Public

Ref: EIR/24/0001

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20 November 2024

Dear requester

Request for Information

Thank you for your request for information which we received on 28 October 2024

In our view, the information that you have requested falls within the definition of "environmental information" at Regulation 2(1) of the Environmental Information Regulations 2004 (EIR). Your request has, therefore, been considered under the EIR rather than under the Freedom of Information Act 2004.

Request

You have asked for copies of all reports, correspondence and written material held by NESO regarding the NHNC and PKUP projects described in the Beyond 2030 report and in relation to:

1. methodologies used to assess the projects;
2. how environmental and local community impacts were quantified and considered on an equal footing with economic costs and deliverability and operability and whether such impacts were given a monetary value;
3. the description of these projects as "critical"; and,
4. whether these projects were compared with alternative technological solutions such as undergrounding and offshoring.

Our response

We confirm that we hold information in scope of your request/of questions.

1. **Methodologies used to assess the NHNC and PKUP projects**

Please see attached the relevant methodology.

2. **How were environmental and local community impacts quantified and considered on an equal footing with economic costs and deliverability and operability and were such impacts were given a monetary value?**

Monetary values are not given to the interactions between reinforcement options and environmental and community constraints, but instead a BRAG (Black, Red, Amber, Green) rating is assigned as per the methodologies attached. These were then used to compare the environmental and community appraisal outcomes with the remaining two network design objectives (Deliverability and Operability, Economic and Efficient).

3. **How/why were these projects described as "critical"?**

The term "critical" is part of one of our "proceed" descriptors. An option with a "Proceed - Critical" recommendation is critical to our future planning and investment should be made in the next financial year to ensure the option's earliest in-service date remains on course. Paragraph 2.5.5.2 of our NOA 2023/24 methodology covers this.

4. **Were these projects compared with alternative technological solutions such as undergrounding and offshoring.**

Offshore alternatives were considered for both projects but these alternative routes were assessed as being more challenging from an environmental perspective. The consideration of build options such as undergrounding for onshore projects falls within the remit of the Transmission Owner as part of the planning process and therefore this information is not held.

The EIR state that a public authority may refuse a request where "it does not hold that information when an applicant's request is received" (Regulation 12(4)(a)). We are not required to create or obtain new information in order to respond to an EIR request.

This concludes our response to your request.

Advice and assistance

Specific design questions should be directed to the Transmission Owners. Both PKUP and NHNC are joint projects between Scottish and Southern Electricity Networks (SSEN) and Scottish Power Transmission (SPT).

Next steps

You can ask us to review our response. If you want us to carry out a review, please let us know within 40 working days and quote the reference number at the top of this letter. We provide more information on our website about internal reviews under the Freedom of Information Act and the Environmental Information Regulations.

If you are still dissatisfied after our internal review, you can complain to the Information Commissioner's Office (ICO). You should make complaints to the ICO within six weeks of receiving the outcome of an internal review. The easiest way to lodge a complaint is through their website: www.ico.org.uk/foicomplaints. Alternatively they can be contacted at: Wycliffe House, Water Lane, Wilmslow, SK9 5AF.

Thank you for your interest in the work of the National Energy System Operator (NESO).

