preparation and washery facility.
- 1.2.2** The project site has been extensively worked as an open cast coal mine and therefore currently consists of brownfield restored land, overburden mounds, coal stocking areas, barrel wash and plant maintenance areas, site office facilities and a void which is currently being mined. Much of the site has been revegetated. The planning development boundary is shown on Figure 1.1 and within the regional context in Figure 1.2.
- 1.2.3** The site's existing topography is such that previous mining activities have been screened from view from within the nearby settlements of Onllwyn, Seven Sisters, Ystradgynlais, Caehopkin, Abercrave or Coelbren.
- 1.2.4** An existing rail connection is located to the south. The southern area of the site is crossed by high voltage overhead lines and pylons running roughly parallel to each other, the northern line carries

Western Power Distribution's (WPD) 132kV cables, the southern line carries National Grid's (NG) 400kV cables.

1.3 Common land and PRow

1.3.1 Common land (BCL78-Mynydd-y-Drum) extends across the southern section of the site, as shown in Figure 12.2. BCL136- Land at Abercrave Station is a small (1.07 ha) area of common land to the north of the site.

1.3.2 There are also a number of Public Rights of Way (PRow) that cross the site although the majority of these have been temporarily suspended for the duration of the existing coaling operations.

1.3.3 More details on what the Common Land and PRow Strategy is for this proposed development are included in Chapter 12: Socioeconomics.

1.4 Why is GCRE needed?

1.4.1 The UK does not possess anything approaching such a high-quality facility as that planned at GCRE. Both public and private sector organisations frequently use test facilities in Europe and the USA, supporting jobs and building competing expertise in other countries. Moreover, these other facilities are often owned and operated by a single commercial entity, which stifles access to testing and innovation. With projects such as HS2, CrossRail2, Northern Powerhouse Rail and the Cardiff Valleys transformation approaching, together with the soon to be time-expired status of the majority of the UK's signalling infrastructure (in itself an estimated £35 bn renewals programme from 2025), the need for safe and efficient testing to drive performance and cost-efficiency has never been greater. Operational independence and full open-market access is critical to allow competition and innovation to flourish.

1.4.2 GCRE will address a number of specific issues:

- Supporting UK train manufacturers and encouraging the establishment of further UK manufacturing facilities and testing capacity.
- Supporting the development of a UK digital railway industry by providing high quality and safe testing facilities for digital signalling, train control and asset management technologies.
- Delivering high-tonnage endurance testing of railway infrastructure particularly track and structures; such a facility will enable infrastructure to be rapidly tested and verified and would be unique in Europe, potentially attracting customers from around the world – Network Rail has a strong and confirmed interest in this element.
- Removing risk from the introduction of new trains and other assets by allowing them to be thoroughly tested prior to deployment. This would avoid the need for new trains being tested on the national network or rushed into

service before all performance risks had been dealt with (note issues with new inter-city trains; certain electrification assets; and projects such as Crossrail). With infrastructure and rolling stock testing in a single location, more robust systems integration testing can be conducted.

- Tackling ever-rising costs across the rail sector by allowing new technologies to be effectively tested and commissioned rather than committing them to operations before they are fully developed.
- Generating high quality employment and economic opportunities for communities in South West Wales.

Providing further opportunities for sustainable technologies associated with the rail sector (electric, battery, links to sustainable generation).

2 Environmental impact assessment

2.1 Introduction

2.1.1 Environmental Impact Assessment (EIA) is required for certain categories of projects and involves a process of drawing together, in a systematic way, an assessment of a project's likely significant environmental effects which must be considered before development consent (planning permission) is granted.

2.1.2 The EIA process leads to the presentation of information about the proposed development, along with its associated environmental effects, within an Environmental Statement (ES) for the consideration by the determining authority in deciding whether planning permission should be granted.

2.1.3 The EIA process itself includes key characteristics:

- **Systematic** – the EIA is comprised of a series of tasks that are defined by regulation and practice;
- **Analytical** – the EIA must be used to inform the decision making rather than promote the project itself;
- **Consultative** – the EIA process must allow for and provide opportunity for interested parties and statutory consultees to provide feedback on the project and assessments undertaken; and
- **Iterative** – the EIA process should allow for environmental concerns to be addressed during the planning and design stages of the project.

2.2 Regulatory context

2.2.1 The site of the proposed development is more than 1 hectare in area and constitutes major development as defined within the Town and Country Planning (Development Management Procedure) (Wales) Order 2012 (as amended). Subsequently, there is a requirement to undertake an EIA as prescribed in the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (the EIA Regulations).

2.2.2 Schedule 4 of the EIA Regulations lists the information that should be included in an EIA. This is outlined in Table 2.1 below together with details of where this information can be found in the ES.

