

# **USKMOUTH POWER STATION CONVERSION PROJECT**

## **ENVIRONMENTAL STATEMENT: NON-TECHNICAL SUMMARY**

On behalf of Simec Uskmouth Power Ltd.



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## GLOSSARY

Term	Definition
CCGT	Combined cycle gas turbine
CEMP	Construction Environmental Management Plan
EfW	Energy from Waste
EIA	Environmental Impact Assessment
ES	Environmental Statement
MWe	Megawatts electrical
NTS	Non-Technical Summary
SUP	Simec Uskmouth Power



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# 1 INTRODUCTION

- 1.1 The Uskmouth Power Station is located on the eastern bank of the River Usk, close to the confluence with the Severn Estuary, around 4 km south of central Newport. The Proposed Development site location is shown on Figure 1.
- 1.2 Taking into account the nature and scale of the development proposed, a process of Environmental Impact Assessment has been undertaken in accordance with UK legal requirements to identify the potential for significant environmental impacts to arise from the Proposed Development, the Power Station Upgrade and the resulting Uskmouth Conversion Project.
- 1.3 An Environmental Statement has been produced, setting out the findings of the assessment process. The Environmental Statement accompanies a planning application submitted to Newport City Council.
- 1.4 This document is the Non-Technical Summary of the Environmental Statement. This summary document provides an overview of the assessment findings. Details of how to view the full Environmental Statement or to obtain further copies of this Non-Technical Summary are provided at the end of this document.

## 2 THE PROPOSED USKMOUTH CONVERSION PROJECT

### The Site and Surrounding Area

- 2.1 Uskmouth Power Station historically comprised two power plants: Uskmouth A (decommissioned in 1990s) and Uskmouth B coal-fired power stations. The Proposed Development and the Uskmouth Conversion Project which it facilitates would be implemented entirely within the site of the existing Uskmouth B coal-fired power station, referred to as Uskmouth Power Station.
- 2.2 As shown in Figure 6, the current site comprises:
- the main power station buildings housing furnaces, boilers, steam turbines and electrical generators;
  - offices, workshop buildings, storage and car parking;
  - two linear banks of cooling towers;
  - a single exhaust stack;
  - a coal storage area, conveyor systems and pulveriser mills;
  - a pulverised fuel ash storage area;
  - railway tracks and coal unloading facility;
  - electrical export equipment; and
  - areas of landscaping and surface water drainage including a large attenuation pond.
- 2.3 Immediately to the west, the site adjoins the Severn Power combined cycle gas turbine (CCGT) power station, constructed in 2007 on the site of the former Uskmouth A coal-fired power station.
- 2.4 Immediately to the north is the River Usk and, in the north-east, Newport Uskmouth Sailing Club. To the east is the railway line, a mixture of land with vegetation, hardstanding and a sewage treatment works; and to the south, former ash pits (now vegetated), beyond which is the Newport Wetlands National Nature Reserve.
- 2.5 The wider site setting is industrialised to the north, with the Liberty Steel works and industrial estates on the east bank of the River Usk stretching from the Proposed Development site to the A48 'Southern Distributor Road' dual carriageway through the outskirts of Newport.
- 2.6 The River Usk and the Severn Estuary lie beyond the CCGT power station, and the Newport Wetlands lie to the west and south. On the west bank of the Usk is Alexandra Docks, with commercial and industrial land-uses.
- 2.7 To the east, the wider setting is rural, with farmland, minor roads, reens (drainage channels) and individual or small groups of houses. The nearest settlement is the village of Nash, at a little over 1 km from the Proposed Development site.

### Description of Proposed Development

- 2.8 The Uskmouth Conversion Project comprises converting the existing coal-fired Uskmouth Power Station to a plant that would generate electricity by combusting waste derived fuel pellets. The existing power station has three combustion units; the proposed conversion intends to refurbish two of the three combustions units, known as Unit 13 and Unit 14, to provide 220 megawatts electrical (MWe) (net generation export capacity). Unit 15 will not initially operate as part of the converted facility and is not considered within this planning application. There is a possibility that

Unit 15 could be converted in the future, however, if that occurs it will be the subject of a further regulatory applications.

2.9 Figure 2 shows the boundary of the Proposed Development.

2.10 The Power Station Upgrade aims to utilise (where possible) the existing infrastructure for the handling, milling and combustion of fuel; and to reuse or reconfigure existing equipment to accommodate the combustion of the waste-derived fuel pellet. The principal changes within the existing building would include:

- modification or replacement of milling equipment;
- modification of the pulverised fuel conveying system;
- new ultra-low nitrogen oxide burners;
- upgrade of bottom ash handling systems; and
- an upgrade to the flue gas abatement system.

2.11 As shown in Figures 7 to 9, the Proposed Development would include the following key components:

- construction of fuel storage silos, day silos and conveyor systems;
- construction of fuel de-dusting building;
- upgrade to existing rail fuel unloading facilities; and
- construction of vessels and infrastructure for the delivery and storage of flue gas treatment reagents and transportation of residues off site.

2.12 The outward appearance of the existing power station buildings and exhaust stack would remain unchanged; changes to equipment as part of the Power Station Upgrade would be made within the envelope of these existing buildings. The visible difference to the appearance of the site would be the Proposed Development of new fuel storage silos with new and refurbished conveyors.

2.13 Primary storage silos would be constructed upon the area previously used as a coal stockyard (the coal has been removed from site). The footprint of primary silos is smaller than that required for the external storage of coal. As a result, areas of previous coal storage area would be re-vegetated.

