[redacted]

Deadline 7 submission, 21/7/26

Contents

Water

We note that Anglian Water has required a Water Resources Agreement (WRA) from the Applicant. We are still unable to find this WRA in the document library. We have been unable to find any estimate of the amount of water required by the Applicant for the N2T project.

Without an WRA it is not possible for the ExA to determine that the Project:

i. Does not compromise the supply of water for domestic purposes in breach of the **Water Industry Act 1991**;

ii. Does not harm aquifers or water courses due to regional or cumulative over-abstraction of water for the project, in breach of the **Water Framework Directive**.

iii. Has significant adverse effects on water (whether "*direct effects and any indirect, secondary, cumulative, transboundary, short, medium, and long-term, permanent and temporary, positive and negative effects at all stages of the project, and also of the measures envisaged for avoiding or mitigating*" those effects (**Para 4.3.3 NPS EN-1**). Para 4.3.2 notes that the EIA Regulations apply to water.

The WRA must be provided and reviewed by Anglian Water and other stakeholders prior to the end of the Examination. The Secretary of State cannot make a decision about the harms set out above without the report. The review of the WRA cannot be left to individual Local Planning Authorities, post-decision, because the impacts are cross-boundary and regional.

[redacted]

Water Resources East states[1] that, "*Eastern England is classified as severely water stressed, yet demand for water is growing with one of the highest rates of new housing development in the country. Unless urgent action is taken, the region will face severe water shortages.*"

Anglian Water is currently operating a hosepipe ban, and Water Resources East said on 16 July, *"The latest Hydrological Summary highlights the growing pressure on water resources in the East of England, with notably low to exceptionally low river flows recorded across parts of East Anglia following a hot, dry June."*[2]

A linear infrastructure project across 180km of the region (the biggest ever DCO..) will require substantial quantities of water that appear not to be planned for.

We can see already the impact of infrastructure projects of a far smaller scale on water supplies, in Rivenhall, Essex where the Indaver Incinerator is located[3]: *'In an email from a senior planning officer at Essex County Council, seen by the BBC, they said the water being supplied to the incinerator had created a "strain on the existing infrastructure".'* Residents are already suffering from low water pressure, and this is an area directly crossed by the N2T Project.

The region is facing high housing targets, for which construction and subsequent occupancy require significant amounts of water:

"*Rising demand on Britain's network means three quarters of the 1.5 million new homes promised by Labour are at risk of being blocked because the country is running out of water.*

In the past week, water companies told the Government that there were only supplies to serve an extra 420,000 homes without risking shortages.

Their analysis warned that official assumptions about water consumption and leak reductions were unrealistic and failed to take account of rising demand from data centres.[4]*"*

The Water Resources Assessment for N2T must also take into account the cumulative water requirement of other projects in the project area, such as Bramford to Twinstead, North Falls, Five Estuaries and Tarchon.

Should the Applicant choose to sidestep the regional water issue by bringing in construction water for Norwich to Tilbury by tanker, then this in itself will require scrutiny, due to the emissions and

[1] [redacted]

[4] The Telegraph, 19 July 2026

[redacted]

traffic impact, and also WFD/domestic supply impact on any region from which the water will be shipped. The Applicant's statement (ES Chapter 12: Hydrology, Land Drainage and Flood Risk, August 2025), "*It is also assumed that there would be no new temporary or permanent abstractions and that the water supply needs of the Project during construction would be sourced either from mains water supply or in remote locations; where this option may not be available, water would be tankered in.*" cannot be taken at face value.

It appears to us that the following remains unknown:

- Total estimated water volume required for construction, split potable/non-potable and by project phase/section
- Number and frequency of tanker deliveries assumed, and over what duration
- The water source(s) tankers would draw from, and confirmation there is headroom without requiring a new abstraction licence at that source
- Whether these movements are included in the Traffic and Transport chapter's HGV counts
- Whether the associated transport emissions are included in the GHG assessment total.

