East Anglia ONE North and East Anglia TWO Offshore Windfarms

Applicants' Responses to Examining Authority's Written Questions 2

Volume 6 – 2.10 Landscape and Visual Impact

Applicants: East Anglia ONE North Limited and East Anglia TWO Limited
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Applicable to East Anglia ONE North and East Anglia TWO

Revision Summary				
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Description of Revisions			
Rev	**Page**	**Section**	**Description**
001	n/a	n/a	Final for Deadline 6

Glossary of Acronyms

AIL	Abnormal Indivisible Load
AIS	Air Insulated Switchgear
APP	Application Document
BCT	Bat Conservation Trust
DCO	Development Consent Order
ES	Environmental Statement
ESC	East Suffolk Council
ETG	Expert Topic Group
ExA	Examining Authority
ExQs	Examining Authorities First Written Questions
GIS	Gas Insulated Switchgear
HDD	Horizontal Directional Drilling
HE	Historic England
LiDAR	Light Detection and Ranging
LMP	Landscape Management Plan
LVIA	Landscape and Visual Impact Assessment
NE	Natural England
NG	National Grid
NGET	National Grid Electricity Transmission
NPS	National Policy Statement
OLEMS	Outline Landscape and Ecological Management Strategy
OLMP	Outline Landscape Mitigation Plan
PRoW	Public Right of Way
SCC	Suffolk County Council
SCDC	Suffolk Coastal District Council
UK	United Kingdom
WQ	Written Question

Glossary of Terminology

Applicants	East Anglia TWO Limited / East Anglia ONE North Limited
Cable sealing end compound	A compound which allows the safe transition of cables between the overhead lines and underground cables which connect to the National Grid substation.
Cable sealing end (with circuit breaker) compound	A compound (which includes a circuit breaker) which allows the safe transition of cables between the overhead lines and underground cables which connect to the National Grid substation.
The Councils	East Suffolk Council and Suffolk County Council
Development area	The area comprising the onshore development area and the offshore development area (described as the 'order limits' within the Development Consent Order).
East Anglia ONE North project	The proposed project consisting of up to 67 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia TWO project	The proposed project consisting of up to 75 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia TWO windfarm site	The offshore area within which wind turbines and offshore platforms will be located.
Horizontal directional drilling (HDD)	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.
HDD temporary working area	Temporary compounds which will contain laydown, storage and work areas for HDD drilling works.
Landfall	The area (from Mean Low Water Springs) where the offshore export cables would make contact with land, and connect to the onshore cables.
National Grid infrastructure	A National Grid substation, cable sealing end compounds, cable sealing end (with circuit breaker) compound, underground cabling and National Grid overhead line realignment works to facilitate connection to the national electricity grid, all of which will be consented as part of the proposed East Anglia TWO / East Anglia ONE North project Development Consent Order but will be National Grid owned assets.
National Grid substation	The substation (including all of the electrical equipment within it) necessary to connect the electricity generated by the proposed East Anglia TWO / East Anglia ONE North project to the national electricity grid which will be owned by National Grid but is being consented as part of the proposed East Anglia TWO / East Anglia ONE North project Development Consent Order.
National Grid substation location	The proposed location of the National Grid substation.

Onshore development area	The area in which the landfall, onshore cable corridor, onshore substation, landscaping and ecological mitigation areas, temporary construction facilities (such as access roads and construction consolidation sites), and the National Grid Infrastructure will be located.
Onshore infrastructure	The combined name for all of the onshore infrastructure associated with the proposed East Anglia TWO / East Anglia ONE North project from landfall to the connection to the national electricity grid.
Onshore substation	The East Anglia TWO / East Anglia ONE North substation and all of the electrical equipment within the onshore substation and connecting to the National Grid infrastructure.
Onshore substation location	The proposed location of the onshore substation for the proposed East Anglia TWO / East Anglia ONE North project.

ExA. Question Ref.	Question addressed to	ExA. Question	Applicants' Response
2.10 Landscape and Visual Impact			
2.10.1	Applicants and IPs	**Outline Landscape and Ecological Management Strategy (OLEMS)** Section 3.3 OLEM Design Principles [REP3-030] sets out national and local design policies and Section 3.4 Consultation summarises the detailed comments provided by the OLMP technical working group and LVIA ETG. Explain how the OLEM proposals respond to the national and local policy framework and the comments of the consultation bodies and comment on whether policy objectives are being met.	Decisions on the project are to be taken in accordance with the relevant national policy statement(s). NPS EN1 makes clear that Development Plan policies may be important and relevant to decision making but in the event of a conflict between these or any other documents and an NPS, the NPS prevails for purposes of decision making given the national significance of the infrastructure. The OLEM proposals were therefore developed in accordance with NPS policies as set out below. As required by NPS EN1 paragraph 5.9.5 the LVIA and landscape mitigation proposed in the OLMP make reference to, are guided by, and take into account, published landscape character assessments (Suffolk Landscape Character Assessment and Suffolk Coastal Landscape Character Assessment) and local plan policies based on these assessments. In accordance with NPS EN1 5.9.6 the LVIA and landscape mitigation proposed in the OLEMS address effects on landscape character, landscape components and views of the project during construction and of the presence of and operation of the Projects. In accordance with NPS EN1 paragraph 5.9.7, 5.9.8 and 5.9.17 (and 5.9.18 which recognises that "All proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites"), the OLEMS have been designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints meeting the aim to minimise harm to the landscape, providing reasonable mitigation