2.14 An overview of the proposed buildings is provided below.

**Table 2.1: Summary of new buildings and approximate dimensions**

Building	Approximate dimensions	Approximate height above ground level
Day Silos (x2)	15 metre radius	24 metres (31 metres including head house)
De-dusting Building	20 x 20 metres	10 metres
Lime Silo (external cladding extension)	8.5 x 5 metres	23 metres
Primary Storage Silos (x4)	34 metre radius	42 metres (48 metres including head house)
Rail Unloading Facility Extension	40 x 15 metres	8 metres

2.15 The Power Station Upgrade would enable the Uskmouth Power Station to efficiently combust the fuel pellets (and if required, biomass) and to limit the emission of gaseous pollutants in line with permitted limits.

2.16 Exhaust flue gasses from each boiler pass would through an existing flue gas treatment unit. The abatement system (including control of emissions such as oxides of nitrogen and sulphur) and



emissions to air would be controlled under an Environmental Permit issued by Natural Resources Wales.

- 2.17 The operational lifetime of the Uskmouth Conversion Project is expected to be at least 20 years post commissioning; for the purposes of flood risk and climate change a lifetime of 40 years has been assumed as a reasonable worst-case.

## Landscape and Biodiversity Enhancement Strategy

- 2.18 As shown in Figure 10, the landscape and biodiversity enhancements proposed include the establishment of new habitats in the coal stockyard, additional areas of neutral grassland and additional areas of flower rich ephemeral vegetation. The objective of this would be to create and maintain intricate patchy mosaic of neutral grassland and pioneer grassland with seasonal pooling within part of the coal stockyard. These new habitats would adjoin established neutral grassland, the boundary ditch and established dense scrub creating a more diverse overall habitat mosaic.
- 2.19 On the wider site, enhancements of habitats would include opening-up ditch channels from overhanging scrub vegetation to remove shading which in turn would promote the diversity of the assemblages of flora and fauna, an approach aligned to ditch habitat management promoted by NRW in the Gwent Levels.

## Access

- 2.20 The Uskmouth Conversion Project intends to replicate the operational delivery pathways used by the coal-fired power station. Waste derived fuel pellets would be delivered by rail (consistent with previous operational coal deliveries) to an existing rail unloading facility which would be upgraded as part of the Proposed Development. Each combustion unit would require up to two train deliveries per day; each train carrying up to 1,000 tonnes of fuel pellets.
- 2.21 Road delivery of waste derived fuel pellets would not be required under normal circumstances. However, road deliveries may be required following major incidents on the rail network. Historically, rail deliveries have been very reliable with only two days un-planned rail network closure over the last 20 years. The proposed primary storage silos would contain up to seven to ten days' worth of fuel suggesting that any future unplanned rail closures are likely to be accommodated without requiring road deliveries.
- 2.22 As well as fuel pellets, biomass fuel may be required to co-fire along with the waste derived fuel pellets. In the event that biomass fuel is required, it would be delivered by road replicating previous biomass deliveries to Uskmouth Power Station (see Table 2.2).
- 2.23 Table 2.2 summarises the assumed logistical movements that would be required for: fuel importation (rail), operational consumables including biomass (road) and exports of ash (road).

**Table 2.2: Anticipated Logistical Movements**

Product	Tonnes per annum @ 90% utilisation	Mode	Movements per day
Fuel pellets	1,024,920	Rail	4
Biomass	10,249	HGV	3
Ash & Limestone	204,984	HGV	54
Flue-gas treatment reagents	3,352	HGV	2
Other	N/A	HGV	3

Note: Movements shown here include all logistics vehicle movements, both incoming and outgoing from the Uskmouth Power Station.



## Construction Phase

- 2.24 No demolition is required for the Proposed Development, the existing infrastructure would be reused where possible. The construction phase is anticipated to take around 18 months, and includes:
- Proposed Development construction of the silos and conveyors, access; and
  - Power Station Upgrade conversion of equipment within the power station buildings.
- 2.25 The high-level road sequence of construction activities is likely to be:
- establishing main site access for construction vehicles;
  - setting up of working areas and earthworks for the site;
  - infrastructure works, including construction of internal roads, drainage works and sewage pumping station;
  - construction of substructures;
  - erection of superstructures and building finishes; and
  - planting in accordance with the landscape strategy.
- 2.26 The development site would be fenced during construction. It is the intention of the Applicant that the site would be registered under the Considerate Constructors Scheme.

## Construction Working Hours

- 2.27 The majority of construction work will be undertaken within standard working hours would be 07:00 to 19:00 hours Monday to Friday, 07:00 to 13:00 hours on Saturday and at no time on Sundays or on public or bank holidays. Work outside these hours would be kept to a minimum, the local planning authority would be notified of any requirement to deviate from these indicative working hours.
- 2.28 The construction of the storage silos may require the slip-form casting technique. This construction would be conducted continuously for the duration of the concrete pouring and progresses 24/7 until complete. The conversion contractor will provide further detail and timings.

## Environmental Management During Construction

- 2.29 Construction would be undertaken in accordance with good practice environmental management procedures that will be set out in more detailed plans and method statements contained within a Construction Environmental Management Plan (CEMP). The CEMP will set out the key management measures that contractors would be required to adopt and implement. These measures will be developed based upon those issues identified during the EIA process and set out in the topic chapters of this ES. They will include strategies and control measures for managing the potential environmental effects of construction and limiting disturbance from construction activities as far as reasonably practicable.
- 2.30 The CEMP would be prepared during the pre-construction period once a conversion contractor has been appointed. The final CEMP would be submitted to Newport City Council for approval.

## Construction Working Areas

- 2.31 All construction would be undertaken within the red line application boundary with no requirement for construction laydown beyond this area.
- 2.32 A number of temporary facilities would be required during construction including:
- temporary offices and welfare facilities;

- storage area for materials, fuels, plant and equipment;
- waste management areas; and
- car parking facilities.