Table 2.1 Schedule 4 Requirements for inclusion with EIA

Schedule 4 Requirement	Where assessed/ included in the ES
A description of the development, including details of the location, the physical characteristics of the whole development and the land use requirements during the construction and operational phases, a description of the main operational phase characteristics and an estimate of the type and quantities of emissions and residues.	Chapter 3
A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the applicant with an indication of the main reasons for the choice, taking into account a comparison of environmental effects	Chapter 4
A description of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development.	Chapters 5-15
A description of factors likely to be significantly affected by the proposed development. To include consideration of population, human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage, and landscape.	Chapters 5-15
A description of the likely significant effects of the development on the environment and, where appropriate, any proposed monitoring arrangements.	Chapters 5-15
A description of forecasting methods or evidence used to identify and assess the effects on the environment including any details of difficulties encountered compiling the information.	Chapters 5-15
A description of measures designed to avoid, reduce or, if possible, offset any significant adverse effects on the environment along with a description of measures designed to enhance beneficial effects.	Chapters 5-15
A description of potential significant effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters.	Considered within each of the assessment chapters where relevant.
A non-technical summary.	This has been prepared as a separate document and also included in the front end of the ES for completeness.
A reference list detailing the sources used for the descriptions and assessments included in the EIA.	References have been included in each of the ES chapters as footnotes.

2.3 EIA guidance

2.3.1 The EIA has been undertaken in accordance with best practice including:

- **IEMA Quality Mark** – this is run by the Institute of Environmental Management and Assessment (IEMA) and is based around a set of EIA Commitments, which organisations registered to the scheme agree to comply with. Arup are registered with the Quality Mark. The IEMA EIA

Quality Mark provides registrants with a benchmark for their EIA activities and allows them to demonstrate their commitment to effective practice; and

- **Welsh Office Circular 11/99 Environmental Impact Assessment (EIA)** – this sets out guidance on what information and approach should be taken for an EIA. Whilst now over 20 years old, it is still relevant, providing helpful guidance.

2.4 EIA Scoping and pre-application consultation

2.4.1 Scoping is the identification, at the early stages of a project, of the likely potential significant issues that may arise as a result of a proposed development. As part of this process the planning authority (PCC and NPTCBC) was asked for its formal opinion on what information should be included within the ES. Scoping helps to ensure that issues and potential effects are assessed at the appropriate level of detail within the EIA.

2.4.2 A request for a scoping opinion was submitted to both PCC and NPTCBC Planning Departments on 27th September 2019. This request also formally informed the Planning Authorities that an ES would be submitted along with the planning application for GCRE. A joint scoping opinion from both planning authorities was subsequently adopted on 25th October 2019 (Appendix 2A). This includes feedback from Statutory consultees.

2.4.3 Scoping establishes what assessments will be carried out for the EIA and for what phases of the development they would apply to. This EIA considers potential impacts that may arise during the construction and operational phases. The proposed development is intended to have a life span of decades, and therefore there is little to be gained from including consideration of any impacts considered likely during any decommissioning phase. Should the proposed development site be returned to its current baseline state in the future, this would be assessed at that time.

2.4.4 Assessment topics covered in the ES, as confirmed during scoping include:

- Traffic and transport
- Hydrology and flooding
- Ground conditions
- Biodiversity
- Air quality
- Noise and vibration
- Archaeology and cultural heritage
- Socio-economics

- Health and well-being
- Landscape and visual assessment
- Climate change
- Materials
- Cumulative effects assessment

2.5 Assessment methodology

2.5.1 Once the scope of the EIA had been established, individual environmental topics were subject to survey and investigation to establish the baseline conditions. This was followed by assessment to identify and predict the significance of the likely environmental impacts of the proposed development. The assessment methodologies applied are based on recognised best practice and guidance specific to each topic area; relevant details of assessment methodologies are provided in the appropriate assessment chapters of this ES.

2.5.2 The technical studies that have been undertaken for each topic area have generally followed the same approach:

- Collection and collation of existing baseline information of the study area in addition to any supplementary survey work required to fill any data gaps or to update any outdated information;
- Frequent consultation with both internal specialists within the team and relevant external consultees. This has been both within and across topic areas;
- Consideration of the potential effects of the proposal on the existing baseline, followed by identification of possible design changes that would lead to the avoidance or reduction of predicted adverse effects (and likewise the enhancement of any positive effects);
- Assessment of the final scheme design and evaluation of the significance of any residual and cumulative effects; and
- Compilation of the relevant ES chapter.

2.5.3 Many of the environmental effects are relevant to more than one topic area and therefore, attention has been paid to the interrelationship between them where they exist. For example, the biodiversity assessment, has received input from the water resources and air quality assessments. In this way ‘in-combination’ effects have been considered throughout the assessment chapters.

