

## **8 SUMMARY OF COMPARISON BETWEEN THE LIKELY SIGNIFICANT EFFECTS OF THE CONSENTED DEVELOPMENT AND PROPOSED DEVELOPMENT**

### **8.1 INTRODUCTION**

This EIA Report is required to present the main respects in which it is considered that the likely significant effects on the environment of the Proposed Development would differ from those described in the ES that was prepared for the Consented Development. While this EIA Report presents information for those topics that have been specifically reassessed (air quality and ecology and habitat regulations assessment, as per *Table 3.1*), for completeness this chapter also presents a summary of findings from each of the topics. Further detail on the comparisons can be found in the final sections of *Chapters 4 (Air Quality)* and *5 (Ecology)*.

### **8.2 LAND AND WATER**

#### **8.2.1 Discharges to Water**

Discharges to water were assessed in the ES for the Consented Development in terms of compliance with regulatory requirements and will lead to no significant environmental effects.

The assessment of discharges to water in the Consented Development ES remains valid and has not been updated in this EIA Report. The conclusions on likely significant effects from water discharges can be considered the same for both the Consented Development ES and the present EIA Report for the Proposed Development. Therefore the effects of discharges to water from the Proposed Development will also lead to no significant environmental effects.

#### **8.2.2 Abstraction of Water**

The effects on water availability of cooling water abstraction from the Stainforth and Keadby Canal for the Consented Development were assessed as not significant.

Abstraction volumes from the Stainforth and Keadby Canal will remain within the maximum daily allowance assessed in the Consented Development ES, however, peak abstraction volumes may vary over the course of the day. Given that variation in abstraction volume over the day will not affect the water resource within the Stainforth and Keadby Canal as there is plenty of storage in the waterway the abstraction effects are also not significant.

#### **8.2.3 Flood Risk**

The ES of the Consented Development demonstrated a safe level for the development platform and the site will be raised to this level.

There is no change in the plans for the development platform of the Proposed Development and as such the flood risk considerations (mitigated as necessary) for both would be the same and not significant.

### **8.3**            ***ECOLOGY***

#### **8.3.1**           ***Landtake and Construction Effects on Habitats, Flora and Fauna***

The EIA of the Consented Development concluded that construction and operation of the project will not result in significant effects on habitats, flora and fauna, given the habitats that will be affected.

The red line boundary of the Proposed Development will not change and so there will be no material change to the landtake for the Proposed Development. Construction techniques will also remain the same, although the construction period will be slightly increased, however, this will not affect the conclusions of the assessment in the ES. The assessment of landtake and construction effects on habitats, flora and fauna in the ES therefore remains valid and has not been updated in this EIA Report. Therefore the effects remain the same for the Proposed and Consented developments and are considered not significant.

#### **8.3.2**           ***Effects on Ecological Receptors from Emissions to Air***

The EIA of the Consented Development concluded that overall the effects on ecological receptors would be not significant. The assessment of the effects of air pollutants from the Proposed Development on designated sites concluded there are also no significant effects, which mirrors the findings for the Consented Development.

#### **8.3.3**           ***Effects on Aquatic Ecology***

The EIA of the Consented Development concluded that the use of screens on any water intake would reduce the effects on adult eels and lamprey being entrained. Eels are known to be more susceptible to effects than lamprey, and minor significant effects on the eel population were predicted, while no significant effects on lamprey were predicted. There will be no change to the effects on aquatic ecology from the Proposed Development. Therefore the effects on lamprey and eels remain the same for the Proposed and Consented developments i.e. minor significant effects on eels and no significant effects on lamprey.

#### **8.3.4**           ***Habitats Regulations Assessment***

The EIA of the Consented Development was supported by a separate report containing Information to Inform Habitat Regulations Assessment. The report suggests that the Consented Development will not adversely affect the integrity of any of the European designated sites when considered either alone or in combination with other projects. This EIA Report is also supported by a separate report containing Information to Inform Habitat Regulations Assessment. It also found no adverse effects on the integrity of any of the European sites.

## **8.4 NOISE**

### **8.4.1 Construction Activity on Site**

The EIA for the Consented Development concluded that construction noise levels are within the daytime assessment criteria. Limitations will be required on the nature of works undertaken at night. Effects were assessed as not significant.

