Fosse Green Energy

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EN010154

6.1 Environmental Statement

Chapter 16: Summary of Environmental Effects

VOLUME

6

Planning Act 2008 (as amended)

Regulation 5(2)(a)

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended)

18 July 2025

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Fosse Green Energy

Development Consent Order 202[ ]

6.1 Environmental Statement

Chapter 16: Summary of Environmental Effects

Regulation Reference	Regulation 5(2)(a)
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16. Summary of Environmental Effects

16.1 Introduction

16.1.1 This chapter of this Environmental Statement (ES) summarises the significant residual effects of the Proposed Development. Residual effects are defined as those effects that remain following the implementation of mitigation measures. Residual effects and mitigation measures are discussed in full in the relevant technical **Chapters 6** to **15 [EN010154/APP/6.1]**.

16.1.2 Each technical chapter contains detailed consideration of both the beneficial and adverse effects identified as likely to arise from the Proposed Development. The criteria applied to define the significance of residual effects are presented within **Chapter 5: Environmental Impact Assessment Methodology [EN010154/APP/6.1]**, with further detail provided within the individual technical chapters. Where technical chapters have deviated from this standard methodology, this is explained in the respective chapters and justification for the reason provided (for example to align with industry-standard guidance for that discipline).

16.1.3 The Environmental Impact Assessment (EIA) for the Proposed Development has been undertaken in parallel with the design process and development of the embedded and additional mitigation identified within **Chapters 6** to **15**, **[EN010154/APP/6.1]**. A number of measures have been implemented within the design of the Proposed Development to reduce adverse environmental effects. These are illustrated on **Figure 3-2A: Indicative Fixed South Facing Layout** and **Figure3-2B: Indicative Single Axis Tracker Layout [EN010154/APP/6.2]**. The planting proposals are also illustrated in more detail on the Landscaping Masterplan presented in the **Framework Landscape and Ecological Management Plan [EN010154/APP/7.15.**

16.1.4 The residual effects listed within the technical chapters **(Chapters 6** to **15 [EN010154/APP/6.1]**) are described with reference to the scale of effect (for example minor, moderate or major) and whether this is significant or not, and the nature of the effect (i.e. adverse, negligible or beneficial).

16.2 Summary of Significant Effects

16.2.1 A summary of the identified significant residual effects (i.e. those identified as moderate or major) for each topic are presented in **Table 16-1** for the construction (and decommissioning) phase, and **Table 16-2** for the operational phase. Decommissioning effects would likely, in most cases be no greater than those set out for construction (as reported in **Table 16-1)**. This is likely to overestimate the actual effects of decommissioning, which are expected to be shorter in duration and lower in magnitude than construction for the most part. Effects assessed as not significant (i.e. those identified as negligible and minor) are included within each technical chapter (**Chapters 6–15**

[EN010154/APP/6.1]) but are not specifically referenced in the summary tables below.

Construction

Table 16-1: Summary of significant effects during the construction phase of the Proposed Development

Description of resource / receptor and effect	Sensitivity (value)	Description of impact (construction)	Residual effect
Chapter 6: Climate Change			
No significant residual effects on climate change are predicted during the construction of the Proposed Development.			
Chapter 7: Cultural Heritage			
No significant residual effects on Cultural Heritage are predicted during the construction of the Proposed Development.			
Chapter 8: Ecology and Nature Conservation			
No significant residual effects on ecology and nature conservation are predicted during the construction of the Proposed Development.			
Chapter 9: Water Environment			
No significant, residual effects on water environment are predicted during the construction of the Proposed Development.			
Chapter 10: Landscape and Visual Amenity			
Landscape Receptors			
Cable Corridor	High	Change to landscape character	**Major adverse (significant)**
LLCA 13: Low Fields South LLCA 14: Low Fields Noth LLCA 15: Lincoln Cliff	High	Change to landscape character	**Moderate adverse (significant)**
LLCA 03: Tunman Hill LLCA 08: Thurlby Fenland	Medium-high	Change to landscape character	**Major adverse (significant)**
Principal Site	Medium	Change to landscape character	**Major adverse (significant)**