2.33 As far as possible, storage areas would be located away from site boundaries. Storage areas would be bunded to mitigate any spillages of potential contaminants and would not be located in areas of vegetation or habitat to be retained.

### Construction Access

Access during construction would be via the main existing site entrance. A Construction Traffic Management Plan would be approved by Newport City Council prior to the commencement of any construction works.

2.34 Reasonable efforts would be taken to minimise the effects of traffic associated with construction of the Uskmouth Conversion Project. Materials and resources would be sourced locally where possible and deliveries and construction traffic would endeavour to avoid travel during commuter peaks where practicable.

2.35 It is anticipated that the peak construction period for traffic generated would occur in months 9 and 10 of the 18-month construction programme and would require up to approximately 160 construction staff vehicles and up to 15 HGV deliveries, which equates to 30 movements per day. It is not expected that the construction phase would require abnormal loads. In the event that abnormal loads were required, the routing and nature of such loads would be agreed with the highway authority prior to work commencing.

### 3 NEED AND ALTERNATIVES CONSIDERED

#### Need for the Development

- 3.1 The Uskmouth Power Station remains a fully permitted coal fired power station that post-conversion intends to provide baseload power for approximately 20 years during the transitional decarbonisation period (to 2050). The aim of the Uskmouth Conversion Project is to generate electricity by combusting waste derived fuel pellets instead of coal includes a programme of works to return the existing plant to service and to extend its operating life.
- 3.2 Present day recycling techniques cannot recycle all waste into useful materials. Non-recyclable materials are presently sent to landfill, diverted from landfill to purpose-built Energy from Waste facilities or exported. This currently non-recyclable waste stream will be used as feedstock to produce the fuel pellets for the Uskmouth Conversion Project. The pellets will be made from equal proportions of biogenic waste material (paper and cardboard) and plastic waste. The Uskmouth Conversion Project would facilitate the recovery of energy from these materials. Following conversion, the power station would operate according to more stringent emissions limits than it has in the past and would need to adhere to the best available techniques for controlling emissions under the Industrial Emissions Directive.
- 3.3 The Uskmouth Conversion Project aims to:
- Meet the continuing need for on demand flexible and reliable electricity generation capable of meeting baseload or fast response to meet peak National Grid system load requirements.
  - Meet the essential need for high inertia flexible power generation to facilitate the expansion in intermittent renewable energy sources as the UK continues its journey towards full decarbonisation of electricity generation.
  - Repurpose existing infrastructure and land in a sustainable way and in doing so sustaining and creating long term direct and indirect employment required to convert and operate the power station.
  - Offer local industry more affordable and sustainable energy facilitating the growth of new and existing industries in the region and preserving and creating long term employment in those industries.
  - Create demand for a waste derived fuel pellet and through sustainable use of high volumes of this fuel the project makes a significant contribution to diversion of non-recyclable waste away from landfill and instead provides an efficient and sustainable method for recovering value from the waste.
  - Stimulate the development of other old and outdated coal fired power stations across the UK and further afield to also be repurposed to use waste derived following in the steps of the Uskmouth Conversion Project proving the concept.
- 3.4 The need for the Uskmouth Conversion Project is supported by the following key areas of planning policy:
- Energy security – through the provision of a facility capable of generating sustainable baseload electricity, displacing primary fossil fuels;
  - Energy recovery – through the provision of a facility that generates power by combusting waste derived fuel pellets; and
  - Zero landfill – through the provision of a facility that creates market demand for fuel derived from non-recyclable waste materials, which would otherwise be destined for landfill or other forms of disposal.
- 3.5 Sustainability, including:

- Efficient use of land;
- Reuse of previously developed land and transport infrastructure;
- Integrated transport systems and encouraging the co-location of other uses;
- Use of low carbon energy sources;
- Minimisation, re-use and recycling of waste;
- Minimising risk of and from flood, sea level rise and impact of climate change;
- Improving facilities, services and overall social and environmental equality of existing and future communities;
- Encouraging economic diversification; and
- Conserving, enhancing and linking green infrastructure, protecting and enhancing the built and natural environment.

## Alternatives Considered

- 3.6 A number of alternative projects have been considered by the Applicant for the utilisation of the Uskmouth Power Station site for continued generation of electricity:
- Uskmouth Conversion Project, conversion of the existing coal fired power station to generate electricity through combustion of waste derived fuel pellets pulverised as a direct replacement for pulverised coal.
  - Co-firing of biomass and coal in order to meet the proposed Emissions Performance Standard for carbon emissions from new fossil fuel plant and existing coal plant equivalent to 450gCO<sub>2</sub>/kWh generated from 2025.
  - Biomass Conversion of the existing coal fired power station to combust 100% biomass in place of coal.
  - Energy from Waste plant replacement of the existing coal fired power station with a new-build Energy from Waste plant, utilising existing land and grid connection capacity.
  - Addition of Carbon Capture Storage and Utilisation equipment to the existing coal fired power station to meet the proposed Emissions Performance Standard for carbon emissions from new fossil fuel plant and existing coal plant equivalent to 450gCO<sub>2</sub>/kWh generated.
  - CCGT, replacement of the existing coal fired power station with a new build CCGT gas fired plant, utilising existing land and grid connection capacity.
  - Decommissioning, the existing coal fired power station is completely decommissioned, and no alternative projects are developed at the site.
- 3.7 No alternative sites were considered for this project because the Uskmouth Conversion seeks to refurbish existing infrastructure. The Uskmouth site benefits from an existing coal fired power station and associated electrical infrastructure and the Uskmouth Conversion Project seeks re-use as much of the existing plant as possible to generate energy, reducing the need for resources to construct new electricity generation facilities elsewhere.
- 3.8 The site benefits from an existing railway connection, enabling the sustainable transport of fuel pellets to the site. The site also benefits from grid connection infrastructure being ready and in place to transmit to the national distribution network without the need for significant new infrastructure.
- 3.9 Uskmouth Power Station is also aspiring to sell cheaper electricity to local industry. This provides an opportunity to bolster the local economy as local businesses have an opportunity to purchase power from Uskmouth than they could source otherwise.