There will be no material change to construction activity or techniques for the Proposed Development and as such the assessment in the Consented Development ES remains valid and has not been updated in this EIA Report. Therefore the effects of construction site noise remain the same for the Proposed and Consented developments and are considered not significant.

### **8.4.2 Construction Traffic**

The assessment of construction traffic noise for the Consented Development concluded there will be no significant effects on roadside receptors.

Although the construction period is slightly longer for the Proposed Development, this will not affect the conclusions of the assessment in the ES. Therefore there will be no material change to construction traffic for the Proposed Development. The effects of construction traffic on roadside receptors remain the same for the Proposed and Consented Developments and are considered not significant.

### **8.4.3 Operational Noise**

For the Consented Development noise levels for the mitigated plant and equipment were assessed against criteria for the threshold of significant effects and the assessment concluded that operational noise will not lead to significant effects on people at the nearest sensitive receptors. On the basis of the assessment, operational noise limits were proposed at nearby sensitive receptors. The noise limits were accommodated into the Consent.

The Proposed Development, although slightly larger and with a slightly different layout (e.g. the stack position), will include the necessary noise mitigation to meet the same agreed noise limits as the Consented Development. Therefore the significance of effects of noise on residential receptors remains the same for the Proposed and Consented developments.

## **8.5 AIR QUALITY**

### **8.5.1 Atmospheric Emissions: Human Health**

In order to make a comparison this EIA assessed the impacts on air quality of both the Consented Development and the Proposed Development through use of an atmospheric dispersion model. Using current assessment criteria and a worst case approach, short and long-term effects are predicted to be not significant and of minor significance for the Consented Development and the Proposed Development respectively. This apparent difference in significance

is largely an artefact of the assessment criteria, together with the differing influences of buildings between the Consented Development and the Proposed Development on the near-field dispersion of emissions. In reality the quantitative difference between the two is marginal and when the dispersion of pollutants over the whole field covered by the model is considered it is the Proposed Development that is slightly better. In all instances predicted concentrations of pollutants are within the standards designed to protect human health.

### **8.5.2 *Atmospheric Emissions: Ecological Receptors***

The air quality assessment has also indicated the need to consider potentially significant effects at the Humber Estuary SSSI for nutrient nitrogen, when comparing impacts from the Proposed Development to the Consented Development. This is mainly a case of the Consented Development falling just within the assessment criterion and the Proposed Development slightly exceeding it; the quantitative difference between the two is marginal. All other impacts predicted for the Proposed Development are as the Consented Development. The significance of the effects on ecological receptors is addressed in *Chapter 5*.

## **8.6 *CULTURAL HERITAGE***

### **8.6.1 *Direct Effects on Archaeology and Cultural Heritage***

The EIA for the Consented Development concluded that although there is potential in the western part of the site for impacts on buried remains of archaeological and/or paleoenvironmental significance, with mitigation in place the effects will be not significant.

There will be no change to scope that will affect direct effects on archaeology and cultural heritage for the Proposed Development. Therefore the effects of archaeology and cultural heritage assessed in the Consented Development remain the same for the Proposed and Consented developments and are considered not significant.

### **8.6.2 *Effects on Setting of Heritage Assets***

The EIA for the Consented Development concluded that the effects on setting of cultural heritage were not significant.

There will be no material change to the effects on setting of cultural heritage for the Proposed Development. Therefore the effects on setting of cultural heritage remain the same for the Proposed and Consented developments and are considered not significant.

## **8.7 TRAFFIC AND TRANSPORT**

### **8.7.1 General Construction Traffic**

The EIA of the Consented Development concluded that construction staff traffic will occur outside the network peak hour, when there is considerable spare capacity to accommodate the increase of up to 133 vehicles at the start and end of the day shift.

Although the construction period will be slightly longer than for the Consented Development, there will be no material change to general construction traffic for the Proposed Development. Therefore the effects on traffic remain the same for the Proposed and Consented developments and are considered not significant.

### **8.7.2 Construction HGVs**

The Traffic Assessment for the Consented Development was based on specified HGV routes and use of the access road. The assessment concluded that there will be moderate adverse environmental impact on the A18 and A161 for one hour each day, resulting from an increase of greater than 30% in HGV movements. This is due to a low background flow of HGVs, rather than a large absolute increase in these vehicles. No significant effects on local communities and residents were predicted.