EN-1 says (4.3.20), "The Secretary of State should have regard to the ambitions, goals and targets set out in the government's Environmental Improvement Plan for improving the natural environment and enjoyment of nature. This includes having regard to the achievement of statutory targets set under the Environment Act." The Secretary of State cannot do this in the absence of evidence.

Put simply, a DCO cannot be granted without evidence that water can be made available for construction without harms under the WFD to rivers and aquifers, harms to domestic water supply under the Water Industry Act 1991 and without undue traffic movements/GHG emissions.

Noise- error

There appears to be an error in Table 4.3 of Document: 7.2 Outline Code of Construction Practice Appendix F Outline Noise and Vibration Management Plan - Tracked Changes Version Final Issue C July 2026. It shows the noise thresholds the wrong way round such that they are lower for the day time hours and higher at night time.

[redacted]

Response to document: "8.4.14 Applicant's Comments on any Further Information or Submissions Received by Deadline 5" [REP6-114]

TS Conductor

The Applicant fails, once again (in Appendix D1 of 8.4.14[5]), to address the point we are making:

1. The existing grid COULD carry more energy using TS Conductors (or equivalent composite-core HTLS). This would reduce the amount of new infrastructure required.
2. IF pylons/overhead lines are considered, then fewer and lower towers are required if TS Conductors or equivalent are used. This is because the weight is lower for the same capacity. Fewer and lower towers results in lower project cost and quicker build times.

The Applicant is comparing apples with pears when it talks about conductors like MATTHEW GZTACSR which it has been using for 20 years.

It does not appear that the Applicant has modelled TS Conductor (or any composite-core HTLS) on the *proposed* structures, or on the existing structures.

In addition, the Applicant's phrasing — "designed... to allow greater losses" — has it backwards. Composite-core conductors aren't designed to permit greater losses; they're designed to have *lower resistance*, and the higher temperature ceiling is there so you can actually use that extra capacity, not so you can tolerate worse efficiency.

Next, the Applicant treats 5000A as an immovable fact of the system rather than a design choice. But if the constraint is equipment-based, then it's not physically immovable. The Applicant has not demonstrated how the system cannot be upgraded alongside any conductor enhancements. This appears to be a scope choice, not an inherent limit of the network.

The ExA will be aware that we dispute the Applicant's need case, both in terms of MW boundary gap and timings of generation connections. That said, presenting the system as being within 300 MW of maximum capability, is not a reason to reject higher capacity conductors on the existing infrastructure or for use along the N2T corridor.

The comparison given by the Applicant of Triple Araucaria vs HTLS is not like-for-like. In essence it is comparing two different sized bundles and it is therefore meaningless.

[5] https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020027-003970-8.4.14%20Applicant's%20Comments%20on%20any%20Further%20Information%20or%20Submissions%20Received%20by%20Deadline%205.pdf

[redacted]

Cable swathes (7) and Haul roads (8)

Under heading ***"7. Cable swathes"***, the Applicant has simply requoted sections from the Applicant's previous submissions [REP4-300] and [REP1-139] and therefore not responded to the issues raised by PEA in [REP5-265].

Consequently, the discrepancies highlighted by PEA relating to trench sizes and the resulting cable swathes remain unaddressed. As highlighted by PEA in [REP5-265], *"significant inconsistencies are apparent between the underground cable construction data presented for this project and that for other projects. Such data is critically important when assessing different alternatives"*.

In carrying out its assessment in [REP5-265], PEA consulted a wide range of sources. Major anomalies existed however even when only comparing trench data supplied by the Applicant for the Norwich to Tilbury project with corresponding data supplied by the Applicant for the EGL 3 and EGL 4 project. Therefore, the conflict in the evidence provided by the Applicant for the two projects remains.

As the trench size largely dictates the resulting width of the cable swathe this is very important data. This is not only due to the width of the trench. For the construction swathe, the trench depth and other aspects of cross-sectional geometry are important due to the impact on the resulting soil stockpiles that are sited adjacent to the trenches. As illustrated by the drawings from PEA in [REP5-265], the impact on the resulting cable swathe is very significant.