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			where possible and appropriate. As stated in the OLEMS document itself regard is had to NPS EN3 policy 2.4.2 which requires that "Proposals for renewable energy infrastructure should demonstrate good design in respect of landscape and visual amenity, and in the design of the project to mitigate impacts such as noise and effects on ecology." <u>Conclusion</u> Through the process of consulting upon, developing and establishing the OLEMS therefore, the NPS policy objectives of designing the development "carefully" and minimising landscape harm are met since the OLEMS itself, and the Outline Landscape Mitigation Plan and Principles it contains, are based upon these NPS policies and because, responding to these principles, the OLEMS will secure: • substantial areas of new woodland, and • species rich grassland and hedgerows, the arrangement of these areas to connect internally on site and connect externally with existing woodlands, grasslands and hedgerows in the surrounding landscape, • a landscaping contribution, through its design, to the enhancement of the local landscape character. Accordance with all NPS policies of the application is set out Development Consent and Planning Statement at Table 6.23 pages 284 to 301. The OLEMS also responds to and complies with local policies which may be important and relevant to the decision, including Suffolk Coastal District Council (SCDC) Development Plan policies:

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			• DM21 on design aesthetics in that the project has decided to use underground cable systems up to and in the vicinity of the OSS; • SP14 and Objective 11 in that an as embedded mitigation Artificial Light Emissions Management Plan will be developed for the final design for the permanent infrastructure, including measures to minimise light spill (designed in line with the 'Bats and Artificial Lighting in the UK' guidance – Bat Conservation Trust (BCT) 2018) and the OLEMS includes proposals for biodiversity opportunities within the onshore development area, these proposals will be developed further post-consent; in consultation with relevant stakeholders; • SCLP10.3 in that the design and the OLEMS takes full account of landscape character assessments, and because of the extent of mitigation planting incorporated into the design mostly comprising indigenous woodland species planted around the onshore substation including, • Core native woodland; • Screen native woodland mix; • Native woodland edge mix; • Native wet woodland mix; and • Native hedgerows. Full information on how the OLEMS and the project has regard to local policy is set out Development Consent and Planning Statement at Table 6.23 pages 302 to 318. The OLEMS responds to the comments of consultation bodies in that: - it has been developed on the basis of comments received from the relevant planning authority, Natural England (NE) and

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					Historic England (HE) via a series of expert topic group meetings; - it now incorporates adaptive management of the woodland planting (including watering provisions) to address the relevant planning authority's representations in relation to growth rates; - feedback received during the Projects' pre-application stage Public Information Days, such as increased screening along Grove Wood, has been included, and - in recognition of comments from HE landscaping in the village of Friston has been drawn back from the church itself, thus retaining the existing character in proximity of the church whist seeking to also enhance existing landscape features such as hedgerows, also ensuring the setting of this heritage asset is not unduly affected. The final Landscape Mitigation Plan will be agreed following the Onshore Principles design process to provide for community consultation. This will enable any further comments on elements that may directly affect local residents and other receptors to be taken into account as part of engagement on how the wider framework will fit together
2.10.2	Applicants			**Woodland cover - General** Do you have, or can you point the ExA to where it can find information on the height of surrounding coverts (Laurel and Grove wood)?	The Applicants do not have a definitive source which can confirm the heights of the surrounding woodland coverts (Laurel and Grove Wood), however based on calculations using the Light Detection and Ranging (LiDAR) DSM data and producing 3D model views of the woodlands, the Applicants believe that the average maximum height of the woodland blocks at Laurel Covert and Grove Wood is approximately 20m. We would note that parts of these surrounding