Regards,

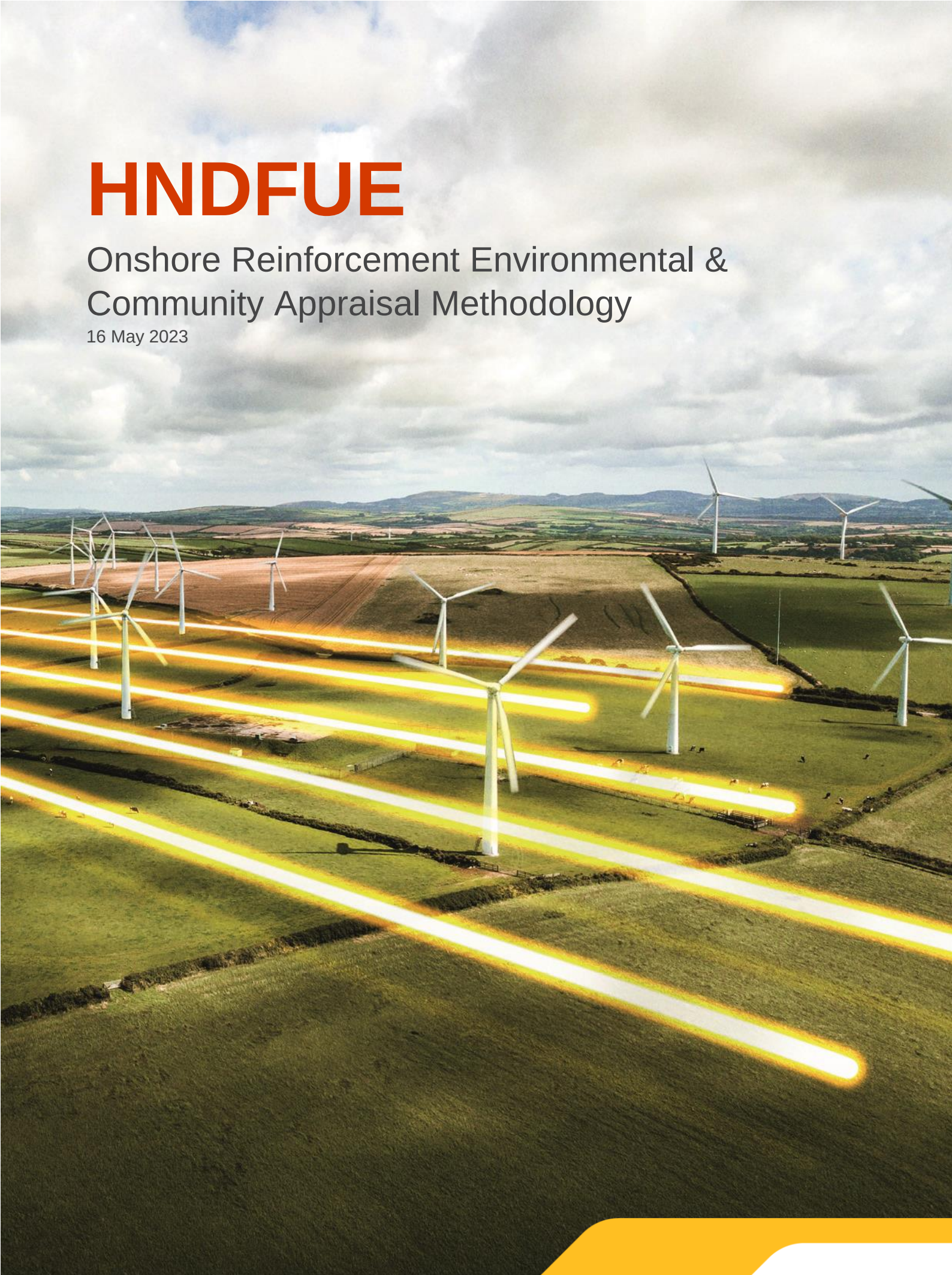
The Information Rights Team

National Energy System Operator (NESO)

HNDFUE

Onshore Reinforcement Environmental & Community Appraisal Methodology

16 May 2023



ESO

1. Background

As a result of the Holistic Network Design Follow up Exercise (HNDFUE[1]), a number of onshore reinforcements will be triggered. This is to enable the transmission of renewable energy across the grid.

This methodology has been devised to determine the potential environment and community constraints which may be encountered by these new onshore reinforcements.

As per the HNDFUE methodology[2], the appraisal of the onshore reinforcements will be undertaken on the shortlist of HNDFUE design options. This is Stage 4 of the HNDFUE process, the Final Strategic Options Appraisal, and occurs after the initial appraisal of the offshore works[3] which will happen during Stage 3 of the HNDFUE process.

During Stage 3, a number of network design options will have their offshore works appraised against the four design objectives (economic and efficient costs; deliverability and operability; environmental impact; community impact). Following the conclusion of Stage 3, a shortlist will be taken through to Stage 4, where further studies against the four design objectives are undertaken.

The ESO determined that undertaking environment and community appraisals for onshore reinforcement works during Stage 3 of the process would not be appropriate because the level of detail available would be insufficient at this stage. The appropriate level of detail available to appraise the onshore reinforcements will be available during Stage 4, when more detailed studies of the works required can be undertaken on the shortlist of designs.

