NOTKUP RESPONSE TO THE APPLICANT'S SUBMISSION

ABSTRACT

A response by NOTKUP to the SSEN submission to the DPEA Public Local Inquiry TRL-120-1. The objectors highlight significant flaws in the interference study presented by the applicants and explain how it cannot be used for safety related decision making. Claims made by the applicants are disputed and invalidated.

Brian Wade

NOTKUP Ltd.

Cover photos, The Ghislenghien disaster was a catastrophic natural gas pipeline explosion in Belgium on 30 July 2004, killing 24 people, including 5 firefighters and a police officer, and injuring 132.

ELECTRICITY ACT 1989

TEALING TO KINTORE UPGRADE PROJECT (TKUP) — TRL-120-1

WRITTEN RESPONSE TO PROCEDURE NOTICE DATED 7 JULY 2026

MATTER 7: MAJOR ACCIDENT HAZARD GAS PIPELINES

NOTKUP RESPONSE TO THE APPLICANT'S SUBMISSION DATED 24 JULY 2026

Author: Brian Wade on behalf of NOTKUP Date 13 August 2026

1. On the subject of potential hazardous effects on existing high pressure, Major Accident Hazard pipelines, the applicant refers to and relies on a Pipeline Interference Study Report produced by ARCADIS, 6096/132/R/M/04 (here "the Report") dated May 2025[1].

2. The Report is heavily redacted to the extent that it has little value or credibility. From a document management point of view, the Author, Checker and Approver are not identified. The competence and experience of the author or authors is not revealed.

3. In the Executive Summary the report states:

   "In this report, updated AC Interference has been examined considering new 400 kV ASTI OHL and existing LT162 and LT137 projects, and the findings are documented. Detailed information regarding circuit changes is provided in Section 3 of this report. The analysis also incorporates the previously conducted soil resistivity and tower footing resistance measurements along the common corridor for various substations."

   "This report details the detailed AC interference assessment of NG, Shell, INEOS, SGN and distribution gas pipelines in the vicinity of SSEN OHLs under steady state and five phase to earth fault conditions, in accordance with BS EN 50443 and BS EN ISO 18086. For a clearer understanding of the pipelines covered in this study, please refer to the Google Earth (KMZ) file provided with this report. This report summarises the system input data, CDEGS computer models and associated computation results obtained and provides conclusions and recommendations."

   The. kmz file referred to is not made available to the public on the DPEA or ECU portals and nearly all maps within the report are redacted. This redaction is hard to understand, since the routes and locations of the gas pipelines are in the public domain.

4. The five high pressure feeder pipelines operated by National Gas Transmission are available on the Scottish Government website:

   https://www.spatialdata.gov.scot/geonetwork/srv/eng/catalog.search#/metadata/a96d66be-467d-4ec9-805c-f1ffc1f538ef or at https://www.nationalgas.com/our-businesses/network-route-maps

[1] https://dpea.scotland.gov.uk/Document.aspx?id=1213276

The Scotland Gas Networks distribution pipeline routes are available on the Scottish Government website:

https://www.spatialdata.gov.scot/geonetwork/srv/eng/catalog.search#/metadata/4045a4a7-62fd-48e7-b558-18963a314c98 or at https://www.sgn.co.uk/open-data-sharing-portal

5. The summary also refers to "*previously conducted soil resistivity and tower footing resistance measurements along the common corridor for various substations"*. The report does not include details of when or where the soil resistivity measurements were made or what technique was used to measure them. As identified in Appendix 3 of the NOTKUP Objection Document, Representation 969 on the ECU Portal[2], soil resistivity is a critical factor in the determination of the risk of AC induced corrosion. Soil resistivity can be highly variable, both spatially and seasonally. Without details of where and when the soil resistivity readings were taken, any conclusions produced are highly questionable.

6. The Report starts by listing the 'Main Results'. The headline conclusion is that with one exception, the maximum pipeline induced voltage is within the 15 Volt rms recommended maximum identified in BS EN ISO 18086:2019. The results however also include other examples where the induced voltage is very close to the 15 Volt threshold. For example, FM10-Aberdeen to Kirriemuir 14.33V and FM12-Aberdeen to Kirriemuir 12.42V. Several other sectors are identified to have a modelled induced voltage of ~12V. Given the highly contentious way that the modelled voltages appear to have been produced, it would be very unwise to determine the safety of the pipeline on such figures. The authors themselves write: *"As stated in BS EN ISO 18086, a single threshold value cannot be applied when considering mitigation"* yet the applicant's own submission to the Reporters places great emphasis on the fact that only one particular value exceeds the threshold. The actual wording of BS EN ISO 18086 says: "The *design, installation, and maintenance of the cathodic protection system shall ensure that the levels of AC voltage do not cause AC corrosion.* ***Since the conditions vary for each situation, a single threshold value cannot be applied****."*

7. The Report also identifies a single example of where the predicted 1cm^2 Holiday Leakage Current density exceeds the BS EN ISO 18086 threshold of 30 A/m^{2,} but similarly to the case of induced voltages, there are several predicted values exceeding 20 A/m^2.

8. BS EN ISO 18086 also mentions maintaining the average cathodic protection current density at lower than 1A/m2 and maintaining the ratio between AC current density and DC current density at less than 5. The reference to a '*single threshold value'* in the standard refers to these other threshold values, not as the authors imply, a single location exceeding 15V induced voltage.