Questions raised by PEA in [REP5-265] are copied below:

- Why would the HVDC trenches for the Norwich to Tilbury project be 50% deeper than the HVDC trenches for the EGL 3 and EGL 4 Project when the capacity of the cable pair in each trench is the same, noting that with the splayed excavation an increased depth leads to increased width?
- Why for the Norwich to Tilbury project would the HVDC trenches be 50% deeper than the HVAC trenches, noting that for the EGL 3 and EGL 4 Project the depths of HVDC and HVAC trenches are identical?
- Why is there a significant discrepancy between the HVAC trench base widths for the two projects?
- Why are there discrepancies between the proposed excavation slope angles, noting the significant impact this has on trench width and therefore construction impact?

[redacted]

As stated in PEA submission [REP5-265], *"These issues are very significant to the trade-offs between the options and the harm caused. This arises for example from the impact on land take, the amount of material that needs to be excavated and the amount of material that needs to be brought in."*

Further information on other HVDC projects was obtained by PEA after the submission of [REP5-265]:

Information presented at the non-statutory consultation in July 2026 for the proposed Tarchon Interconnector Project showed the typical width of a HVDC cable trench to be 2m. A Tarchon representative at the event stated that the typical trench depth would be 1.4 to 1.5m (which aligns with the EGL 3 and EGL 4 project). The relevant image from the display board is provided in Figure 1.

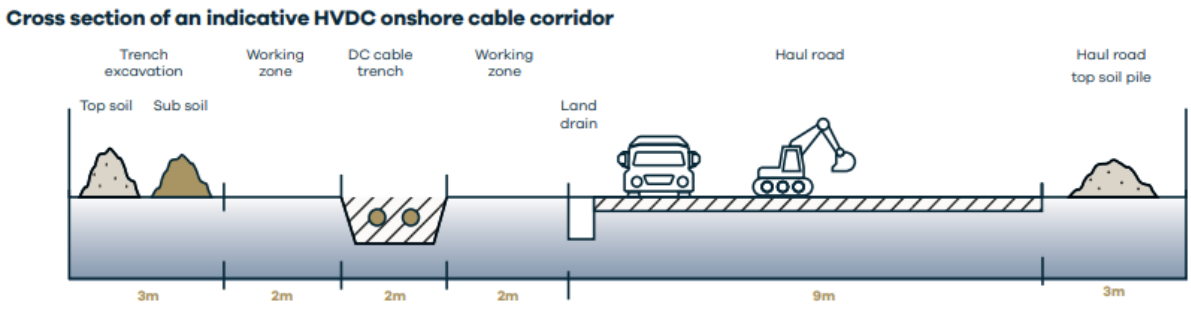

Figure 1: Tarchon Interconnector Project – indicative onshore HVDC cable corridor[6]

Orsted has recently reported that the ducting to accommodate the HVDC cables for the Hornsea 3 has been completed and published various related images and videos. The image in Figure 2 is from the "Hornsea 3 Project Progress Report May 2026"[7].

[6] [redacted]

[redacted]

Figure 2: Orsted Hornsea 3 –onshore HVDC cable duct excavation[8]

If the survey "ranging poles" that can be seen spanning the top of the trenches in Figure 2 are the typical 2m length (with 0.5 m graduations)[9], this would indicate that the Hornsea HVDC trench width is also around 2m.

These two additional data sources provide further comparisons with the HVDC trench width of 9.8m and trench depth of 2.1m stated in the Applicant's drawing "Figure C1" in Annex C of "8.5.3 Applicant's Written Summary of Oral Submission and Response to Action Points for Issue Specific Hearing 1" [REP1-139].