## USKMOUTH POWER STATION CONVERSION PROJECT

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- 3.10 The availability and retention of skilled and experienced staff locally is also a significant locational factor favouring the reuse of SUP for electricity generation.
- 3.11 The site's location and its conditions therefore make it optimal for continued use for the large-scale generation of electricity with minimal additional development required.
- 3.12 A number of alternative and design options have been considered, including a 'no development scenario'. No better alternative, able to make best use of the existing site location and achieving a significant reduction in greenhouse gas emissions, was identified.

## 4 CONSULTATION, SCOPE OF ASSESSMENT AND METHODOLOGY

### Scoping and Consultation

- 4.1 Scoping is the process of identifying the issues to be addressed in the Environmental Impact Assessment process. This process sets the context for the assessment process.
- 4.2 A request for a scoping opinion was submitted to Newport City Council in December 2019. A response was provided in February 2020.
- 4.3 Responses were received from a range of consultees contacted by the local planning authority. Taking into account the nature, size and location of the Proposed Development, the information provided with the scoping opinion and other consultation responses provided throughout the assessment process, the following topics listed in Table 4.1 have been covered within the Environmental Statement.

**Table 4.1: Information Provided within the Environmental Statement**

Structure of ES	
Non-Technical Summary	Summary of the ES using non-technical terminology
<b>Volume 1: Text</b>	
	Glossary
Chapter 1	Introduction
Chapter 2	Description of the Proposed Development
Chapter 3	Need and Alternatives Considered
Chapter 4	Environmental Assessment Methodology
Chapter 5	Geology, Hydrogeology and Ground Conditions
Chapter 6	Hydrology and Flood Risk
Chapter 7	Ecology
Chapter 8	Landscape and Visual
Chapter 9	Historic Environment
Chapter 10	Traffic and Transport
Chapter 11	Noise and Vibration
Chapter 12	Air Quality
Chapter 13	Climate Change
Chapter 14	Population and Health
<b>Volume 2: Figures</b>	
Including all figures and drawings to accompany the text	
<b>Volume 3: Appendices</b>	
Including specialist reports forming technical appendices to the main text	

### Environmental Assessment Methodology

- 4.4 Environmental Impact Assessment is a means of identifying and collating information to inform an assessment of the likely significant environmental effects of a development. For each of the key environmental topics in the Environmental Statement, the following have been addressed:
- Methodology;
  - Description of the existing environmental (baseline) conditions;

- Identification of and assessment of the significance of likely effects arising from the Proposed Development;
- Identification of any mitigation measures proposed to avoid, reduce and, if possible, remedy adverse effects; and
- Assessment of any cumulative effects with other proposed developments planned in the area.

4.5 In terms of significance, effects are described using the following scale:

- Substantial: Only adverse effects are normally assigned this level of significance. They represent key factors in the decision making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity;
- Major: These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision making process;
- Moderate: These beneficial or adverse effects may be important, but are not likely to be key decision making factors. The cumulative effects of such factors may influence decision making if they lead to an increase in the overall adverse effect on a particular resource or receptor;
- Minor: These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision making process, but are important in enhancing the subsequent design of the development; and
- Negligible: No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

4.6 Such effects may be beneficial or adverse.



## 5 SUMMARY OF ENVIRONMENTAL EFFECTS

- 5.1 This section provides a summary of the findings of the environmental assessment process. For full details of the assessments, please refer to the Environmental Statement.

### Geology, Hydrogeology and Ground Conditions

- 5.2 The Uskmouth Conversion Project and site boundary is currently occupied by Uskmouth Power Station. The site lays on the eastern bank of the River Usk, topographically between 8.2 metres and 9.2 metres Above Ordnance Datum.
- 5.3 The Proposed Development is situated mainly on the existing coal stockyard, approximately 400 metres from the River Usk.
- 5.4 Ground conditions in the area of the Proposed Development comprise hardstanding and areas covered by buildings. Below the Made Ground providing the sub-base of the hardstanding and buildings, the geology is composed of the following sequence:
- Tidal Flat Deposits (TFD) – unconsolidated mud or sand sediments and typically comprise soft silty clay with disconnected layers of sand, gravel or peat. TFD act as aquitard, i.e. preventing groundwater flow.
  - Glaciofluvial Deposits (GFD) – Sand and gravel, locally with lenses of silt/clay, designated as a Secondary A aquifer, comprising permeable layers capable of supporting water supplies at a local scale.
  - Mercia Mudstone Group (MMG) – Generally reddish-brown, less commonly green-grey, mudstones and subordinate siltstones weathering to a clay/silt material, designated as a Secondary B Aquifer of low vulnerability.
- 5.5 Some contamination (asbestos, heavy metals and total petroleum hydrocarbons) has been identified within the Made Ground, although no contamination was identified that was deemed to present a risk to controlled waters.
- 5.6 Groundwater quality was found to be generally good. No Source Protection Zones designated to for groundwater abstraction are located within the site or its vicinity.
- 5.7 Pollution control during construction would be implemented through the CEMP. A ground investigation and drainage survey are proposed prior to any construction activities commencing. Potentially contaminated leachate and suspended solids present at the site would be mitigated by the creation of a development platform with clean imported material. A foundation works risk assessment would be required to assess the potential impact of piled foundations and deep excavation.
- 5.8 The existing site is composed primarily of impermeable surfaces such that the potential for any contamination to reach sensitive receptors via the underlying geology and soils is limited. The tidal flat deposits provide an impermeable stratum below ground providing an additional level of protection to deeper groundwater resources. During operation, activities associated with the Uskmouth Conversion Project would not be significantly different to those currently permitted at the site. Storage of chemicals is already been undertaken within the facility and no significant change to operations is expected.
- 5.9 No direct discharge of effluent is proposed to the River Usk. The storage silos (raw materials, ancillary materials or waste) are proposed to be located at sufficient distance to prevent any potential for spillage or runoff contamination to the River Usk.
- 5.10 Overall, effects during construction and operation of Uskmouth Conversion Project are predicted to be no greater than minor adverse, which would not be significant,