Description of resource / receptor and effect	Sensitivity (value)	Description of impact (construction)	Residual effect
Sub-area 5: Witham and Brant Vales	Medium	Change to landscape character	**Moderate adverse (significant)**
Sub-area 2: Terrace Sandlands	Low-medium	Change to landscape character	**Moderate adverse (significant)**
Visual Receptors			
Residents of Coleby Residents of Boothby Graffoe Recreational users of Vikings Way (PRoW Cole/2/1 and BooG/2/2)	High	Change to visual amenity	**Moderate adverse (significant)**
Residents of Church Farm and Low Barn	Medium-high	Change to visual amenity	**Major adverse (significant)**
Residents of Thorpe on the Hill Residents of Scotland Farm Residents of Housham Wood Farm Residents of Eagle Barnsdale Residents of Morton Residents of High Walks Farm Residents of Witham St. Hughs (east) Residents of River Farm (north) Residents of Tonge's Farm Residents of Bassingham Residents of Thurlby Residents of Malborough Residents of North Field Farm Residents of Grange Cottage	Medium-high	Change to visual amenity	**Moderate adverse (significant)**

Description of resource / receptor and effect	Sensitivity (value)	Description of impact (construction)	Residual effect
Recreational users of PRoW west of Thorpe on the Hill (TOTH/7/2, TOTH/21/1, TOTH/6/2, TOTH/6/3) Recreational users of PRoW Aubo/12/2 Recreational users of PRoW Aubo/8/1 Recreational users of PRoW TOTH/11/1 Recreational users of PRoW TOTH/12/3 Recreational users of PRoW TOTH/15/1 Recreational users of PRoW Aubo/10/1	Medium	Change to visual amenity	**Major adverse (significant)**
Recreational users of PRoW TOTH/6/1 and TOTH/6A/1 Recreational users of PRoW Bass/1/1, NoDi/1/2, NoDi/4/1, ThuN/5/1 Recreational users of PRoW ThuN/2/1 Recreational users of PRoW Bass/22/1, Bass/21/2, Bass/20/1 Users of Clay Lane and Bassingham Road	Medium	Change to visual amenity	**Moderate adverse (significant)**
Recreational users of PRoW TOTH/18/1	Low-medium	Change to visual amenity	**Moderate adverse (significant)**
ES Chapter 11: Noise and Vibration			
R26 (Grange Cottage, Bassingham Road), R35 (Housham Grange, Newark Road), and R50 (19 Park Crescent)	High	Construction Vibration - Noise Generating Activities 1 (NGA1) - Construction of the BESS, Solar Stations, and ground mounted solar PV panel arrays	**Above or equal to the Significant Observed Adverse Effect Level (significant)**

Description of resource / receptor and effect	Sensitivity (value)	Description of impact (construction)	Residual effect
Chapter 12: Socio-Economics and Land Use			
No significant residual effects on socio-economics are predicted during the construction of the Proposed Development.			
Chapter 13: Traffic and Transport			
No significant residual effects on traffic and transport are predicted during the construction of the Proposed Development.			
Chapter 14: Other Environmental Topics			
No significant residual effects on air quality; glint and glare; ground conditions; materials and waste; major accidents and disasters; telecommunications, television reception and utilities; and electromagnetic fields are expected during the construction of the Proposed Development.			
Chapter 15: Cumulative Effects and Interactions (where the magnitude of the Cumulative Effect exceeds that of the Proposed Development in isolation)			
Residential properties, business premises and community facilities	**High**	Effect Interactions as a result of the combined impact of visual, traffic and transport, socio-economic and noise and vibration.	**Significant** - the potential Effect Interaction is not anticipated to be of a greater magnitude than the significance of these effects in isolation.
Landscape Character (local level) North Kesteven District landscape sub-area Witham and Brant Vales	**Low-Medium**	Cumulative Effects are anticipated on the North Kesteven District landscape sub-area Witham and Brant Vales due to the noticeable increase in extent over which changes to the landscape character would be perceived during construction as a result of the Proposed Development together with ID95 Application Reference: PL/0087/23. North Hykeham Relief Road.	**Major adverse (Significant)**