In [REP6-114], the Applicant requotes the following from the Applicant's [REP4-300] response:

"For a comparable 6 GW HVDC connection an illustrative construction swathe of 85 m would be expected for standard open cut installation; details are provided in 8.5.3 Applicant's Written Summary of Oral Submission and Response to Action Points for Issue Specific Hearing 1 [REP1-139] Annex C Figure C1. In comparison 2.6.1 Design and Layout Plans - Subs and Cables [REP1 -003]

[8] [redacted]

[redacted]

National Grid Drawing Reference AENC-MMAC-ENG-DWG-0085-01, shows an illustrative construction swathe of 120 m. The reduction in temporary land take of the construction swathe for an HVDC installation is therefore 3.5 ha per km less than the equivalent HVAC installation."

"Layout A: Construction swathe" on page 13 of PEA "Response to Section 3 of [REP4-300] 8.4.10.1 (Applicant's Comments on PEA Appendix D The Requirement for Good Design [REP3-132]" in [REP5-265][10], illustrates a 6 GW HVDC construction swathe of 61 m. This was derived by PEA using the HVDC underground trench dimensions specified by the Applicant for EGL 3&4 but with the splay angle specified by the Applicant for the Norwich to Tilbury project HVAC underground trench in [REP1-003]. The resulting width of the trench at the surface was 4.3m.

When compared with the Applicant's illustrative construction swathe of 120 m for underground HVAC this results in a reduction in temporary land take for a HVDC installation construction swathe of 5.9 ha per km less than the equivalent HVAC installation. This is therefore significantly different to the 3.5 ha per km figure quoted by the Applicant for a HVDC underground construction swathe of 85 m. If of assistance, the calculation spreadsheets and CAD models produced by PEA for the analysis in PEA submission [REP5-265] are available for issue to the Examination.

If the trench width was reduced to 2m, in line with the figure presented by Tarchon (and as also appears to apply to Hornsea 3), the reduction in temporary land take from the HVDC alternative would be significantly greater.

These figures assume a 6 GW HVDC connection. The 6 GW HVAC – 4 GW HVDC equivalence demonstrated by the Applicant on EGL 3&4 would result in just two cable trenches for the HVDC option and therefore a further substantial reduction in the both the construction and the permanent cable swathes.

The substantially greater width required for underground HVAC increases the difficulty in navigating constraints and consequently can greatly increase the harm caused. This can be seen in the Dedham Vale National Landscape where it has resulted in the need to split the route in two. The resulting harm would be spread over a considerable area, as can be seen in Figure 3. The image was copied from the Applicant's 2025 Norwich to Tilbury Interactive Map, with one dimension relating to the order limit separately added to provide an indication of the scale. The scale also becomes apparent when viewed against the size of houses, fields, the River Stour and other features that can be identified in the image. This route alignment requires a haul road in each of the two branches.

[10] [REP5-265]: **"Response to Section 3 of [REP4-300] 8.4.10.1 (Applicant's Comments on PEA Appendix D The Requirement for Good Design [REP3-132])"** (page 143/197 onwards)