## Hydrology, Drainage and Flood Risk

- 5.11 As shown in Figure 5, the hydrology, drainage and flood risk study area includes a number of catchments and associated surface watercourses. These include the River Usk and Severn Estuary which are watercourses classified as having moderate water quality under the Water Framework Directive.
- 5.12 Natural Resources Wales mapping indicates that the site is located within Flood Zones 1, 2 and 3, with flood risk ranging from low to high. To ensure the safety of onsite users, a Flood Evacuation Plan and Flood Management Plan is proposed to be incorporated into the overall site management plan.
- 5.13 Temporary drainage mitigation techniques would be used during construction to ensure discharges from construction activities are controlled in quality and volume. Construction material and/or spoil within construction compounds would be positioned where possible away from drainage systems or surface watercourses and no hazardous substances would be stored in close proximity to the drainage network.
- 5.14 A flood consequences assessment has been prepared to accompany the application. This sets out an outline surface water drainage strategy for the development. The strategy would incorporate the use of appropriate sustainable drainage system techniques, treating surface water run-off generated from the development, prior to discharging into the local surface water network at an agreed rate.
- 5.15 Any area at risk of spillage, such as vehicle maintenance areas and hazardous substance stores (including fuel, oils and chemicals) would be bunded and carefully sited to minimise the risk of hazardous substances entering the drainage system, the River Usk or the Severn Estuary. Additionally, the bunded areas would have impermeable bases to limit the potential for migration of contaminants into groundwater following any potential leakage/spillage event.
- 5.16 With the proposed drainage strategy, flood risk and pollution control measures in place, effects related to the Uskmouth Conversion Project are predicted to be minor adverse to moderate beneficial. No significant effects are predicted.

## Ecology

- 5.17 The River Usk is designated at the national (SSSI) and international (SAC) levels. The primary reason for its international designation is the presence of fish species. As shown in Figure 3, a number of other designated sites are present in the wider area, including the Severn Estuary and Newport Wetlands.
- 5.18 The Uskmouth Conversion Project site is primarily occupied by hardstanding and buildings associated with the power station, although small areas of grassland and bare ground are also present. Lamby's Lake, a man-made reservoir structure, is present in the south east of the site. In addition, a deep ditch channel forms the southern boundary of the site, connecting the site to the Newport Wetlands SSSI.
- 5.19 In terms of species, the Uskmouth Conversion Project site supports a small number of day roosts for bats but is of low value in terms of foraging habitat. Otters are a feature of the SSSI designation for the River Usk; while surveys provided no evidence of otters at the site, habitats on the boundary at Lamby's Lake and the boundary ditch are assumed to have some potential for foraging otters as a precaution. Water voles may also use the boundary ditch habitat.
- 5.20 Badger activity has been recorded in the area surrounding the Uskmouth Conversion Project site, with a number of setts identified in the wider area.
- 5.21 A pair of house martins used the power station buildings in 2019 and a peregrine was recorded nesting on the power station stack. Overall, the breeding bird assemblage was considered to be

of low value. The wider area is of importance for wintering birds and three of the species that contribute to the Severn Estuary's international designation were identified at Lamby's Lake. While the wintering bird populations directly associated with the habitats on the Proposed Development site are considered to be of site-level value only, the wider area (outside the site boundary) is of national value.

- 5.22 A local population of grass snake has been identified at the Uskmouth Power Station site. In addition, a limited assemblage of invertebrates is associated with the boundary ditch and grassland vegetation.
- 5.23 The following habitats would be retained and protected during construction of the Proposed Development:
- Lamby's Lake and bankside vegetation;
  - interceptor ditch and a proportion of the associated vegetation;
  - southern boundary ditch and adjoining grassland and scrub; and
  - mature trees and scrub.
- 5.24 In addition to habitat retention and protection, there would be: restoration of grassland within the working area; the establishment of grassland in part of the coal stockyard that is currently sparsely vegetated bare ground; landscape planting in areas of the coal stockyard located outside the site boundary; restoration of grassland between railway tracks that are disturbed during construction.
- 5.25 Residual effects on off-site bat roosts would be avoided through appropriate lighting and controls on maximum permitted noise levels close to the structure of the flyover bridge.
- 5.26 There is potential for minor adverse residual effects wintering birds, breeding birds, water voles and otters during the construction of Uskmouth Conversion Project, including the primary silos, through noise. The design and implementation of sensitive construction working methods for the silos would control noise levels the worst-case residual impact would be expected to be negligible adverse.
- 5.27 The operational effects of the Uskmouth Conversion Project on designated sites would be negligible, while effects on habitats and some species would be beneficial as the habitats being created for biodiversity, on areas that are currently bare ground, become established and extent the resources for wildlife in and around the Uskmouth Conversion Project.
- 5.28 Overall, no significant effects have been identified.