9. Nowhere in the Report are the locations of the modelled values identified, nor is it made clear whether they are individual locations or averages or representative values for more than one location. The table states that the values are "*The maximum calculated pipeline metal induced voltages and touch voltages*". Does that mean more than one location on each pipeline section was modelled and these values are the highest predicted? Or, does it mean multiple iterations of modelling were performed at a single location and the results produced are the highest values obtained?

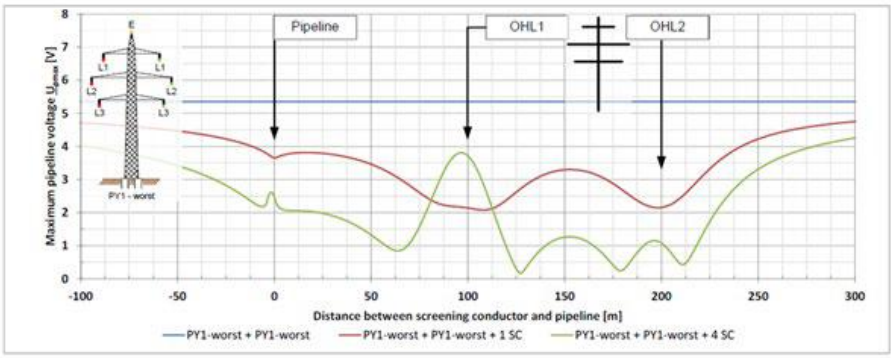
10. As is common with any forecasting, the input values used in any modelling are critical. To have any credibility the values used must be clear and well defined. Any information that is not verifiable or repeatable is not data, it is fiction.

11. Section 3 of the report is titled *AC Interference Study Input Data and states "This section details the calculation methodology (modelling software) and design data that was used to represent identified*

[2] https://www.energyconsents.scot/ApplicationDetails.aspx?cr=ECU00005225&T=4

SSEN 400kV OHL circuits, associated substations, NG, Shell, INEOS, SGN and distribution gas pipelines. In accordance with industry practice, distribution power lines are excluded from the scope of this study."

12. The authors do not identify the industry practice that they refer to. As described in Appendix 3 of the NOTKUP objection document, modelling a local environment with multiple OHL, buried pipelines or cables or overhead communications cables, steel farm buildings, steel fences or other factors can have very significant impacts on the results. Even the phase spacing on overhead lines is an important factor. In situations, as in the case of TKUP where two or three high voltage overhead lines are running parallel, areas of amplification or attenuation can occur.



Maximum PIV for the combination of two OHLs (PY1-worst) on the same side of the pipeline and a SC for different SC widths

The effects on pipeline voltage with a complex environment of 2x OHL and up to 4 different screening conductors (SC) (Wahl, 2021)[3]

13. Modelling these effects demands very detailed data input. The NOTKUP objection document mentioned above identifies a typical area along the route proposed for TKUP (South of the Fetteresso forest, close to the proposed Hurlie substation), where there are multiple power lines, pipelines and other influences. It is almost certain that if the report authors did not consider distribution power lines in their model for the area, they did not include the existence of a decommissioned cast iron water pipe which runs through the area or, alternating current, underground cables proposed for windfarm connections to the Hurlie substation[4]. The report also fails to mention the proposed Glendye windfarm OHL.

14. In 3.1 of the Report, the authors correctly quote the recommended distances from the overhead line for a pipeline to be considered as potentially affected by induced voltage.

15. Generally, in a rural environment, interference voltages are expected to occur within 1000m if the soil resistivity (ρ) is less than 3000Ωm, and if the resistivity exceeds 3000Ωm, the interference distance is ρ/3.

16. The authors say: *"In rural areas, for soil resistivity below 3000Ωm, an interference distance of 1000m between the interfering system (SSEN OHL) and the NG gas pipelines should be considered. In the case of the soil resistivity value of greater than 3000Ωm, the interference distance value, in metres, should be equal to the soil resistivity value in Ωm , divided by 3.*

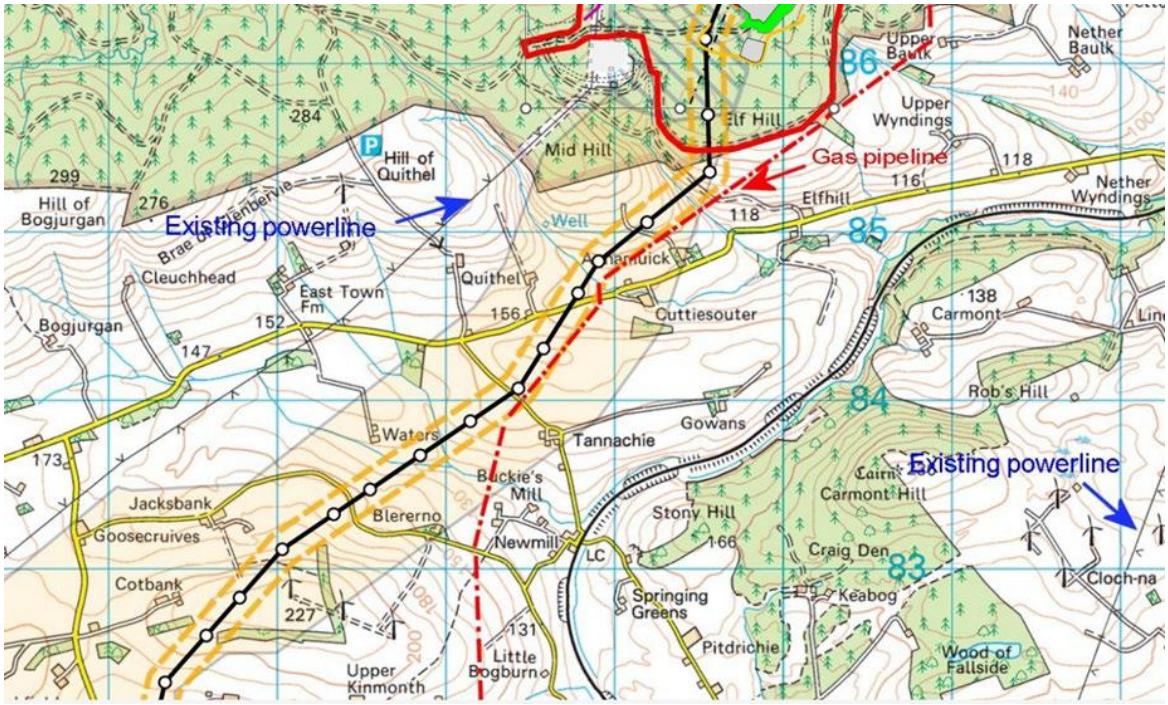
[3] Wahl, C. (2021). Comparison between Calculation and Measurement of Inductive Pipeline Interference Voltages PhD Thesis. Graz, Austria: Graz University of Technology Institute of Electrical Power Systems.