Description of resource / receptor and effect	Sensitivity (value)	Description of impact (construction)	Residual effect
Landscape Character (local level) North Kesteven District landscape sub-area Limestone Heath	**Low-Medium**	Cumulative Effects are anticipated on the North Kesteven District landscape sub-area Limestone Heath due to the noticeable increase in extent over which changes to the landscape character would be perceived during construction as a result of the Proposed Development together with ID63 Application Reference: EN010149. Springwell Energy Farm and ID103 Application Reference: EN0110016. Leoda Solar Farm.	**Moderate adverse (Significant)**
Visual receptors (residents, road users and users of PRoW) experiencing views across the Cable Corridor	**High**	Cumulative Effects are anticipated on the visual amenity of users of the Viking Way (PRoW Cole/2/1 and BooG/2/2) as a result of the Proposed Development together with ID95 Application Reference: PL/0087/23. North Hykeham Relief Road.	**Major adverse (Significant)**

Operation (and Maintenance)

Table 16-2: Summary of significant effects during the operation phase of the Proposed Development

Description of resource / receptor and effect	Sensitivity (value)	Description of impact (operation)	Residual effect
Chapter 6: Climate Change			
Global atmosphere	**High**	Avoidance of atmospheric greenhouse gas (GHG) emissions from fossil fuel electricity generation due to operation of the Proposed Development.	**Beneficial (significant)**
ES Chapter 7: Cultural Heritage			
No significant residual effects on Cultural Heritage are predicted during the operation of the Proposed Development.			
ES Chapter 8: Ecology and Nature Conservation			
Habitat – woodland and individual trees (including veteran trees)	**High**	Natural re-generation of areas surrounding woodland within the DCO Site, along with enhanced planting, will allow the expansion of existing woodlands, as well as providing further natural buffers to existing mature woodlands. New areas of tree planting will be allowed to grow tall and wide to provide maximum benefits for biodiversity and will be created as screening from Proposed Development infrastructure, to improve habitat connectivity (for species such as bats and birds) and increase the area of hedgerow (and woodland habitat) within the DCO Site.	Moderate beneficial effect **(Significant)**

Description of resource / receptor and effect	Sensitivity (value)	Description of impact (operation)	Residual effect
Habitat - Other standing water (e.g., ponds), including aquatic macroinvertebrates	**Low**	New habitats created by the Proposed Development will see the removal of agricultural chemicals within the Principal Site reducing the quantity of agricultural run-off and chances of eutrophication in nearby rivers and ditches. Planting of aquatic macrophyte and riparian species to enhance water bodies and riparian/marginal habitats. Removal of selected shrub will also be done to reduce shading in the channel and promote macrophyte growth.	Moderate beneficial effect **(Significant)**
Habitat – Main Rivers (including Ditches), including species using them (Fish and riparian mammals)	**Medium**	New habitats created by the Proposed Development will see the removal of agricultural chemicals from land parcels within the Principal Site reducing the quantity of agricultural run-off and chances of eutrophication in nearby rivers and ditches. This will further secure the long-term future of these habitats and is in line with the expectations of national and local planning policy and will have benefits for any species within such habitats.	Moderate beneficial effect **(Significant)**
Grassland and arable field margins with scarce arable flora	**High**	Additional grassland and conservation margins provided adjacent to and beneath the solar PV panels in the Principal Site, and larger permanent grassland fields, including in arable field margin in retained arable fields, which will increase the diversity of flora in comparison to existing intensive agriculture and provide new habitat niches to encourage fauna such as invertebrates and birds.	Moderate beneficial effect **(Significant)**