2.6 Additional consenting regulatory regimes

2.6.1 In addition to the EIA Regulations, other regulatory frameworks have been observed. These include:

- Habitat Regulations Assessment (HRA) – The UK Habitats Regulations are used to implement the EU Habitats Directive

(Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora). Following a review of designated sites within the study area, it was concluded that an HRA would not be required;

- The Water Framework Directive (2000/60/EEC) - The Project will aim to attain the highest achievable level of water quality standards. This would be achieved with the incorporation of Sustainable Drainage Systems (SUDS) into the design to improve the quality of the runoff from the proposed site; and
- The Sustainable Drainage (Approval and Adoption Procedure) (Wales) Regulations 2018. The SuDS must be designed and built in accordance with statutory SuDS standards¹.

2.7 Identification and significance of effects

2.7.1 Schedule 4 of the EIA Regulations sets out the information that must be included within an ES. This includes aspects of the environment likely to be affected by the development; a description of the likely significant effects on the environment; and a description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.

2.7.2 Developments may affect different environmental elements to varying degrees, and as agreed at Scoping, not all impacts arising from a development are of sufficient concern to require detailed investigation or assessment within the EIA process.

2.7.3 Within each chapter of this ES, definitions are given for what environmental receptors (or receiving environments) are being assessed along with a description of what changes the proposed development is likely to cause the affected receptors. This represents the scope of the assessment.

2.7.4 In broad terms, significance of an effect is defined to be a function of:

- Resource value (international, state or local level importance)/receptor sensitivity;
- Magnitude of effect (either adverse or beneficial); and
- Temporal scale (temporary or permanent)

2.7.5 Each topic chapter defines what criteria have been used to establish resource value/sensitivity and magnitude of effect.

¹ Statutory SuDS Standards for designing, constructing, operating and maintaining surface water drainage systems

2.7.6 Unless otherwise specified within the assessment chapter, the definitions of timescales that have been used include:

- Short term: Up to 1 year;
- Medium term: 1-3 years; and
- Long term: greater than 3 years.

2.7.7 Professional judgement, along with relevant and accepted guidance is used within each assessment chapter to assess the interaction between receptor value (i.e. its importance or sensitivity) and the predicted magnitude of change to identify whether an effect is significant and what level of significance should be assigned (e.g. high, medium, low or negligible significance). In some cases, this is based on quantitative assessment whereas in others, it is only possible to use professional judgement and qualitative descriptions. In all cases, clear justification for the assessment approach has been set out along with all assumptions and limitations.

2.7.8 Where there are no topic specific standards/guidance for assessing significance, the criteria set out in Table 2.2 for sensitivity of receptor, and Table 2.3 for magnitude of effect, have been used within the assessments

Table 2.2 Definitions of sensitivity

Level of sensitivity	Definition of sensitivity examples
High	Environment is subject to major change(s) due to impacts: e.g. species present in nationally important numbers, or globally threatened; Special Area of Conservation; National Park; World Heritage Site; a panoramic viewpoint
Medium	Environment clearly responds to effect(s) in a quantifiable and/or qualifiable way: e.g. species present in locally important numbers; people travelling on roads; lowland agricultural landscape; an archaeological feature that is not unusual but cannot be considered common.
Low	Environment responds in a minimal way, or not at all, to effect(s) such that only minor, or no, changes are detectable: views from softwood commercial plantation; an archaeological feature that is common, or has been mostly destroyed; common, widespread species

2.7.9 The magnitude of the effect on the baseline can then be assessed considering the scale, extent of change, nature and duration of effect.

Table 2.3 Definition of magnitude

Level of magnitude	Definition of magnitude
High	Total loss or major alteration to key elements/ features/ characteristics of the baseline (pre-development) conditions such that post development character/composition/attributes of baseline will be fundamentally changed.

Level of magnitude	Definition of magnitude
Medium	Partial loss or alteration to one or more key elements/ features/ characteristics of the baseline (pre-development) conditions such that post development character/ composition/ attributes of baseline will be partially changed
Low	Minor loss of or alteration of the baseline. Change arising from the loss/alteration will be discernible but underlying character/composition/attributes of the baseline condition will be similar to pre-development circumstances/patterns
Negligible	Very minor loss or alteration to one or more key elements/features/characteristics of the baseline (pre-development) conditions. Change barely distinguishable, approximating to the “no change” situation.

2.7.10 Using these definitions, a combined assessment of sensitivity and magnitude can then be undertaken to determine how significant an effect is, as demonstrated in Table 2.4. Where effects are classified as being of moderate and/or major significance (either beneficial or detrimental), the effect is considered significant in EIA terms. Table 2.5 provides a description for each of these criteria definitions.

2.7.11 The majority of assessments have used these criteria; however, where there is deviation, this is explained and justified within each of the topic assessment chapters.