## Landscape and Visual Resources

- 5.29 The landscape and visual impact assessment identify and address the existing landscape and visual resources within the Proposed Development site and the surrounding study area. This includes identification of the existing character of the landscape and visibility of the site and consideration of the changes that would result as a consequence of the Proposed Development.
- 5.30 A 5 km radius study area was adopted for the assessment and a computer-generated Zone of Theoretical Visibility model was mapped to identify the theoretical areas from which the Uskmouth Conversion Project would be visible. The overall context of the Uskmouth Conversion Project site is that of an industrial power generation and heavy industrial dockside edge townscape on the southern edge of Newport at the mouth of the River Usk and on its eastern banks. The existing landscape and townscape is influenced by a variety of land uses including power generation facilities and pylons with overhead high voltage cable, massive industrial scale buildings including the neighbouring disused Liberty steel mill, sewage works and other large scale dockside development disused land, sailing club, railway line all contrasting with the Newport RSPB Reserve to the south and farmland to the east with small areas of residential development.

- 5.31 The Uskmouth Conversion Project would include a range of measures that have been designed to reduce or avoid significant adverse landscape and visual effects. The overall external design of the proposed building, including its layout, massing and colours, has been developed to aid in reducing its overall landscape and visual impact. In addition, Landscape proposals have been proposed to provide treatments for the western side of the land holding to help screen views from the west towards the development
- 5.32 Additionally, the lighting strategy will incorporate measures which would:
- minimise the potential for sky glow by reducing the potential for upward reflected light;
  - minimise light spread through directional lighting; and
  - use shielding to prevent glare.
- 5.33 The effects of Uskmouth Conversion Project construction activity would be temporary. Existing structures would be retained and there would be clearance of the former coal storage area. Construction activity within the site would lead to temporary landscape/townscape and seascape character and visual impacts.
- 5.34 The Uskmouth Conversion Project operational phase impacts would be similar to the construction phase, albeit ongoing.
- 5.35 The significance of effect would be greatest on the neighbouring Nash Wetlands Aspect Area (equivalent to Newport Wetlands), which would experience a moderate adverse effect for both Uskmouth Conversion Project construction and operational phases. The host local character area would experience a minor adverse effect as the Proposed Development would be similar in scale and size and industrial nature to the host character. Other Aspect Areas and character areas would be indirectly affected and would experience a minor adverse effect at worst.
- 5.36 Visual impact assessment was undertaken for 14 representative viewpoints with input from the case officer at Newport City Council. These viewpoints were chosen in publicly accessible locations where the impact of the development is likely to have the greatest potential effect. An assessment was made for year 1 winter and year 15 summer, when intervening vegetation would be in full leaf and would have matured in size and height to provide a greater level of screening.
- 5.37 Residential visual receptors were assessed but access to properties was not gained and a best estimate professional judgment was made as to the effects from ground and upper floor windows.
- 5.38 Views of the new Uskmouth Conversion Project would predominantly overlap with the existing Uskmouth Power Station. The greatest number of visual receptors that would be potentially affected by views of the proposals lie immediately to the south, south-east and east of Uskmouth Power Station. The majority of visual receptors would not be significantly adversely affected in these areas. Receptors that would experience this level of effect during the operational phase year 1 winter are:
- visitors to the southwestern part of the RSPB reserve represented by viewpoints 3 and 5;
  - walkers using the Wales Coast Path on the western side of the Usk in the vicinity of viewpoint 7 and 13 and east of the River Usk south of the application site in the Caldicot Levels; and
  - occupiers of residential properties to the east of the Proposed Development at Moorcroft, west of the village of Nash.
- 5.39 Due to the length of the Wales Coast Path (approximately 4.5 km) from which walkers would experience a change in view as a result of the Proposed Development, significant adverse sequential effects are likely to occur. The only visual receptors that would experience a major adverse and significant visual effect are visitors to the western part of the RSPB in the vicinity of viewpoint 4 where there are gaps in the boundary scrub vegetation, allowing open views of the primary storage silos. This level of effect would occur during the operational phase year 1 winter only.

- 5.40 The visual receptors that are most likely to experience significant adverse effects during the night-time are the same as those which are likely to experience significant adverse daytime effects. These include visitors to the western part of the Newport Gwent Levels RSPB Reserve and walkers using long sections of the Wales Coast Path on the western banks of the River Usk and to the southeast of the application site. Pedestrian receptors are unlikely to use these routes or be very limited in numbers during hours of darkness. The residential occupiers of Moorcroft would be the only receptors predicted to experience a moderate adverse effect. Other residential receptors would experience minor adverse effects at worse.
- 5.41 Due to its relatively modest scale, the Uskmouth Conversion Project including the Proposed Development could be accommodated within this industrial power generation landscape/townscape without significant landscape or visual effects on key features or elements and without compromising planning policies related to landscape and visual matters.

## Historic Environment

- 5.42 As shown in Figure 4, the Uskmouth Conversion Project site is located wholly within the Gwent Levels, which comprise former tidal mudflats that have been drained and reclaimed from the Roman period onwards, with some periods of inundation followed by recolonisation. Artefacts of Roman date have been recovered from features and deposits at locations adjacent to the project site, with the Roman land surface being located at around 0.8 – 1.0 m below the early 20th century (pre-industrial) level.
- 5.43 In the medieval period the area was drained again and was recolonised, with small embanked 'infield' enclosures and potentially canalisation of natural channels.
- 5.44 The earliest detailed mapping of the project site shows fields surrounded by a sea wall. The East Usk Branch of the Great Western Railway was extended southwards through the project site in the early 20th century, and during the Second World War a number of military positions were established in the vicinity of the project site, including a Heavy Anti-Aircraft battery. The Uskmouth A power station (just west of the project site) was constructed in the early 1950s, with the Uskmouth B power station (within the project site) added in the later part of the same decade.
- 5.45 There are no designated historic assets within the project site. The nearest listed building is the Church of St Mary at Nash, which is approximately 1.1 km east of the project site and is listed at Grade I. Several Grade II listed farmhouses and agricultural buildings are present to the north-east (in and around Pye Corner), whilst the Grade II listed West Usk Lighthouse is located to the south-west. To the north, beyond Newport Docks, is the Grade I listed transporter bridge with adjacent Edwardian hotel and Conservation Area.
- 5.46 The Uskmouth Conversion Project site is located just outside the registered Gwent Levels Landscape of Outstanding Historic Interest in Wales, and immediately west of the identified Historic Landscape Character Area 01: Nash/Goldcliff coastal zone. It is wholly within the Gwent (Caldicot) Levels Archaeologically Sensitive Area designated by Newport City Council.
- 5.47 A programme of archaeological investigation may be undertaken ahead of and/or during construction. Such work is not strictly 'mitigation' as it would not remove or reduce the impact of the proposed scheme on buried archaeological remains. However, this programme should be seen as 'offsetting' the impact and effect on historic assets on buried archaeological remains if any are found to be present and to be at risk from construction impacts. The programme of archaeological investigation would be agreed in advance with the archaeological advisers to the planning authority.
- 5.48 The assessment has found that the only potential significant adverse effect with regard to the historic environment would occur as a result of physical impact during construction on a discrete and rare type of structure or artefact (for example a waterlogged timber structure or vessel), although no such structures or artefacts are currently known to be present within the project site.