Description of resource / receptor and effect	Sensitivity (value)	Description of impact (operation)	Residual effect
Hedgerows	**Medium**	New hedgerow planting and bolstering of existing defunct hedgerows which will increase connectivity across the DCO Site for species such as bats. Gaps in currently defunct hedges will be planted with suitable native species to improve the connectivity of habitats. Hedgerows will be allowed to grow tall and wide to provide maximum benefits for biodiversity and encourage a mosaic of habitats, forming broad habitat corridors throughout the DCO Site.	Moderate beneficial effect **(Significant)**
ES Chapter 9: Water Environment			
No significant residual effects on water environment are predicted during the operation of the Proposed Development.			
ES Chapter 10: Landscape and Visual Amenity			
Landscape receptors			
LLCA 03: Tunman Hill LLCA 08: Thurlby Fenland	**Medium-high**	Long-term (reversible) change to landscape character	**Major adverse (significant)** at year 1 reducing to **Moderate adverse (significant)** at year 15 (winter and summer)
Principal Site	**Medium**	Long-term (reversible) change to landscape character	**Major adverse (significant)** at year 1 reducing to **Moderate adverse (significant)** at year 15 (winter and summer)

Description of resource / receptor and effect	Sensitivity (value)	Description of impact (operation)	Residual effect
Sub-area 5: Witham and Brant Vales	**Medium**	Long-term (reversible) change to landscape character	**Moderate adverse (significant)** at year 1 reducing to not significant at year 15
Sub-area 2: Terrace Sandlands	**Low-medium**	Long-term (reversible) change to landscape character	**Moderate adverse (significant)** at year 1 reducing to not significant at year 15
Visual receptors			
Residents of Housham Wood Farm Residents of Church Farm and Low Barn	**Medium-high**	Long term (reversible) change to visual amenity	**Moderate adverse (significant)** in year 1 reducing to not significant in year 15
Residents of Grange Cottage Recreational users of PRoW TOTH/12/3	**Medium-high**	Long term (reversible) change to visual amenity	**Moderate adverse (significant)** in year 1 and year 15 (winter); not significant in year 15 (summer)
Recreational users of PRoW Aubo/8/1	**Medium**	Long term (reversible) change to visual amenity	**Major adverse (significant)** in year 1 and year 15 (winter and summer)

Description of resource / receptor and effect	Sensitivity (value)	Description of impact (operation)	Residual effect
Recreational users of PRoW west of Thorpe on the Hill (TOTH/7/2, TOTH/21/1, TOTH/6/2, TOTH/6/3)	**Medium**	Long term (reversible) change to visual amenity	**Major adverse (significant)** in year 1 and year 15 (winter) **Moderate adverse (significant)** in year 15 (summer)
Recreational users of PRoW Bass/22/1, Bass/21/2, Bass/20/1 Recreational users of PRoW TOTH/11/1 Recreational users of PRoW TOTH/15/1	**Medium**	Long term (reversible) change to visual amenity	**Moderate adverse (significant)** in year 1 and year 15 (winter); not significant in year 15 (summer)
Recreational users of PRoW Aubo/10/1 Recreational users of PRoW Aubo/12/2 Recreational users of PRoW Bass/1/1, NoDi/1/2, NoDi/4/1, ThuN/5/1 Recreational users of PRoW ThuN/2/1 Recreational users of PRoW TOTH/6/1 and TOTH/6A/1 Users of Clay Lane and Bassingham Road	**Medium**	Long term (reversible) change to visual amenity	**Moderate adverse (significant)** in year 1 reducing to not significant in year 15
ES Chapter 11: Noise and Vibration			
No significant residual effects on noise and vibration are predicted during the operation of the Proposed Development.			
ES Chapter 12: Socio-Economics and Land Use			
No significant residual effects on socio-economics are predicted during the operation of the Proposed Development.			
ES Chapter 13: Traffic and Transport			
No significant residual effects on traffic and transport are predicted during the operation of the Proposed Development.			

Description of resource / receptor and effect	Sensitivity (value)	Description of impact (operation)	Residual effect
ES Chapter 14: Other Environmental Topics			
No significant residual effects on air quality; glint and glare; ground conditions; materials and waste; major accidents and disasters; telecommunications, television reception and utilities; and electromagnetic fields are expected during the operation of the Proposed Development.			
ES Chapter 15: Cumulative Effects and Interactions			
No significant residual Cumulative Effects and Interactions are predicted where the magnitude of the Cumulative Effect exceeds that of the Proposed Development in isolation.			