[4] https://upa.aberdeenshire.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=T6FE82CAGLU00 https://upa.aberdeenshire.gov.uk/online-applications/caseDetails.do?keyVal=TEAS2UCA04U00&caseType=Application

Most of the buried NG, Shell, INEOS, SGN and distribution gas pipelines are installed and operate within a rural area., in reference to the soil resistivity models, Section 3.6 of this report, the pipelines (1.2m below ground) are within soil resistivity values below 3000Ωm . Therefore, the interference distance for the SSEN 400kV OHL circuits to be considered would be within a minimum of 1000m of the NG, Shell, INEOS, SGN and distribution gas pipelines for steady state load conditions. All parallel or roughly parallel high voltage circuits located within 1km (for normal operation or steady state case) or more (3km for fault condition) of the pipeline were considered"

17. However, the soil resistivity data presented in Table 4 includes a soil resistivity at 1.36m depth of 4,509 Ωm, which according to the BS EN 50443:2011 guidelines, requires an evaluation distance of 1500m (4,509/3) for steady state or 4.5km for fault conditions. The authors do not indicate if a 1500m / 4500m corridor was defined around the Hurlie substation.

18. Why is this important? In the case study area south of the Fetteresso Forest, close to the Hurlie Substation, two existing overhead high voltage lines run parallel to the proposed TKUP route and High-Pressure Gas, National Feeder #12, over 1km away from the pipeline, but both within 4km. Were either of these overhead lines, as well as the multiple low voltage overhead lines, fibre optic and copper communications cables, the cast iron redundant water pipe and multiple planned underground windfarm power cables, used as inputs into the modelling? This represents a highly complicated environment which, without confirmation from the authors of the report that all factors have been adequately considered, generates little confidence in the accuracy of their results. This is especially so given the close proximity and parallel courses of the gas pipeline and the proposed TKUP OHL. The area also represents a very complicated overburden and bedrock geology being the site of the Highland Boundary Fault.



The area South of the Fetteresso Forest and the proposed Hurlie Substation.

19. Figures 6,7,8 and 9 of the report are totally redacted, raising the question as to why maps of existing infrastructure and the proposed OHL, all of which are available elsewhere, need to be redacted?

20. It is also noticeable that the soil resistivities labelled 'Hurlie Substation' and 'Emmock Substation' are significantly higher than the remaining locations. No explanation for these two anomalies is presented. How were the measurements recorded? Did they represent bedrock or overburden?

21. Section 3.3 of the Report indicates that a current of 3,370A has been used for modelling of interference voltages. The amount of current in the circuit, and the phase layout are important inputs into the modelling, and variations in the inputs can have very significant effects on the calculated values. According to the EMF study[5] presented as part of the s37 application, the 3,370A figure appears to be the planned winter continuous power flow. That report however also repeated the modelling for 5000A, the maximum current load that the OHL and substations are limited to.

EMF-OHL-001	Electric & Magnetic Field Study Report Kintore Tealing 400kV		Applies to	
			Distribution	Transmission ✓
Revision: 1.00	Classification: Public	Issue Date: July 25		

3 EMF Calculations

This section summarises the SSEN Transmission calculations of EMF for the proposed OHLs.

3.1 Line Modelling Parameters

The Kintore Tealing overhead line is being designed with a triple bundled AAAC Araucaria conductor per phase on AS4 Towers (a modified version of the SSE400). The phase configurations are considered as optimal phasing i.e. a fully transposed phase arrangement.

The following conductor system design is proposed for this project as shown in the table 3.1 below.

Table 3.1 – Conductor System

Conductor	Construction	Diameter (mm)	Resistivity (nΩm)	No. of Sub conductors	Bundle Distance (mm)	Max. Operating Temperature (°C)
Araucaria	AAAC 700mm²	37.26	30.5	3	500	90

Two power flow scenarios were considered:

1. Intended maximum power flow; 3370 Amps (winter pre-fault continuous based on a summer pre-fault continuous power flow of 2090MVA),
- Maximum possible power flow; 5000A (maximum winter pre-fault continuous considering substation limitations)

It should be noted that although analysis has been carried out up to a maximum current of 5000A the line is only intended to operate up to 3370A but the full capability has been considered to be conservative.