To ensure certain onshore reinforcement scenarios are not ruled out during the shortlisting process in Stage 3 however, the shortlist will cover a wide range of onshore reinforcement scenarios.

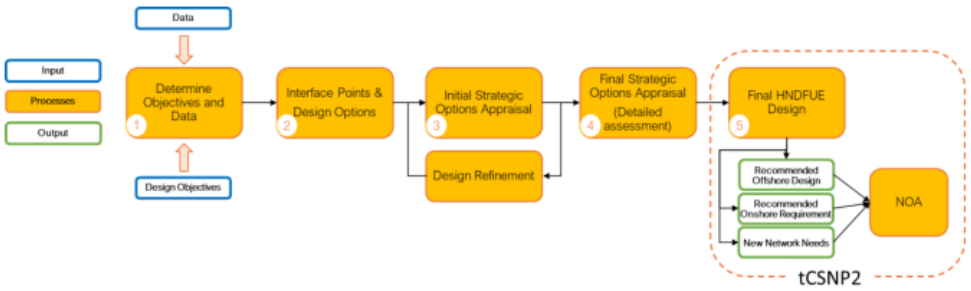


Figure 1 Overview of the HNDFUE process

The overall aim is to achieve an equal assessment for environment and community of both onshore and offshore works.

This onshore methodology is based on and closely aligned to the ESO Environment and Community assessment methodology for offshore, though there are differences as set out in section 2. The ESO Environment and Community assessment methodology for offshore assesses the environmental and community constraints of an offshore design, which covers the cabling of a

[1] This methodology will be applied to both the ScotWind and Celtic Sea leasing rounds of HNDFUE.

[2] Overall HNDFUE methodology available here: https://www.nationalgrideso.com/future-energy/projects/offshore-coordination-project/project-documents

[3] Here, offshore works are defined as the new transmission assets (cabling) between the offshore wind farms to the onshore interface points for the National Electricity System (NETS). There will be an element of appraisal of onshore routeing for these works between the landfall and connection to the interface point.

network design from offshore windfarms to interface points i.e. the link to the National Electricity Transmission System (NETS). The majority of the appraisals focuses on the offshore, or marine, environment, but there is an element of appraisal of the onshore environment between the landfall and connection to the interface point.

As a result, as with the offshore appraisals, there will effectively be three levels of black, red, amber or green (BRAG) ratings, namely:

1. A BRAG rating of individual environmental and community constraints based on their potential to constrain the development of the onshore reinforcements (see section 2c).
2. A BRAG rating of the individual onshore reinforcements. The BRAG rating given will be an indication as to how constrained the development of the works are as a result of the interface/interaction with the constraints highlighted in step 1 (see section 2d).
3. A BRAG rating of the onshore reinforcements for the shortlisted design as a whole. This is an amalgamation of the appraisals undertaken in step 2 for each shortlisted design (see section 3).

At the end of the HNDFUE appraisal process, the BRAG rating of the onshore reinforcements will be merged with the BRAG rating of the offshore works, to produce an overall appraisal for environment and community for that shortlisted network design.

2. Approach to appraisal of onshore works

The approach for appraising the onshore reinforcements will be on an area basis. In summary, this is where an area of study will be identified that the onshore reinforcements are to be located within. An appraisal will then be made on how much the environment and community constraints within that area constrain the development of the onshore reinforcement works being appraised.

This approach is somewhat different to the approach taken for the appraisal of offshore works during Stage 3. Here, rather than using areas, the appraisal is based on initial cable corridors. Both appraisals however are still based on how much the environment and community constraints constrain the development of the particular works.

The main reason for this difference in approach is due to the level of information available on the onshore reinforcements will not be strong enough to define any particular corridors. Hence, a broader approach of appraising on an area basis is required.

a. Information to undertake appraisal against

The Transmission Owners (TOs) will undertake boundary and connection studies of the shortlisted HNDFUE design options during Stage 4 of the process. The output of these studies will provide information on the onshore reinforcement works required and enable the appraisals to commence.