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			woodlands are higher, up to about 23m, and some areas are lower at around 17m, however we believe that 20m is a good approximation for the average height.
2.10.3	Applicants	**Access road** The ExAs note the responses to ExQ1.10.21 [REP1-115] concerning the design of the proposed substation access road and note the reduction in width of road to 7m. While AIL deliveries may be required during operation in the "unlikely event of a replacement transformer being required", does this mean that such an access road can be sympathetically designed to reduce visual impacts? For instance, given that AIL deliveries will be primarily required during construction, could an alternative material be used for the roads such as Grasscrete (or similar)?	The Applicants have based the width of the access road used on the East Anglia ONE project which is 6m in width. Given that the transformers for the Projects' onshore substations are yet to be designed/procured, noting they are likely to be of larger voltage capacity for the Projects given the higher voltage to be used compared to the East Anglia ONE project, a 7m width has been specified. There is no benefit to the Applicants to construct a wider road than is necessary. The Applicants do not consider that a Grasscrete solution would be suitable given the weight of each transformer delivery, expected to be 282 tonnes whereas the maximum weight which a Grasscrete road is designed to accommodate is 40 tonnes gross vehicle weight. It is noted that, as per the outline landscape and ecological management plan (8.7) the operational access road is bounded by hedgerows on both sides to assist in its screening.
2.10.4	Applicants	**Planting proposals** Questions at ISH2 concerned provenance and the availability of local stock for landscaping. Given the increased planting provided for in the revised OLEMS [REP3-030] and proposed changes to timing of commencement of works, can you provide an update on this issue?	No decision has been made by the Applicants on the provenance of trees. This will be the subject of a post-consent procurement process by the Applicants. It is noted that based on a consent award of October 2021, the vast majority of the planting will not be required until ca. 2024. The Applicants do not consider this to be a material risk to the Projects.

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2.10.5	Applicants	**OLEMS** Paragraph 89 of the OLEMS [REP3-030] states that: *"The screening tree belts are not placed hard against the houses, footpaths and villages. On the paths, this creates an experience of walking through farmland that includes woodland and the onshore substations, rather than always walking past woodland. At the houses, the planting has avoided enclosure of the historic farms in woodland, which is not how they would have been experienced in the past (this applies particularly to the listed buildings on Friston Moor). The OLMP includes re-establishment of historically mapped tree-lined enclosures close to the farms to achieve screening whilst retaining the farms in a more open farmed landscape."* However, it appears that in certain places trees and landscaping are to be placed very close to the boundaries of houses and particularly to the listed buildings on Friston Moor. For instance, revised viewpoint 5 [REP4-036] shows reasonably dense planting very close to the southern boundary of High House Farm. Such planting would seem to effectively enclose the south side of the historic farm in woodland, removing the 'more open farmed landscape'. Respond to the above.	The Applicants note their design intention expressed in the ***OLEMS*** (an updated version has been submitted at Deadline 6, document reference 8.7) for planting not to enclose the historic farms in woodland, however the Applicant is also trying to balance this with the need to mitigate visual effects on people living in the area. With this in mind, the Outline Landscape Mitigation Plan (OLMP) (an updated version has been submitted at Deadline 6, as part of the ***OLEMS*** document reference 8.7) proposes an additional planting area close to the south-western boundary of High House Farm, however this planting is adjacent to existing woodland within the curtilage of High House Farm and supports the existing woodland planting within the boundary of the property, which already provides 'enclosure' to the south-west of the property. The more open south-east aspect of High House Farm will be retained in a more open farmed landscape, with the proposed planting set back further to the south beyond the series of grassland fields proposed between High House Farm and Little Moor Farm. This is evident in the extract of the OLMP included below.

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2.10.6	Applicants, NGET		**Proposed National Grid Substation** In its response to requests for additional information from ISHs2, National Grid Electricity Transmission (NGET) [REP3-111] explained the issues around the decision to select either Gas or Air Insulation Systems (GIS/AIS) for the proposed National Grid substation and expressed a preference for AIS. However, a GIS approach requires significantly less land, although building structures for GIS are higher than for AIS. Provide a visual representation of a National Grid GIS substation from Viewpoint 5 at years 1 and 15 of operation to enable the visual effects of this alternative to be assessed and, given the character of the landscape,	The Applicants are producing an updated visual representation of a National Grid substation from Viewpoint 5 at Year 1 and 15 of operation and will submit this at Deadline 7. The Applicants note ES ***Figure 29.37 - Viewpoint 5 Public Rights of Way, near Moor Farm (with National Grid GIS Substation)*** (APP-428), which shows the GIS substation prior to the recent project design and updated to the ***OLMP*** (an updated version of this photomontage from Viewpoint 5 will be submitted at Deadline 7). In terms of the relative merits of GIS and AIS technology from a visual and masterplan perspective, an AIS NG substation requires a larger footprint/area of land than a GIS NG substation, therefore resulting in a higher change to local landscape character and the use of AIS will