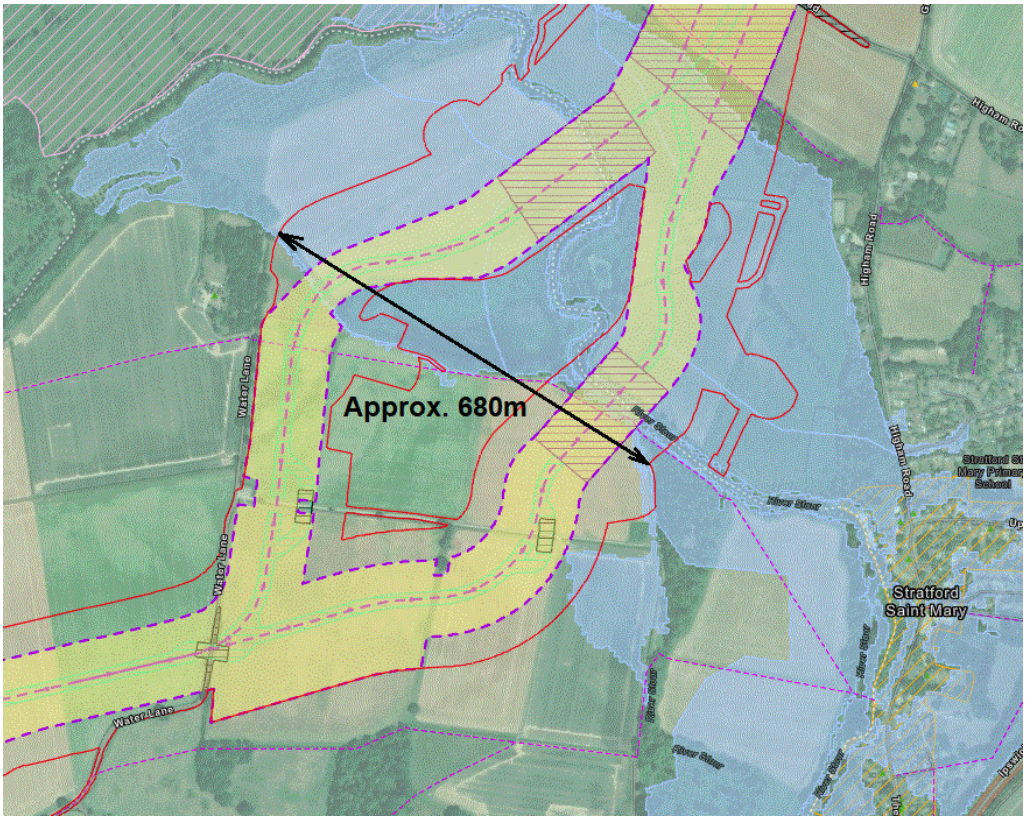

Figure 3: Image from the Applicant's 2025 Norwich to Tilbury Interactive Map[11], showing a section of the proposed underground HVAC route in the Dedham Vale National Landscape. (Annotation added to provide an indication of scale.)

Under heading ***"8. Haul roads"***, the Applicant states: *"Haul roads are required to deliver the cable drums to location for installation for both cut and cover, and cable ploughing solutions"*.

It is not the case that haul roads are always required for these options.

Cut and cover

PEA submission [REP5-265] provided a link to a TenneT video showing the cut and cover installation of underground HDVC cables without the need to construct haul roads. In the video re-usable *"wooden beams or metal plates"* are utilised to support the heavy loads. [REP5-265] also provides information on the Shetland HVDC Link, where similar techniques have been used.

[11] https://norwichtotilburymap.nationalgrid.com/2025

[redacted]

The image in Figure 4 from the Tarchon Interconnector Project non-statutory consultation in July 2026 also shows HVDC cable laying without the need for a haul road[12]. This was despite a haul road being shown in the schematic cross-section. The representative from Tarchon explained that the haul road was shown on the schematic to indicate the worst case, but the final technique would be chosen to suit the ground conditions.

Figure 4: Image of HVDC underground cable laying where re-usable wooden beams or metal plates are used instead of double lane compacted aggregate haul roads[13]

Cable ploughing

This is discussed in detail in PEA submission [REP6-229] "Appendix A: Cable Ploughing", which was written in response to the recently published Ramboll report.

Information on this method has previously been presented to the ExA by PEA at Deadline 1. This took the form of an evidence report in Appendix B of *"EN020027-001370-Pylons-East-Anglia-Ltd-written-posthearing-submissions.pdf"* [REP1-266].

By default, haul roads are not used with cable ploughing, although the Ramboll report does warn that they may be required in some circumstances.

However, with both **cut and cover** and **cable ploughing** techniques the much lower material requirement of HVDC technology compared with HVAC technology means that the need to use haul roads is significantly reduced. In the case of the Norwich to Tilbury project the cable requirement

[12] [redacted]

alone would be reduced by two thirds, even if both options are to provide 6 GW capacity. This is in addition to the substantial reductions in the amount of material that needs to be excavated and the amount of backfill and other material that needs to be imported. PEA submission [REP6-229] "Appendix A: Cable Ploughing", provides illustrative calculations relating to the volume of aggregates and land take associated with the haul roads shown in the current Norwich to Tilbury project plans.