There will be no material change to the number of construction HGVs anticipated for the Proposed Development, although the duration of construction is slightly longer. The assessment of construction traffic in the Consented Development ES remains valid and has not been updated in this EIA Report. Therefore the effect of construction HGVs on traffic and local communities are also considered to be not significant.

### **8.7.3 Construction Special Loads**

Special loads were assessed for the Consented Development in terms of establishing the feasibility of routing them into the site. Some mitigation may be required dependent on the final plant solution selected and the specific trailers required to facilitate the movement.

Although a higher number of special loads will be required, no more than 10 will be routed through Ealand, as previously assessed in the Consented Development. Special loads above this number will access the site via the A18 and dedicated site access road. Therefore the overall effects of construction special loads on traffic will be much the same as assessed in the Consented Development and are assessed as potentially having minor temporary impacts on traffic.

### **8.7.4 Operational Traffic**

The EIA for the Consented Development assessed operational traffic as leading to negligible changes to existing flows.

The change in traffic during operation of the Proposed Development will also remain below 30% of existing flows; the magnitude of change is considered to be negligible and does not warrant further assessment.

## **8.8 SOCIO-ECONOMIC CHARACTERISTICS**

### **8.8.1 Adverse Socio-economic Effects**

No significant adverse effects on socio-economic characteristics were identified for the Consented Development and as there are no changes predicted that will adversely affect the socio-economic environment none have been identified for the Proposed Development.

### **8.8.2 Socio-economic Benefits: Jobs**

The socio-economic benefits of the Proposed Development will be the same as those for the Consented Development. Numbers of jobs through construction and operation remain the same and will result in a minor beneficial significance of effect through both construction and operation. The Company remains keen to ensure that, where possible, local labour and suppliers are used during the construction and operation of the Keadby 2 CCGT project. Following an investment decision for the project a local Meet the Buyer event will be held in conjunction with the projects main EPC contractor. This will provide the opportunity for local businesses to present and pitch their goods and services to the principle contractor and project team.

### **8.8.3 Socio-economic Benefits: Local Economy**

The local economic benefits from such matters as the multiplier effect are the same for both the Consented Development and Proposed Development and will lead to a minor beneficial significance of effect on the local economy.

## **8.9 LANDSCAPE AND VISUAL**

### **8.9.1 Landscape Effects**

The landscape setting for the Proposed Development has not changed from that for the Consented Development. However, some of the buildings in the Proposed Development are taller and larger than assessed in the Consented Development. Even when taking this into consideration it can be concluded that there are no differences between the Proposed Development and the Consented Development in regard to significance of effects on landscape. The Proposed Development has a more refined alignment with respect to the existing Power station and therefore slight improvement in terms of layout/physical arrangement.

### **8.9.2 Visual Effects**

The EIA for the Consented Development assessed visual effects from the Consented Development. As a result of changes in heights and alignment of buildings there are minor changes in views. In the proposed development the

height of the Heat Recovery Steam Generator (HRSG) building is taller; however other buildings (steam and gas turbine) as well as the slender stack are smaller in comparison to the Consented Development. While there are slight changes in views, the changes do not constitute as material changes. Overall massing tends to balance out and therefore does not change the assessment. It can be concluded that there are no differences between the Proposed Development and the Consented Development in regard to significance of effects on visual amenity.

## 8.10 CONCLUSIONS

Having compared the findings of the Consented Development with the Proposed Development it is concluded that in regard to their likely significant effects the Consented and Proposed Development are broadly comparable. Although there is a marginal negative change in atmospheric emissions in human health and on ecological receptors in all instances predicted concentrations of pollutants are within the standards designed to protect human health and during the assessment on ecological receptors the impact remained not significant (i.e. no change from the Consented Development).