Extract from SSEN EMF Study Report, using **5000A** current as conservative case.

22. The Pipeline AC Interference Study Report does not include this scenario. The obvious question is why would SSEN design and build a 6GW-capable OHL and substations, but only conduct a gas pipeline safety study using the current and power levels expected to be used during the initial operation, thereby constraining any future increase in power transmission?

23. Section 3.4 of the Report covers predicted phase to earth fault currents. Much of the input data is redacted, meaning a very low confidence in the outputs. Data must be verifiable or repeatable to have credibility. If the applicant submits data to support their application, they need to indicate how that data was obtained and how reliable it is.

[5] https://dpea.scotland.gov.uk/Document.aspx?id=1120636

24. Section 3.5 of the Report, which addresses the inputs and parameters used in the modelling is, similarly, totally, redacted, meaning it cannot be verified. SSEN cannot expect to get marks for producing an answer without showing how they worked it out.

25. Remarkably, on page 18 of the report, the authors state: " *It is also noted that FM13 - St Fergus to Aberdeen pipeline has a crossing to the SSEN Fettersso/Kintore OHL at an(sic) approximately right angles and after or before the crossing there is no extended parallelism with the SSEN OHLs, thus no or negligible ac induced voltages will result under steady state conditions, as shown in Figure-10 below. A phase to earth fault on an overhead line tower is improbable and hypothetical. It will only be possible due to the mechanical failure of insulators on a tower or a phase wire falling to the ground or lightning back flashover. Hence, this pipeline is also not included in the modelling."*

26. Figure 10 is totally redacted. It seems amazing that an exercise in modelling fault conditions scopes out mechanical failure of a tower (wind, icing, vehicle collision?), failure of glass insulators (fatigue, collision of aircraft or drone?), a conductor falling to the ground (collision with aircraft or other flying object, corrosion, fatigue, ice load etc.?) or lightning flashover.

27. Section 3.6 addresses soil models.

The Report states: *"Soil resistivity measurements were carried out at 10 agreed locations along the NG, Shell, INEOS, SGN and distribution gas pipelines and SSEN OHL/cable route as detailed in 6096-132-RAMS-JG-01A – Soils[20] Additional soil models were utilised from previous reports.*

Based on the sections of parallelism between the NG gas pipelines and SSEN OHL circuits, resistivity results were grouped into 13 soil regions, as shown in Table 4 and Figure 11."

28. The referenced document [20]Arcadis Risk Assessment & Method Statement (RAMS) document "6096/132/RAMS/JG/01A" dated 09/08/2024, is not available to the public and is not included in the Section 37 application.

29. The authors do not explain what the 10 agreed locations are and who agreed them or what the additional soil model data was and the identity of the reports from which they were sourced.

30. The parameters used to divide data into 13 soil regions is not described, it may be explained in Figure 11, but that is redacted. Is it valid to divide 106km of OHL into 13 soil regions? No information is supplied to indicate the methodology. No description is supplied to indicate where or how the resistivity data was measured.

31. Soil resistivity, described simply as the resistance of a medium to conducting electricity, has two roles to play in pipeline induced voltage corrosion.
    i. The induction of voltage from the AC powerline, in this case the largest effects are seen with a high resistivity, which is why the recommended distances in BS EN 50443:2011 for investigating the potential for induced voltage in a buried pipeline is directly based on the resistivity value.
    ii. The potential for voltage induced in a coated pipeline to escape through a coating holiday into the surrounding soil. Low resistivity produces higher current flow and corrosion effect.

32. It is normal for buried pipelines to be located on a bed of course sand to evenly distribute stress and prevent cracking. That means that the resistivity of the ground immediately adjacent to the pipeline can be very different to that of the ground between the pipeline and the OHL.