There is also the potential for minor adverse effects on buried archaeological remains of all periods from prehistoric through to modern.

- 5.49 During the operational phase of the Uskmouth Conversion Project, there would be minor adverse effects on the Church of St Mary (Nash) and the Newport Transporter Bridge (both Grade I listed buildings), and a negligible adverse effect on the Grade II listed West Usk Lighthouse. In each case this is caused by a (reversible) change within their setting.

## Traffic and Transport

- 5.50 Baseline traffic flows were established in October 2019 within a study area that extended from the site access at West Nash Road, to the A4810 via Nash Road and Meadows Road.
- 5.51 During the peak construction period, expected to occur during months 9 and 10 of an 18-month construction period, it is estimated there would be a maximum of up to 30 HGV movements per day. Over the course of the 18-month construction period, there would be an average of up to 15 HGV movements per day; however, there may be exceptional circumstances arising that require construction vehicles outside of the normal construction hours. A Construction Traffic Management Plan would be implemented alongside the CEMP to ensure routing of construction vehicles was managed to minimise environmental effects as far as practicable.
- 5.52 The Uskmouth Conversion Project would adopt a 7-day working regime to replicate the previous Uskmouth Power Station coal fired operational activity, consistent with all other UK operational power stations.
- 5.53 The Uskmouth Conversion Project seeks to replicate previous transport operational patterns, with all waste derived fuel pellets delivered by rail (coal delivery by rail). Rail delivery of fuel pellets to the Uskmouth Power Station would reduce the number of HGV movements generated during the operational phase.
- 5.54 Vehicular access to the Uskmouth Power Station would continue along the only existing public highway access to Uskmouth Power Station utilised during previous and current operational activity.
- 5.55 It is proposed to retain (where possible) existing staff already familiar with the site and their associated expertise. It is anticipated that car parking would be provided within the existing parking areas and separated from the main construction and operational areas associated with HGV movements.
- 5.56 Environmental impact assessments determined that the effects of driver delay, severance, pedestrian delay, accidents and road safety during construction and operation of the Uskmouth Conversion Project would be negligible, and the effects of pedestrian amenity (during construction and operation) and hazardous loads (during operation only) would be minor adverse.
- 5.57 The assessments have calculated that the construction and operation of the Uskmouth Conversion Project would result in a negligible increase in traffic flows on parts of the local road network and a greater increase along other parts of the highway network where baseline traffic flows are very low. The sensitivities of receptors have been identified as low or negligible and the magnitudes of impacts have been identified to be generally negligible. No significant environmental effects are predicted.

## Noise and Vibration

- 5.58 The potential noise and vibration effects from construction and operation of the Uskmouth Conversion Project are considered to be:
- construction phase – temporary effects of noise from construction works; and
  - operational phase – noise from plant and activities on site.

- 5.59 Due to the separation distances involved, vibration from construction works or operations on site would not be experienced at nearby residential properties.
- 5.60 The quantity of traffic on the highway as a result of the Uskmouth Conversion Project is sufficiently low that this is unlikely to have a noticeable effect on traffic noise levels experienced at nearby residential properties.
- 5.61 The site is in a generally rural location with other industrial activity in the vicinity. However, the nearest NSRs are all to the east of the site, where other industrial activities are in the main not audible. The main sources of sound are local road traffic, farm machinery and non-anthropogenic sources such as wind in trees and birdsong.
- 5.62 Construction activities are likely to include noise generating plant such as excavators, dump trucks, telehandlers, mobile cranes, delivery lorries, concrete breakers, concrete mixers and pumps. Piling may be required; but is likely to be limited and of short duration. A significant component of the Uskmouth Conversion Project would be recommissioning of existing buildings.
- 5.63 The nearest houses to the Uskmouth Conversion Project are to the east and south east, with the closest at a distance of 600 metres. Noise would be controlled during the construction phase by means of measures incorporated in the CEMP, so it is unlikely that construction of the Uskmouth Conversion Project would result in noise disturbance to nearby residents.
- 5.64 During the operational phase of Uskmouth Conversion Project, noise from the development is unlikely to be noticeable or intrusive in residential properties or be detrimental to the enjoyment of residential gardens. The noise levels from the Uskmouth Conversion Project would be below those at which the onset sleep disturbance would occur according to recognised international guidance.
- 5.65 Noise levels from construction and operational traffic are unlikely to cause disturbance in the context of existing traffic within the area.
- 5.66 In summary, it is unlikely that noise and vibration from either the construction or operation of the Uskmouth Conversion Project would cause disturbance to nearby residents, and no significant effects are predicted.