ExA. Question Ref.	Question addressed to		ExA. Question	Applicants' Response
			comment upon the merits and demerits of both GIS and AIS technology from both visual and masterplan perspectives and consider whether, a commitment should be made to one or other technical solution during the Examination, to enable the selected solution to be secured in the dDCO. If this is not possible, explain why and how the resulting uncertainty can be addressed.	also lead to a higher change to visual amenity due to its wider spread in views. Although GIS requires a large building, the containment of switchgear indoors presents a simpler, less complex (albeit more solid) form than the appearance of an AIS National Grid (NG) substation. The appearance of the external electrical infrastructure of an AIS NG substation presents a more complex form over a wider spread, with a framework of elements that combine to present more visual complexity than the single mass of a GIS building. Although the buildings within an AIS NG substation are lower in height than the single GIS building, there would be a requirement for several buildings. External AIS electrical infrastructure would generally be at heights not dissimilar to the GIS building, and would also cover a larger footprint. Woodland planting would, from certain views, screen the lower heights of an AIS NG substation than a GIS building, however, a GIS substation requires a smaller footprint. The reduced spread and greater containment of the GIS options by existing woodland (Grove Wood/Laurel Covert) is notable. The difference in visual effects between the AIS and GIS technology can most clearly be appreciated in the following viewpoints: • Viewpoint 5. AIS in **Figure 29.17b** (APP-408) and GIS in **Figure 29.37b** (APP-428). • Viewpoint 8. AIS in **Figure 29.20b** (APP-411) and GIS in **Figure 29.40b** (APP-431). It should be noted that the project substations have been updated since these photomontages were prepared for the Applications and

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				that an updated version of the Viewpoint 5 photomontage will be submitted at Deadline 7. GIS buildings have more scope to be designed with an 'agricultural' appearance, for example, through their form, use of colour and materials; which are more common in the local vernacular e.g. Manor Farm (Viewpoint 12) (**Figure 29.24a**) (APP-415) and Redhouse Farm. The smaller footprint of the GIS option may offer opportunity to consider the configuration of the substations and mitigation planting due to lower amount of land-take compared to the AIS footprint (Figure 9 of the ***OLEMS*** (an updated version has been submitted at Deadline 6, document reference 8.7)). Given the above considerations, AIS was selected as worst case for the assessment of landscape and visual effects. The Applicants expect that NGET will respond to the question of AIS Vs GIS.
2.10.7	Applicants, IPs		**Proposed sealing-end compounds** [REP4-036] EA1N Landscape and Visual Impact Assessment Addendum - Appendix 5 - Viewpoint 5 PRoW near Moor Farm (Figure 29.17 Update) shows at year 15 that the western most sealing end compound, in particular, is clearly visible from the viewpoint despite the additional planting described in paragraphs 45, 100 and 110 of the OLEMS [REP3-030] to provide additional screening. Is the additional planting successful in providing additional screening and, if not, are there further	The Applicants consider that the additional proposed planting described in the ***OLEMS*** (an updated version has been submitted at Deadline 6, document reference 8.7) is successful in screening the lower to mid-sections of the cable sealing end compound identified. Due to its proximity to the cable sealing end compounds and overhead electrical lines (which requires electrical safety clearance distances), this planting was proposed as W2 native edge woodland consisting of smaller native trees and shrubs, assumed to have heights between 2-5m. The Applicants applied a precautionary principle with respect to potential planting of taller tree species around the cable sealing end compounds, however the Applicants note potential to plant faster

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		measures that can be taken to more adequately screen the sealing end compounds?	growing / taller tree species (subject to agreement of the relevant planning authority) to provide a further screening, such as W1 or W2 species mixes, subject to the final design of the cable sealing end compounds and detailed consideration of the potential constraints of taller species near to the overhead line/sealing end compounds to be undertaken as part of the LMP, with the potential to provide a greater degree of screening of this cable sealing end compound.
2.10.8	Applicants	**Landscaping – Future** Do you have any views on any implications for the implementation/maintenance of the landscape mitigation currently proposed if further connections to the National Grid are made at Friston?	The Applicants are not designing the landscaping proposals to accommodate any future projects. Any potential future connections would need to work within the constraints of the Projects' onshore infrastructure and landscaping and address this within their scheme design and consent application.
2.10.9	Applicants	**Landscaping – Growth rates** East Suffolk Council [REP4-059] maintain that growth rates for proposed planting remains optimistic, considering that they may be achievable for 15 consistently favourable consecutive growing years, but that is highly unlikely to occur. The Suffolk Preservation Society (SPS) also [REP5-119] remain very concerned over anticipated growth rates, considering that growth rate in the area of the sites is typically not more than 300mm a year. In addition, they raise concerns over long term irrigation. In response to ESC you state that you are committed to prepare a landscape management plan (LMP) based upon *"an adaptive management scheme (dynamic aftercare) to de-risk the timely delivery of planting, achieve optimum*	a) The Applicants address the issue of growth rates in some detail in the ***Updated Photomontages Clarification Note*** (REP3-062) submitted at Deadline 3, particularly in ***section 3.1.4***. A range of tree heights are shown in the visualisations depending on the planting mix proposed, with core woodland areas ranging between 6.5m – 7.8m and tree heights varying within this range. The heights of trees at 15 years post-planting are based on an average annual growth rate of 30cm per year for the first 5 years and 50cm per year for the next 10 years (average of 43cm per year), with a variation tolerance of +10% to -10% applied to allow for some variation in growth, above and below the average. As noted in the OLEMS (8.7), the Applicants note the Councils representations regarding the potential for dry spring/summer conditions in Suffolk to hamper plant establishment, particularly in the period immediately after planting, and will ensure that the final LMP includes provision for the implementation of adequate watering of newly planted and established trees during the aftercare period.