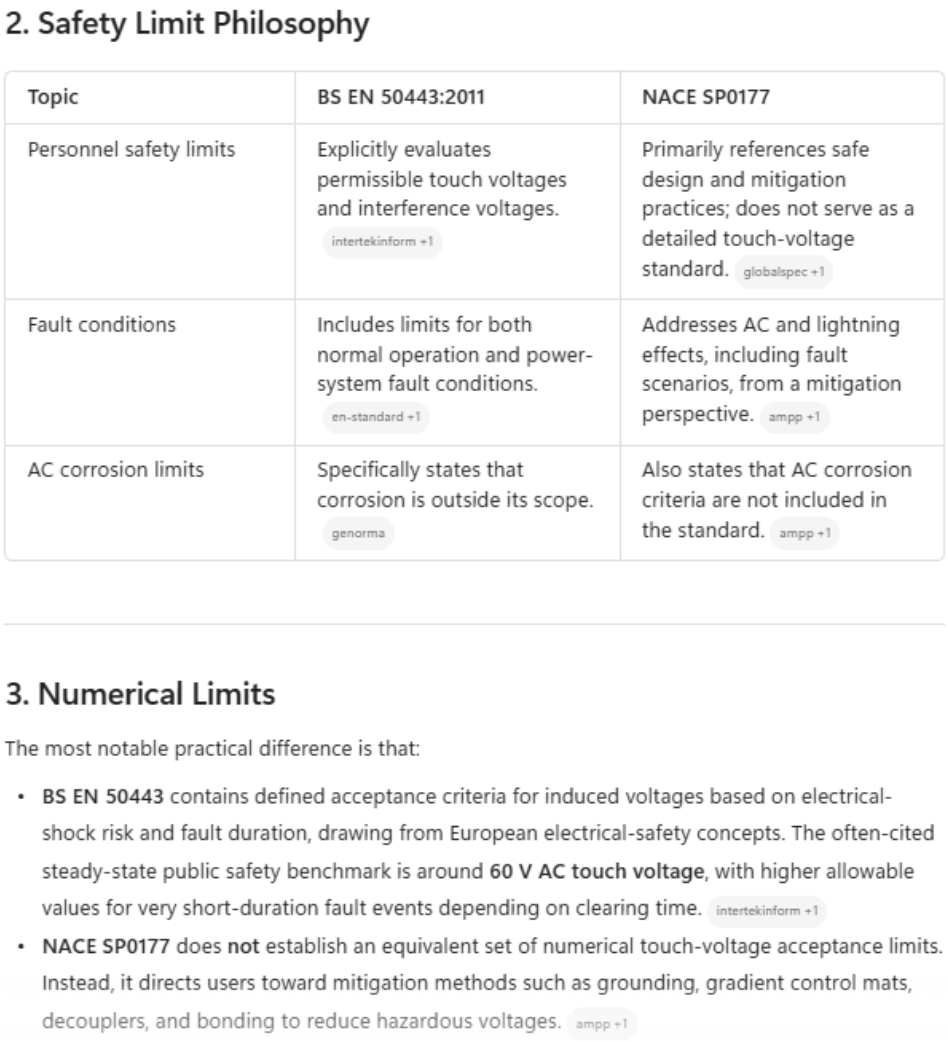
33. Resistivity of soils can be greatly affected by temperature and fluid content. A warm dry soil in summer may have a very different resistivity when it is water saturated in winter. The Report presents no data indicating the soil type, its location or its temperature. An ideal model will contain a large number of

sample points representing both the pipeline location and the OHL to pipeline margin, optimally recorded at different times of the year and frequently enough to produce an accurate representative value. As the Report includes no indication of where the resistivity readings were taken and includes no mention of obtaining permission to excavate or drill close to the pipelines, it is assumed that no resistivity readings for the pipeline environment were recorded. This greatly reduces confidence in the reliability and accuracy of the modelling and any conclusions made using that data. NGT have commissioned a separate, independent study using pipeline environment data.

34. Section 3.7 describes the software used. As with all modelling software, the results produced depend highly on the assumptions, parameters and input data used. The lack of clarity in the Report regarding the material used in the modelling software results in low confidence in the outputs.

35. Chapter 4 describes the evaluation of AC corrosion likelihood and safety limits.

36. The Report states that a description of the differences in safety limits between those specified in BS EN 50443:2011 and NACE SP0177 are described in Appendix D of the report. Appendix D is redacted. No reason for the redaction is given. It is hard to imagine why, since a simple online AI based search will produce results.



2. Safety Limit Philosophy

Topic	BS EN 50443:2011	NACE SP0177
Personnel safety limits	Explicitly evaluates permissible touch voltages and interference voltages. intertekinform +1	Primarily references safe design and mitigation practices; does not serve as a detailed touch-voltage standard. globalspec +1
Fault conditions	Includes limits for both normal operation and power-system fault conditions. en-standard +1	Addresses AC and lightning effects, including fault scenarios, from a mitigation perspective. ampp +1
AC corrosion limits	Specifically states that corrosion is outside its scope. genorma	Also states that AC corrosion criteria are not included in the standard. ampp +1

3. Numerical Limits

The most notable practical difference is that:

- **BS EN 50443** contains defined acceptance criteria for induced voltages based on electrical-shock risk and fault duration, drawing from European electrical-safety concepts. The often-cited steady-state public safety benchmark is around **60 V AC touch voltage**, with higher allowable values for very short-duration fault events depending on clearing time. intertekinform +1
- **NACE SP0177** does **not** establish an equivalent set of numerical touch-voltage acceptance limits. Instead, it directs users toward mitigation methods such as grounding, gradient control mats, decouplers, and bonding to reduce hazardous voltages. ampp +1

Example online search of the differences between BS EN 50443 and NACE SP0177

37. The assumptions and logic used to define safe and unsafe conditions in the Report are reasonable, but it is the accuracy of the modelling which is in question.

38. Chapter 5 repeats the steady state and fault condition predicted maximum pipeline induced voltage and touch voltage described in the executive summary and repeats the assertion that only one location exceeds the 15volt corrosion potential threshold described in BS EN ISO 18086. Given the lack of supporting or valid data indicating how the values were derived, a low confidence should be attributed to these results. Yet again the Report references an appendix which is redacted, so unavailable for review or verification.

39. For several locations the Report states that predicted results for $1cm^2$ holiday leakage current density are "*NA for steady state as per BS EN 50443*", with no explanation why this is the case. This is particularly confusing because BS EN 50443:2011 does not address the topic of holiday leakage current density at all. BS EN 50443:2011 is focused on establishing voltage safety limits for electrical interference. BS EN ISO 18086:2019 does however address holiday leakage current.