**Table 8.1 Comparison of the Significance of Effects of the Consented Development and the Proposed Development**

Topic	Comparison	Result of Variation
<b>Key: ● = positive change; ○ = neutral; ● = negative change</b>		
<b>Land and Water</b>		
Discharges to water	Consented Development: <i>Not Significant</i> Proposed Development: <i>Not Significant</i>	○
Abstraction of water	Consented Development: <i>Not Significant</i> Proposed Development: <i>Not Significant</i>	○
Flood risk	Consented Development: <i>Not Significant</i> Proposed Development: <i>Not Significant</i>	○
<b>Ecology</b>		
Landscape and construction effects	Consented Development: <i>Not Significant</i> Proposed Development: <i>Not Significant</i>	○
Effects from emissions to air	Consented Development: <i>Not Significant</i> Proposed Development: <i>Not Significant</i>	○
Effects on aquatic ecology	<b>Eels</b> Consented Development: <i>Minor Significant Effects</i> Proposed Development: <i>Minor Significant Effects</i>	○
	<b>Lamprey</b> Consented Development: <i>Not Significant</i> Proposed Development: <i>Not Significant</i>	○

Topic	Comparison	Result of Variation
<b>Key: ● = positive change; ○ = neutral; ● = negative change</b>		
Habitat Regulations Assessment	Consented Development: <i>No adverse effect</i> on the integrity of any of the European designated sites when considered either alone or in combination with other projects. Proposed Development: <i>No adverse effect</i> on the integrity of any of the European designated sites when considered either alone or in combination with other projects.	○
<b>Noise</b>		
Construction activity	Consented Development: <i>Not Significant</i> Proposed Development: <i>Not Significant</i>	○
Construction traffic	Consented Development: <i>Not Significant</i> Proposed Development: <i>Not Significant</i>	○
Operational noise	Consented Development: <i>Not Significant</i> Proposed Development: <i>Not Significant</i>	○
<b>Air Quality</b>		
Atmospheric emissions on human health	Consented Development: <i>Not Significant</i> (short and long-term) Proposed Development: <i>Minor Significant Effects</i> (short-term), <i>Not Significant</i> (long-term)	Short-term: ○ to marginally ● Long-term: ○
Atmospheric emissions on ecological receptors	Consented Development: <i>Potentially significant</i> – assessed within the ecology chapter (Chapter 7 of the ES) Proposed Development: <i>Potentially significant</i> – assessed within the ecology chapter (Chapter 5)	○
Climate change and energy efficiency	The Proposed Development has higher efficiency than the Consented Development resulting in lower emissions of carbon dioxide per kilowatt hour.	●
<b>Cultural Heritage</b>		
Direct effects on archaeology and cultural heritage	Consented Development: <i>Not Significant</i> Proposed Development: <i>Not Significant</i>	○
Effects on setting of heritage assets	Consented Development: <i>Not Significant</i> Proposed Development: <i>Not Significant</i>	○
<b>Traffic and Transport</b>		
General construction traffic	Consented Development: <i>Not Significant</i> Proposed Development: <i>Not Significant</i>	○
Construction HGVs	Consented Development: <i>Not Significant</i> Proposed Development: <i>Not Significant</i>	○
Construction special loads	Consented Development: <i>Minor temporary effects</i> on traffic Proposed Development: <i>Minor temporary effects</i> on traffic	○
Operational traffic	Consented Development: Negligible magnitude of effect and no further assessment required. Proposed Development: Negligible magnitude of effect and no further assessment required.	○
<b>Socio-economic Characteristics</b>		

Topic	Comparison	Result of Variation
<b>Key: ● = positive change; ○ = neutral; ● = negative change</b>		
Adverse socio-economic effects	Consented Development: <i>No significant adverse effects</i> Proposed Development: <i>No significant adverse effects</i>	○
Socio-economic benefits: jobs	Consented Development: <i>Minor beneficial significance of effect</i> Proposed Development: <i>Minor beneficial significance of effect</i>	○
Socio-economic benefits: local economy	Consented Development: <i>Minor beneficial significance of effect</i> Proposed Development: <i>Minor beneficial significance of effect</i>	○
<b>Landscape and Visual</b>		
Landscape effects	Consented Development: Residual effects range from <i>not significant to moderate to major</i> depending on the viewpoint. Proposed Development: Residual effects range from <i>not significant to moderate to major</i> depending on the viewpoint.	○
Visual effects	Consented Development: Residual effects range from <i>not significant to moderate to major</i> depending on the viewpoint. Proposed Development: Residual effects range from <i>not significant to moderate to major</i> depending on the viewpoint.	○