Table 2.4 Significance matrix

	SENSITIVITY			
		Low	Medium	High
MAGNITUDE	High	Moderate	Major or Medium	Major
	Medium	Minor or Moderate	Moderate	Major or Moderate
	Low	Minor	Minor or moderate	Moderate
	Negligible	Negligible	Negligible	Negligible

Table 2.5: Definition of significance levels

Significance	Criteria Definition
Major	These effects are likely to be key factors or important considerations at a regional or district scale but, if adverse, are potential concerns to the project, depending upon the relative importance attached to the issue during the decision-making process. They are generally, but not exclusively associated with sites and features of national importance and resources/features which are unique and which, if lost cannot be replaced or relocated.
Moderate	These effects, if adverse, while important at a local scale, are not likely to be key decision-making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource.
Minor	These effects may be raised as local issues but are unlikely to be of importance in the decision-making process. Nevertheless, they are of relevance in the detailed design of the project.
Negligible	Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

2.8 Project delivery

2.8.1 It should be noted that GCRE is intrinsically linked to the previous Nant Helen earthworks' consents (20/0738/FUL and P/2020/0362) in terms of site delivery and should GCRE gain permission, the earthworks would be designed in detail to accommodate the facility. Should consent be granted, the earthworks delivery programme would align with the requirements of GCRE such that the on completion of the earthworks, work would begin on GCRE straight away, or with a short gap in construction activities. At this stage in project development, it is therefore anticipated that works would begin on the earthworks in late 2021 / early 2022 (following discharge of necessary planning conditions). The duration of these works is estimated to be in the region of 12 months, with work on the GCRE then estimated to start in late 2022 / early 2023.

2.9 Future baseline for site

2.9.1 Based on the project delivery of GCRE and the Nant Helen Earthworks, the EIA considers the existing (i.e. pre-restoration) conditions as the baseline, although where relevant, future baseline (post restoration) will be considered based on information about the restoration plans known at the time of assessment. Each topic chapter defines this clearly within the assessment methodology sections, providing clear justification for which baseline is considered. Figure 2.1 shows the redline boundary overlain on Celtic Energy's proposed restoration plan.

2.10 Cumulative effects

2.10.1 Cumulative effects are defined as those that result from incremental changes caused by other past, present or reasonably foreseeable actions/developments, in combination with the proposed development. They may result in effects that are more than, or less than the sum of the individual effects. For the purpose of this project, two developments were considered in relation to cumulative effects:

- **Nant Helen Restoration works (committed development)**

2.10.2 As the restoration is committed, the baseline for this assessment is, in most cases, the restored site.

2.10.3 Consequently, the assessment for GCRE already includes consideration of the restoration works in the assessment. No further assessment is required to identify cumulative effects.

- **Nant Helen Earthworks (committed development)**

2.10.4 As the earthworks are committed, the baseline for this assessment is, in most cases, the restored site.

2.10.5 Consequently, the assessment for GCRE has already included consideration of the restoration works in the assessment. No further assessment is required to identify cumulative effects.

2.10.6 In-combination effects are different types of effects that interact and are experienced by the same receptor. For example, one residential receptor may experience noise and air quality effects at the same time, which in-combination may result in an effect that is greater than the sum of effects. These kinds of effects are addressed within each of the topic where appropriate.

2.11 Assumptions and limitations

2.11.1 It has been assumed that information provided by third parties, including publicly available information and databases is correct at the time of publication.

2.11.2 Assumptions and limitations specific to environmental aspects are discussed in the relevant topic assessment chapters of this ES.

2.12 Project team

2.12.1 A multidisciplinary team from Arup has provided advice on the development proposals, identifying and addressing environmental issues that might arise. This team has been responsible for preparing the Environmental Statement.

2.12.2 It is best practice to provide statements of competency for each of the environmental experts that have led each of the assessments within the ES. These are provided in Appendix 2B.

2.13 ES Structure

2.13.1 The ES contains the environmental information that is required by the EIA Regulations and comprises a number of elements that are outlined in the sections below:

- **Non-technical summary (NTS)** – a report which summarises the findings of the EIA written in non-technical language. This is included as a standalone document in addition to at the front of the main ES: Volume I.
- **Environmental Statement Technical Assessments** – Main ES document including introductory chapters and the EIA topic chapters (4 - 16).
- **Environmental Statement Appendices** – includes the technical reports and data that accompany the technical assessments of the ES.
- **Environmental Statement Figures** – includes all the figures that are referenced within this ES, however some figures relating to the description of development are integrated into the main text for ease of reference.

2.14 Application documents

2.14.1 Due to the cross-boundary nature of the proposed development site, the ES is being submitted to Powys County Council and Neath Port Talbot County Borough Council for determination as part of the planning application for GCRE. Table 2.6 lists other documents submitted.

Table 2.6: Documents submitted with the planning application

Application documents
Planning, Design and Access Statement
Environmental Statement
Transport Assessment
Flood Risk Assessment and Drainage Strategy