40. Chapter 6 presents conclusions.

41. The authors state: *"The steady state AC interference analysis shows the calculated pipeline potential on the buried NG, Shell, INEOS, SGN and distribution gas pipelines due to adjacent SSEN 400 kV OHL circuits, under steady state conditions, are within the limit of 60 V for both pipeline and human safety given in BS EN 50443:2011. Therefore, no mitigation measures are required for both pipeline and human safety."*

42. They also say: *"The theoretical magnitude of AC leakage current density exceeds the value of 30 A/m2 given in BS EN ISO 18086 across one buried NG gas pipelines (FM10 - Kirriemuir to Crieff) when maximum 400 kV rating are used in the calculations.*

43. The Reporters should be very wary of these conclusions; they are based on the results of modelling where the input values are unclear. For example, when the authors refer to "maximum 400kV rating" they are not referring to the maximum (5000A) loads used in the SSEN EMF report produced as part of the application documentation. The current is an important input into modelling interference effects. Why did the EMF study produce forecasts for electric and magnetic fields under 5000A current, but not the pipeline interference study?

44. In a safety issue it is imperative that only reliable, verifiable material should be used in decision making. The Report does not reach the levels of credibility required to make safety critical decisions. The forecast results *may* be accurate, but there is no way of verifying them.

45. The Reporters should note that National Gas Transmission have commissioned their own interference study, including soil resistivity data measured at the pipeline locations. They are evidently not content to rely on the Report to fulfil their legal obligations as operators of the feeder pipelines. An EIR request reply dated 13/3/26 from National Gas Transmission said *"An AC interference model has not yet been commissioned by SSEN, that would give NGT a better indication of where AC interference may be in breach of acceptable limits, and allow us to explore the potential mitigation options if required."*

46. A second EIR request response dated 8/4/26 said *"The Electrical Impact Assessment (EIA) that has been agreed to be produced will cover every application of the OHL project, therefore it is not required to produce further High Risk Response letters similar to the substations responses as areas in question are part of the same overall SSEN project.*
Engagement on the project is already underway between SSEN and NGT and NGT are content that SSEN will carry out the required assessments and implement any measures required to ensure the continued safe operation of NGT pipelines prior to energisation of the system.
Any construction within the vicinity of NGT pipelines will be managed safely under NGT specifications, due to potential impact on NGT assets."

In other words, a year after the Report was published and delivered to NGT, they still did not have an agreement on measures to be taken to ensure pipeline safety.

47. An email to Brian Wade, dated 11/11/25, from HSE, included: "*On the matter of potential electrical interaction on the National Gas pipelines from the SSEN East Coast 400kV OHL project, discussions are progressing with National Gas. We have been provided with a copy of the SSEN 400KV projects (EAST COAST LT162 & LT137 PROJECTS Updated Pipeline AC Interference Study.* ***One of our Pipeline Specialists has been through the report and has raised some concerns, which we will be discussing further with National Gas.*** *Thank you for bringing this to our attention."* (emphasis added)

48. A second email from HSE dated 13/4/26 said: *"Following your email, we have been in discussion with National Gas on the concerns you raised relating to the impact of the SSEN East Coast 400kV Overhead Power line project from Kintore to Tealing on the National Gas feeders in the vicinity.*
They have confirmed that they have been actively engaging with SSEN on their schemes in the Aberdeen area, including the Kintore to Tealing OHL project since mid -2023.
We discussed the content of the SSEN 400KV projects (EAST COAST LT162 & LT137 PROJECTS Updated Pipeline AC Interference Study, and the concerns raised. National Gas confirmed that they have commissioned their own independent interference/mitigation study, which will include on-site sampling to provide appropriate pipeline/soil data. They have also said that notwithstanding any analysis/report conclusions on mitigation, their approach is one of seeking 'mitigation by design' from SSEN*."* (emphasis added)

49. In their recommendations ARCADIS say *"If SSEN add any new OHL circuits within this area at any time in the future to accommodate new load demands or new generation connections, it is advisable to repeat the AC interference assessment carried out in this report."* The authors fail to indicate in the Report whether their modelling included the proposed Glen Dye Windfarm OHL (ECU Case: ECU00005197) which is proposed to run parallel to the proposed TKUP into the Fetteresso Forest.

50. In the Applicant's Written Submission dated 24/07/26[6], SSEN also say: *"If a transmission OHL is within 1km of a metallic pipeline, the Applicant undertakes an AC interference study to identify the extent of interference."* This contradicts their claim within the Report that it (the Report) has been constructed following the requirements of BS EN 50443:2011. If that was the case a 1.5km study corridor would be required around the Hurlie Substation.

51. In the same written submission, the Applicants state: *"HSE's response contains no suggestion that the existing statutory and regulatory regimes would be in any way inadequate to protect public safety in this case."* The question is not whether HSE has confidence in the efficacy of the existing statutory and regulatory regimes, but rather it is whether they have confidence that the applicants have effectively complied with the requirements of those regimes or have an acceptable plan to do so.

52. The written submission includes: *"AC interference happens when AC high voltage electricity power lines interact with nearby metallic structures including gas pipelines. The risk of AC interference adversely affecting the integrity of a gas pipeline is not simply a function of the angle at which the OHL crosses the pipeline. There are a number of factors, each of which is addressed by British Standards BS EN 50443 (Effects of electromagnetic interference on pipelines caused by high voltage a.c. electric traction systems and/or high voltage a.c. power supply systems) and BS EN ISO 18086 (Corrosion of metals and alloys — Determination of AC corrosion — Protection criteria)."*

[6] https://dpea.scotland.gov.uk/Document.aspx?id=1213274

53. It is true that there are other recognised risk factors. For example United Kingdom Onshore Pipeline Operators Association Good Practice Guideline 27[7] refers to soil resistivity, separation distance, powerline current, parallelism length and crossing angle. The proposed TKUP route shows multiple examples of extended lengths of close, parallel routing with shallow angle crossings.