ExA. Question Ref.	Question addressed to	ExA. Question	Applicants' Response
		levels of plan growth and provide greater confidence that effective screening from the tree planting areas will be achieved before the end of the adaptive management period" [REP5-010] a) Respond to the view of SPS that growth rates do not typically exceed 300mm a year and that the visualisations suggest a height of 8-9m. b) How likely are 15 consistently favourable consecutive growing years, with reference to recent experiences in East Suffolk and climatic conditions? c) If 15 consistently favourable consecutive growing years are not likely to be achieved, will the adaptive management scheme allow, for instance, for the removal of underperforming stock and replacement with more mature samples? d) Given your answers to a), b) and c), how realistic do you consider the revised photomontages submitted to be? e) Will further information on the adaptive management scheme be provided in a future OLEMS, and if so, when will this be provided to the Examinations? f) Respond to the views of SPS that artificial irrigation is not guaranteed to support robust growth in the long term and that such methods are an unsustainable approach to horticulture, particularly considering climate change.	b) The Applicants note concerns regarding the potential for dry spring/summer conditions in Suffolk to hamper plant establishment and will ensure that the LMP includes provision for the implementation of adequate watering of newly planted and established trees during the aftercare period. The Applicant has reviewed monthly precipitation data for the last 20 years (see ***Figures 1 and 2*** at the end of this document) from East Suffolk (Ipswich). Average rainfall amounts have been greatest over recent years during 2019-2020, compared to the period 2009-2018. Longer term data over the 10-year period 2009-2020 shows that monthly rainfall days/amounts are broadly consistent over the long-term, albeit with monthly variability, and that the rainfall amounts are likely to provide favourable consecutive growing years provided that short periods of dry weather/lower rainfall are monitored and mitigated by watering provision through the aftercare period. Taking 2020 as an example, monthly average rainfall days ranged from a lowest of 13 days in May to a highest of 29 days in October, with no months recording any lower than 13 rainfall days and there was an average of 19.5 days monthly rainfall across the year. The average rainfall amount (mm) over the year ranged from a lowest of 24.9mm in May to a highest of 110.1mm in February. Although the rainfall data for 2020 points to a slightly lower number of rainfall days and rainfall amount in spring in April/May, both months had 13 rainfall days and between 24.9mm – 47.1mm of rain in 2020. The adaptive maintenance aftercare provision will include adequate watering of new planting stock during this important plant establishment period during Spring and as required throughout the year. The 2020 data shows that during the summer months of June to August there were between 20-25 rainfall days and between 83.1mm (June) to 97.4mm (August) rainfall amount – where warm and wet conditions are very likely to be conducive to good plant growth.) The Applicant proposes to prepare

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				a LMP based upon an adaptive planting maintenance scheme (dynamic aftercare), which will allow for the focused management of underperforming stock. The aftercare supervision structure will addresses the annual growth of different blocks of planting, with monitoring against agreed objectives, with the option to suspend/extend the maintenance periods for discrete areas of planting and target specific measures to improve such areas, in cases where the planting does not establish satisfactorily for any reason. d) The Applicants recognise that there are limitations with the degree to which any visual representation can be entirely 'realistic', however the Applicants consider that within the technical limitations, the revised photomontages present accurate, objective and realistic representations of the appearance of the onshore substations and National Grid substation with the 'proposed' landscape scheme at Year 15 showing a range of tree/woodland heights which are deliverable over this period assuming appropriate preparation of soil, species, stock selection and quality of planting and aftercare. e) An updated OLEMS will be submitted at Deadline 6, and whilst there are refinements to the adaptive management measures proposed, no substantive additional information is proposed. The principles of the adaptive management measures set out in the OLEMS is considered appropriate for this outline document, with detail provided within the final Landscape Management Plan which requires approval from the relevant planning authority. f) The Applicants note the extensive use of reservoirs and irrigation systems within the East Anglia region. Given the importance of maximising the screening effect and condition of planting around the substations of such nationally significant infrastructure projects and considering the inherent ecological benefits that such landscaping will