16.2.2 As summarised above, there is the potential for significant adverse residual effects on several landscape and visual receptors during the construction of the Proposed Development. Although significant, these impacts will be temporary, due to the transient nature of the construction works. Additionally, there is the potential for significant moderate adverse vibration effects on three sensitive receptors due to vibration from noise generating construction works if driven piling is undertaken at a distance of 60 m or closer to these properties, associated with construction of the BESS, Solar Stations, and ground mounted solar PV panel arrays, based on worst-case parameters. This is considered to be a precautionary approach to construction vibration and likely to over-estimate vibration levels. If driven piling is to be undertaken, a commitment is included in the **Framework Construction Environmental Management Plan (CEMP) [EN010143/APP/7.7]** to undertake a construction vibration risk assessment such that significant effects would be avoided. If it is unavoidable that the relevant levels would be exceeded, the risk assessment would focus on limiting the exposure of nearby receptors to levels of vibration exceeding the relevant thresholds as far as reasonably practicable. Furthermore, the timing of any driven piling within 60m to residential receptors will be delayed until after 10am to avoid more sensitive time periods. Again, these significant effects would only occur for the short-term duration during which the driven piling works (if undertaken) are happening near to these residences. Management and mitigation measures have been included within the **Framework CEMP [EN010143/APP/7.7]** to minimise these impacts as far as practical.

16.2.3 The Proposed Development is predicted to have some significant adverse landscape and visual amenity effects during Year 1 of operation. This reflects the views of the Proposed Development without the benefit of additional planting that is proposed as part of the embedded mitigation. Most Year 15 operational effects are considered to be 'not significant' following the maturity of the screening planting (as shown in the **Framework Landscape and Ecological Management Plan** [**EN010143/APP/7.15**), although the effect on the local landscape character area is considered to remain moderate adverse at Year 15, with major adverse effects remaining on Recreational users of PRoW Aubo/8/1 for a short length of this PRoW where the Proposed Development is visible at close quarters, and moderate adverse effects in Year 15 for Recreational users of PRoW west of Thorpe on the Hill (TOTH/7/2, TOTH/21/1, TOTH/6/2, TOTH/6/3), and also for Recreational users of PRoWs Bass/22/1, Bass/21/2, Bass/20/1, TOTH/11/1, and TOTH/15/1 in Year 15 during winter when there are no leaves on the vegetation. Impacts on residents at Grange Cottage and users of PRoW TOTH/12/3 are expected to be moderate adverse significance in Year 15 during wintertime, reducing to not significant when leaves are on the trees and hedges in the summertime.

16.2.4 The operation of the Proposed Development will have a significant beneficial effect on climate (greenhouse gases) due to the nature of the Proposed Development (renewable energy) by displacing the needs for other forms of conventional energy generation that would emit greenhouse gases. The Proposed Development would have a carbon payback period of approximately 12 years for whole life carbon emissions (including replacements), with the

payback period for construction emissions being approximately 4 years of operation. There would be 3,302,906 tonnes of carbon dioxide equivalent (CO_2e) avoided by the Proposed Development over 60 years operation.

16.2.5 The habitat and landscaping proposals will enhance and lead to moderate beneficial significant effects on five habitats: woodland and trees, standing water, rivers and ditches, grassland, and hedgerows. The Applicant has committed to deliver a minimum of 30% biodiversity net gain in habitat units, 50% biodiversity net gain in hedgerow units and 10% biodiversity net gain in watercourse units using DEFRA's Statutory Biodiversity Metric (SBM) (Version 1.0.4) for the Proposed Development, as set out in the **Biodiversity Net Gain Report [EN010143/APP/7.12]**. This commitment is secured in Requirement 8 at Schedule 2 of the **Draft DCO [EN010154/APP/3.1]**.