## Air Quality

- 5.67 A detailed air quality assessment predicting the potential effects of emissions generated during the construction and operation of the Uskmouth Conversion Project has been undertaken.
- 5.68 Impacts during construction, such as dust generation and plant vehicle emissions, are predicted to be of short duration and only relevant during the construction phase. The results of the risk assessment of construction dust impacts undertaken using the Institute of Air Quality Management dust guidance indicates that before the implementation of mitigation and controls, the risk of dust impacts will be low. Implementation of the highly recommended mitigation measures described in the construction dust guidance should reduce the residual dust effects to a level categorised as “not significant”.
- 5.69 Stack emissions from the operational Uskmouth Conversion Project have been assessed through detailed dispersion modelling using best practice approaches. The assessment has been undertaken based on a number of conservative assumptions. This is likely to result in an over-estimate of the contributions that will arise in practice from the facility. The results of dispersion modelling reported in this assessment indicate that predicted contributions and resultant environmental concentrations of all pollutants considered would be of “negligible” significance.
- 5.70 Overall, air quality effects of the construction and operation of the Uskmouth Conversion Project are not considered to be significant.



## Climate Change

- 5.71 The potential impact of the Uskmouth Conversion Project on greenhouse gas emissions, resulting in an effect that contributes to climate change, has been assessed.
- 5.72 Construction-stage greenhouse gas impacts have been predicted to be non-material compared to the total greenhouse gas impacts of the Uskmouth Conversion Project during operation.
- 5.73 Operational-stage greenhouse gas impacts from combustion of waste-derived fuel pellets, transport and recycling of ash have been assessed. These have been compared to emissions estimated for the situation without the conversion in place (i.e. the operation of all three units of Uskmouth Power Station firing a mixture of coal and biomass fuel). Compared to this future baseline situation, the operational Uskmouth Conversion Project (operation of two power station units firing waste-derived fuel) is predicted to result in a beneficial effect that is significant because it would reduce greenhouse gas emissions in total and per unit of electricity generated.

## Population and Health

- 5.74 The population and health assessment applies a broad model of health that encompasses conventional health impacts such as disease, accidents and risk, along with wider health determinants (such as employment) which are vital to achieving good health and wellbeing.
- 5.75 Communities living within Newport show that local health circumstances are generally worse than the national (Wales) average. However, the relative difference between the Newport and Wales is minimal and as such, health status in Newport is comparable to the national average. While this is the case, analysis of baseline data does not exclude the probability that there will be individuals within a defined population who are particularly sensitive and could experience disproportionate effects.
- 5.76 Mitigation measures adopted as part of the construction and operation of the Uskmouth Conversion Project focus on controlling and limiting environmental precursors to adverse population and health outcomes. For example, good construction practice measures or using best available technology. The population and health assessment takes these embedded mitigation measures into account.
- 5.77 Using the same principle (i.e. that mitigation measures focus on controlling and limiting environmental precursors to adverse population and health outcomes), no additional population and health specific mitigation measures are considered necessary, as the mitigation proposed by environmental topics which influence health are protective of health.
- 5.78 The health determinants considered in the construction and operational phase assessment comprise: changes to air quality, noise exposure and transport nature/flow rate. Overall, no significant effects on population and health are envisaged for any health determinant during construction or operation of the Uskmouth Conversion Project.
- 5.79 While there would be a measurable change in annually reported health outcomes related to changes in air quality associated with the Uskmouth Conversion Project, the impact would be very small and spread across a large total population of 231,155 and a 30+ population of 143,430. Furthermore, the change in health outcomes would represent a very small proportion (<0.1%) of health outcome baseline rates for the population living within the area assessed.

## Cumulative Effects and Inter-relationships

- 5.80 Other developments considered within the cumulative assessment for each topic chapter of the ES include those that are:
- Under construction;
  - Permitted, but not yet implemented;

- Submitted, but not yet determined; and
- Identified in the Development Plan (and emerging Development Plans – with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited.

- 5.81 Following a review of other developments in the area and more detailed assessment where necessary, no likely cumulative effects are identified on: geology, hydrogeology or ground conditions; hydrology, drainage and flood risk; ecology; historic environment; air quality; traffic and transport; noise and vibration; and population and health. Cumulative effects have already been considered in the assessment of climate change and therefore, the conclusions remain the same. While there is potential for cumulative effects on landscape and visual receptors, in most cases, the Proposed Development would make only a small contribution.
- 5.82 Inter-relationships are identified by each topic, all of which have been adequately taken into consideration across the EIA. As a result, there is no further identification of any secondary, cumulative or synergistic effects.

## 6 FURTHER INFORMATION

- 6.1 This Non-Technical Summary provides a summary of the Environmental Statement accompanying the planning application for the Proposed Development at Uskmouth Power Station which facilitates its conversion to combust waste derived fuel pellets – the Uskmouth Power Station Conversion Project.
- 6.2 Copies of the full Environmental Statement, including this Non-Technical Summary can be viewed at:
- Regeneration, Investment and Housing  
Newport City Council  
Civic Centre  
Newport  
NP20 4UR
- 6.3 Copies of the Environmental Statement and planning application documents can be viewed on the local planning authority website:
- [www.newport.gov.uk/planningonline](http://www.newport.gov.uk/planningonline)
- 6.4 Further copies of the Environmental Statement can be obtained from:
- RPS  
20 Western Avenue  
Milton Park  
Abingdon  
Oxfordshire  
OX14 4SH
- 6.5 Electronic copies of the Environmental Statement (on CD) can be purchased from the above address at a cost of £10 (including postage and packaging). Paper copies of the Environmental Statement are also available from the above address, although an administrative charge will be made to cover the cost of copying.

## FIGURES