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				deliver, targeted and efficient watering of planting when required is justified.
2.10.10	Applicants, East Suffolk Council		**Landscape – replacement of failed planting** It is noted that the Applicants commit to the replacement of failed planting at the onshore substation locations for a period of ten years. Given that the provided photomontages provide assessments of the effect of landscaping at 15 years, do you consider ten years to be long enough for this provision?	The OLEMS (8.7) makes it clear that the ten year period is subject to adaptive management, meaning the landscaping is regularly monitored and areas where zones of the landscaping underperform can be 'held' in a management year until the landscaping reaches the desired standard. Furthermore, the OLEMS makes clear that the undertaker will continue to maintain the landscaping during the life of the Projects (i.e. replacement ends at 10 years (adaptive management) period and maintenance continues beyond this).
2.10.11	Applicants		**Landscaping and visual impacts – Construction period** SASES raise concerns [REP5-096] over the length of the construction period and when individual elements of the proposals would be scheduled. Respond to the points raised by SASES in their representation, specifically: a) Provide any further information concerning the construction of the NG substation. Is there a commitment or confidence that this would be constructed at the same time as the applicant's substation(s)? b) Can commitment be given regarding the programming of the applicants two proposed substations, in a similar way to the commitment to install ducting for both projects at the same time?	a) Given the construction durations for the onshore substations and National Grid substation presented within ***Chapter 6*** of the Environmental Statement (ES) (APP-054), the Applicants expect the National Grid substation to be constructed in parallel with one or both of the onshore substation(s). This has been assessed within the Environmental Statement. b) The decision to build the onshore substation would only be made post a final investment decision. Such a decision would be made on an individual project basis. The Applicants are not able to make a similar commitment in respect of the construction of an onshore substation.

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2.10.12	Applicants	**Landscaping and visual impacts** SASES note that the rearrangement of elements within substations can reduce the visual impact of development [REP5-096] but note that as this not controlled within the DCO that any improvement as a result of the rearrangement of equipment cannot be relied on. a) Do you agree that the rearrangement of elements within substations can have a beneficial effect on the visual impact of the proposals? If not, why not? b) How could such matters be controlled and secured?	**Response to Question a)** The configuration of the onshore substations are relatively fixed, in that the onshore export cables must enter on the southern boundary of the onshore substations and exit to the north, and the power flow within the onshore substation must follow a particular sequence within the onshore substation. Therefore, there is little, if any scope to rearrange elements within the onshore substations. **Response to Question b)** The final design of the onshore substation is subject to the considerations and consultation presented within the ***substations design principles statement*** (REP4-029) and Requirement 12 of the ***draft DCO*** (REP5-003).
2.10.13	Applicants	**Landscape and visual impacts** The Landscape and Visual Impact Assessment Addendum [REP4-031] states that for viewpoint 2 (Friston, Church Road), there is a notable reduction in the visibility of both onshore substations and the NG substation and considers that additional planting proposals will offer further mitigation. However, while changes may have reduced the height and scale of the proposals, the visualisations still appear to show a significant change to the views afforded from this presently rural view at all assessed intervals	The Applicants would refer to the ***Landscape and Visual Impact Assessment Addendum*** (REP4-031) section 3.4.1.2, which describes the changes in height and scale of the Projects substations which together with the revised mitigation proposals in the ***OLMP*** (an updated version has been submitted at Deadline 6, document reference 8.7) offer further mitigation and a subsequent reduction in the magnitude of change arising at Year 1 and Year 15. The Applicants' assessment is that the magnitude of change derives primarily from the visibility, size and scale of the substation infrastructure, which have a reduced height, scale and visibility at all intervals. In views of the eastern substation at both Year 1 and Year 15, an essentially open, attractive, rural view is maintained, albeit with some increase in woodland cover as a component of the view, which is already characteristic in the baseline views north of Friston, as such

ExA. Question Ref.	Question addressed to	ExA. Question	Applicants' Response
		Further justify your views of the reduction of the magnitude of change for construction and operation for this viewpoint.	the effect is assessed as not significant. With respect to the western substation, the buildings and infrastructure would be more visible and introduce elements that do contrast with the rural character of the view, despite the woodland screening, such that the effect of the eastern substation is assessed as remaining significant (despite the decrease in magnitude that arises compared to the ES assessments).
2.10.14	Applicants	**OLEMS** The OLEMS [REP3-030] defines certain areas of woodland as 'potential'. It is noted this is defined in section 3.5.5 of the document. Confirm that the potential early planting areas are potential in so far as they may be planted early – in other words confirm that even if not planted early that they will be planted later and form part of the landscaping schemes for the projects.	The ***OLEMS*** (8.7) sets out the proposed landscaping to be undertaken around the onshore substations, and Requirement 14 of the ***draft DCO*** (REP5-003) requires the final detail to be approved by the relevant planning authority. The final design will take into account the final design of the onshore substation and National Grid infrastructure, and views expressed by stakeholders during the landscape master planning consultation described within the ***substations design principles statement*** (REP4-029). The optionality around early planting relates to the timing of planting presented within the approved landscape management plan, rather than whether or not planting will take place.
2.10.15	Applicants East Suffolk Council Interested Parties	**Substations Lighting at Night** When inspecting the proposed transmission connections site at night, the ExA's observed a dark area, with only limited numbers of artificial light sources visible. At Deadline 5 in response to discussion at ISHs6, East Suffolk Council indicated that it was satisfied that draft Requirements 25(1) and (2) secure the submission, agreement and implementation of an operational artificial light emissions management plan and that draft Requirements 25(3) and (4) secured the submission,	The Applicants Responses to Hearing Action Points (ISH4) Action Point 8 (document reference ExA.HA.D6.V1) provided details of the lighting arrangements for the onshore substations. a) The Applicants welcomes East Suffolk Council's position in their Deadline 5 response (REP5-043) that Requirement 25 secures the provision of an Operational Artificial Light Emissions Management Plan which will include measures to minimise light pollution and the hours of lighting for both the EA1N and EA2 onshore substations and the National Grid substation.