Examples of TKUP oblique crossings, close proximity and parallel courses. Monboddo & Cullerie areas (Pipelines=White)

54. The Applicants state *"The Applicant's position is that, in light of the detailed statutory and regulatory regime covering both the OHL and the gas pipelines, as well as the response from HSE and the pipeline operators to the consultation exercise, the Reporters can be satisfied that no additional planning controls are necessary in order to address the potential health and safety risk arising from the construction of the OHL in close proximity to the gas pipelines."* HSE has not indicated that it is satisfied with the Applicant's submission; indeed they have demonstrated concern. National Gas Transmission have rejected the SSEN interference study and have commissioned their own study. INEOS FPS and SGN have highly conditional 'No objections' in place and Shell have not corresponded with ECU or DPEA, presumably because they were not consulted in the scoping or consultation stages of the application.

55. The Applicants state: *"All tower locations on the Proposed Development are outwith the pipeline Easement Zones and Build Proximity Distances which reduces the interaction during the construction phase of the Proposed Development."* However a Linesearch Before You Dig enquiry for pylon N40 returned the following reply from NGT.

[7] https://ukopa.co.uk/wp-content/uploads/2025/07/UKOPA-GPG-027-AC-Corrosion-Ed-1.1.pdf

national gas transmission

Linesearch before U dig

National Gas Emergency Number:
0800 111 999*

*Available 24 hours, 7 days/week.
Calls may be recorded and monitored.
www.nationalgas.com

Our Ref: 38690953 N40

Monday, 15 September 2025

Brian Wade

[redacted]

Asset Protection
National Gas Transmission
National Grid House
Warwick
CV34 6DA
Email: box.assetprotection@nationalgas.com
Tel: 0800 970 7000

National Gas Transmission – High Risk Response Letter

Dear Sir/ Madam,

An assessment has been carried out with respect to National Gas Transmission plc's apparatus and the proposed work location. Based on the location entered into the system for assessment the area has been found to be within the High Risk zone from National Gas Transmission plc's apparatus and you **MUST NOT PROCEED** without further assessment from Asset Protection.

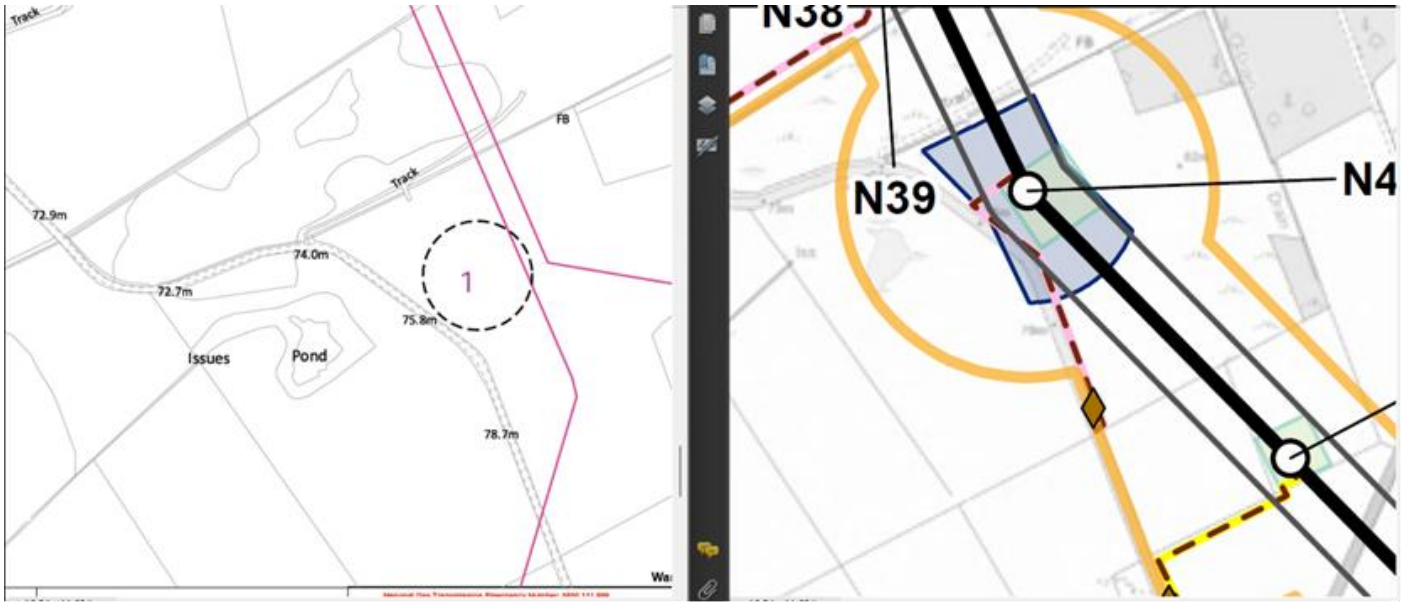
Before you go ahead with these works, you are required to send your plans and a description for us to review them at box.assetprotection@nationalgas.com. We will contact you within 28 days of receipt.

It is **YOUR** responsibility to take into account whether you are required to or would benefit from referring to the HSE Land Use Planning App (LUP), available from HSE's website. (Please note for some works this is a requirement for them to take place) More information on the LUP is available at https://www.hse.gov.uk/landuseplanning/

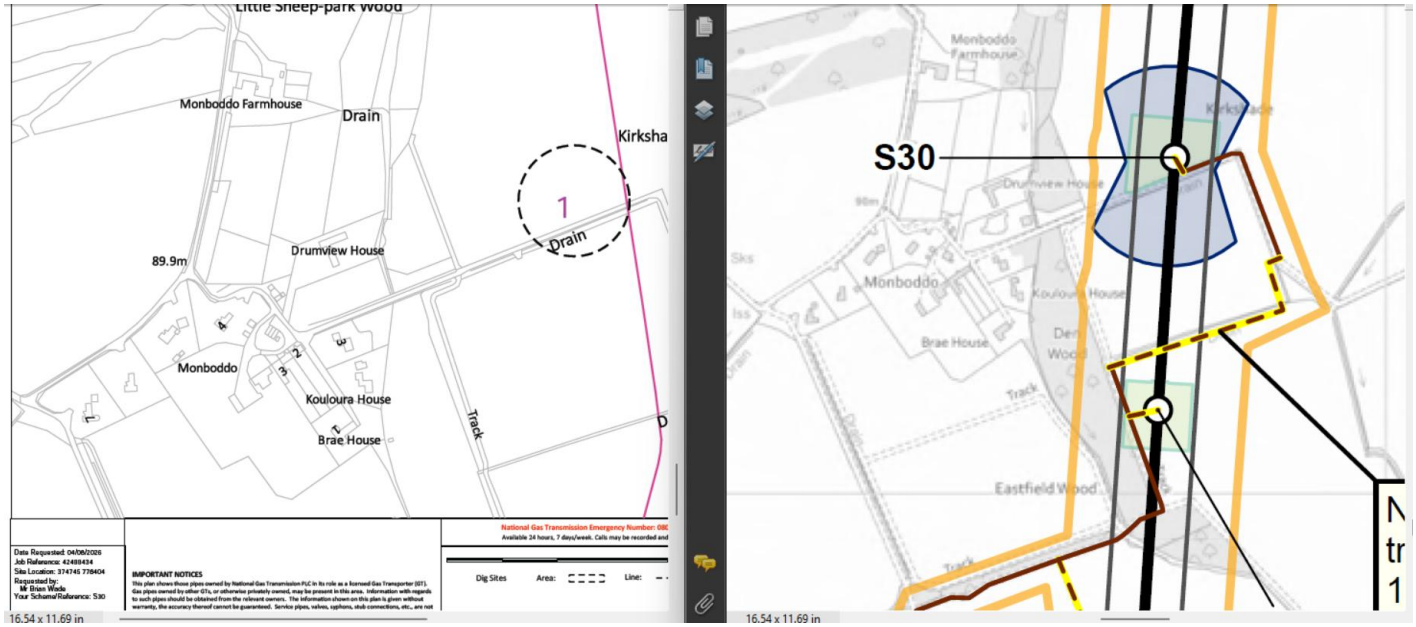
Please note this response and any attached map(s) are valid for 28 days.

Yours sincerely

Asset Protection Team



NGT map (left) showing N40 pylon location and two, purple, HP Feeder gas pipelines alongside the SSEN LOD map (right) Note the track and the rectangular wooded plot top right.



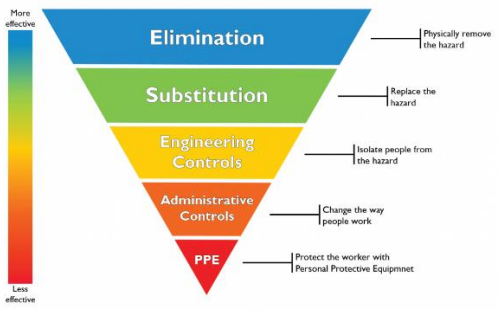
NGT map showing S30 pylon location and purple. HP Feeder gas pipeline alongside the SSEN LOD map

Conclusions

56. The Report presented by the applicants to the DPEA does not appear credible or reliable. Forecast data is presented without detailed information indicating how the data was generated. There are references to an inapplicable international standard and multiple internal references to material which has been redacted, meaning that it is impossible to understand how the results were obtained. After receiving the Report, the operator of the five MAH high pressure gas feeder pipelines, National Gas Transmission, has commissioned its own study into the potential interference pipeline voltages that would be created by the TKUP project as proposed. HSE Pipelines Division has also expressed concern about the content of the ARCADIS report. In their Applicant Written Submission 24/07/26 on Matter 7, the applicants say "National Gas Transmission (NGT) are currently progressing a separate AC interference study to validate the findings of the study commissioned by the Applicant". It is not a case of validation; it is a case of rejection of the SSEN report by both NGT and HSE and a decision by NGT to commission its own study in order to fulfil its legal obligations.

57. At no stage do the applicants mention the topic of establishing a baseline survey on the condition of the pipeline coating. NOTKUP recommend an independent survey of potentially affected MAH pipelines using CIPS/DCVG to confirm the efficacy of the existing coating and cathodic protection system.

58. It is plainly obvious that instead of following the standard hierarchy of mitigation of risk, with elimination, to be used in the first instance of the design process, SSEN have pre-decided on a preferred corridor and then looked for justification, and they are now currently scrambling to find engineering based mitigation. This totally goes against the standard hierarchy of controls as described by ISO 45001.



59. The high degree of parallelism, close proximity and oblique crossing angles, which contradict industry guidelines and their own published policies, should have been considered as an insurmountable constraint if the risk was to be considered to be as low as reasonably practicable. Alternative technologies such as underground HVDC are available.

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for NOTKUP
14 August 2026