ExA. Question Ref.	Question addressed to	ExA. Question	Applicants' Response
		agreement and implementation of an operational artificial light emissions management plan in relation to the National Grid substation that are broadly satisfactory in terms of minimising operational light pollution. a) Is that position supported by other Interested Parties or are any further measures warranted? b) Are any further measures warranted to control construction artificial light emissions at night?	b) No. Requirement 25 of the draft DCO addresses the control of artificial light emissions during the operational phase. An Operational Artificial Light Emissions Management Plan must be approved by the relevant planning authority which provides details of artificial light emissions during the operation of Work No. 30, Work No. 41 and Work No. 38, which must also include measures to minimise light pollution and the hours of lighting.

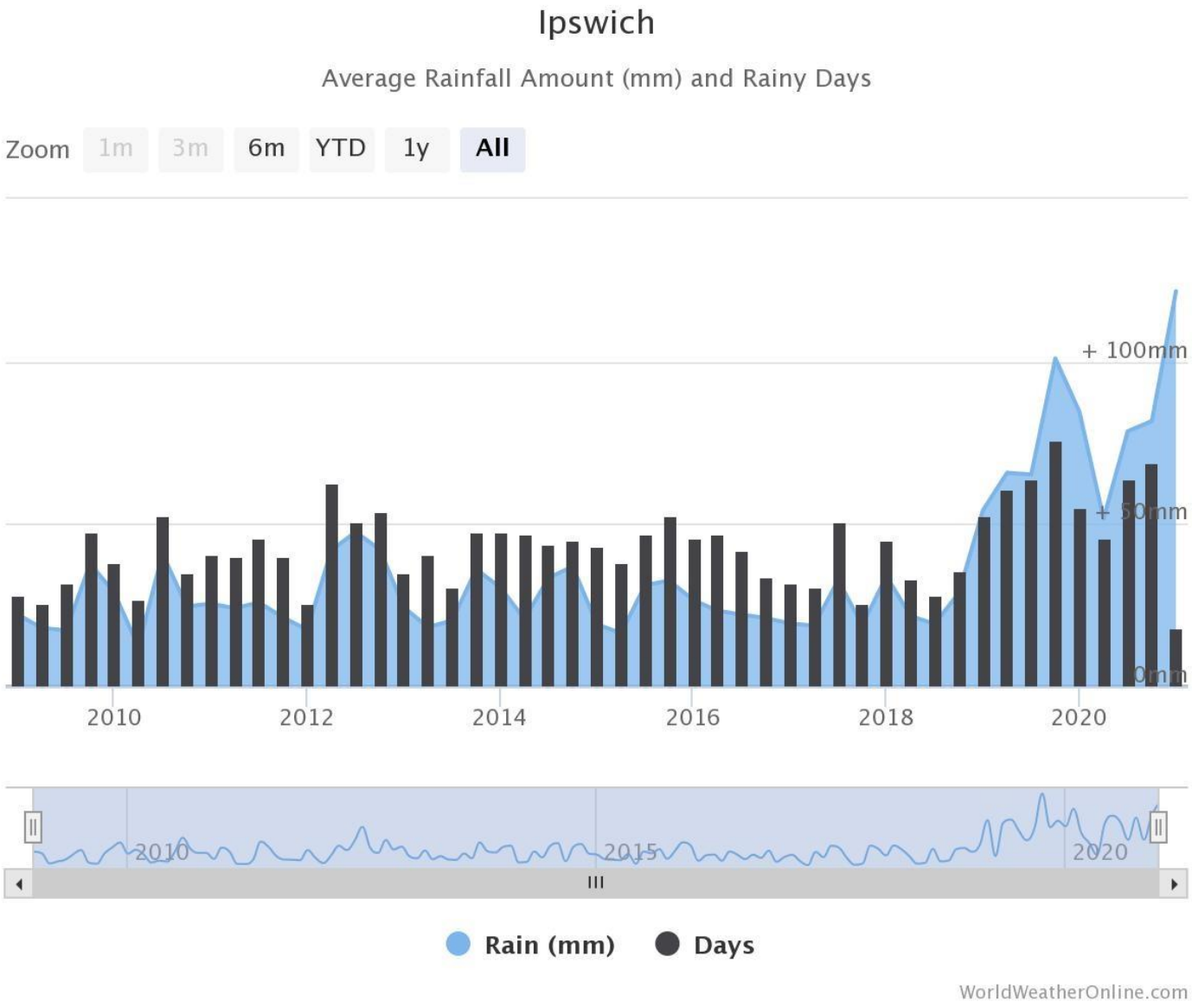

Figure 1 Average Rainfall Amount 2009-2020

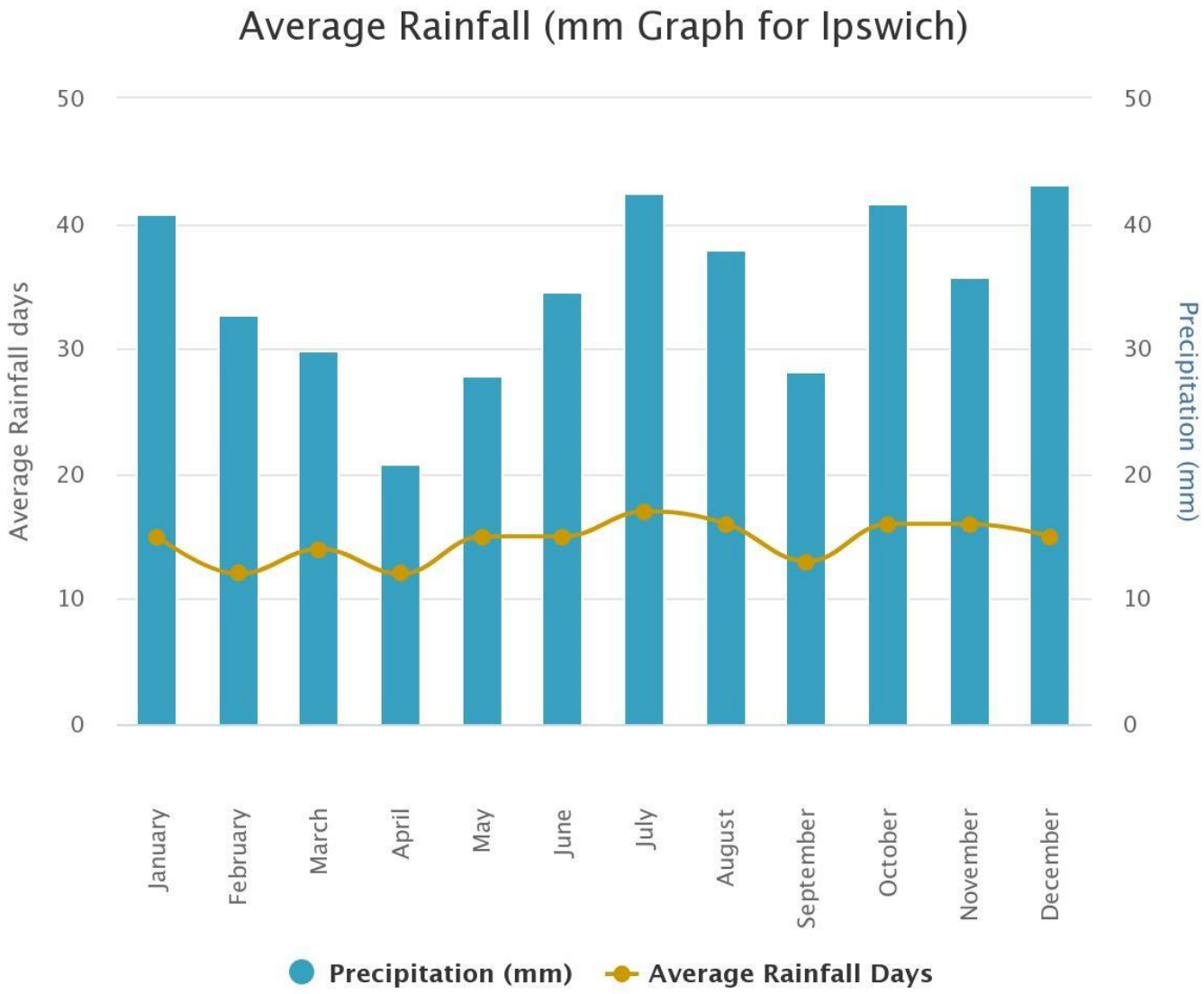

Figure 2 Average Rainfall 2020