In summary, the following information will be used from these studies to inform the environment and community appraisal of the onshore reinforcements:

- Start point of the works. This could be defined as a substation or more broadly in the form of a study area.
- End point of the works. This could be defined as a substation or more broadly in the form of a study area.
- Scope of works. This will include a physical description of the onshore reinforcements required, for example the upgrade of existing infrastructure or a new circuit. It may also provide indicative route lengths and technology assumptions.

b. Study areas to be used

As discussed in the introduction to section 2, the appraisal of the onshore reinforcements will be undertaken on an area basis. As a result, suitable areas within which the onshore reinforcements will be appraised against need to be defined.

The areas to be used in the appraisals will reflect the system boundaries of the GB transmission network. These areas have been chosen as they are deemed to most closely reflect the output of the TOs studies which define the onshore reinforcements required.

It is acknowledged that a number of transmission system boundaries cover a very small geographical region. As a result, the following revised boundaries are proposed to undertake the appraisals within (see Figure 2):

1. Northern coast of Scotland/John O'Groats to B2 boundary
2. Boundary B2 to boundary B4
3. Boundary B4 to boundary B6
4. Boundary B6 to boundary B7a
5. Boundary B7a to boundary B9
6. Boundary LE1
7. Boundary EC5
8. Boundary B13
9. Boundary SW1
10. Remaining area south of boundary B9

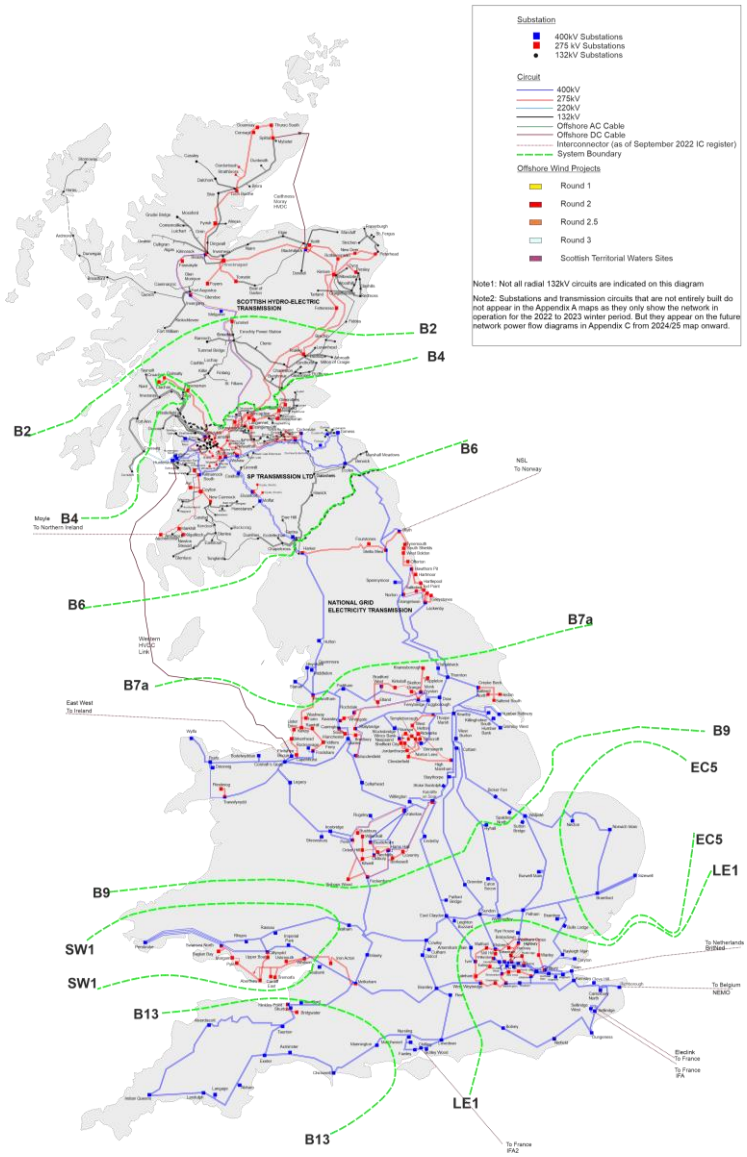


Figure 2 Study areas to be used

c. Constraints to be used

The underlying principle behind the appraisal of the onshore reinforcements is how constrained the works could be as a result of their interaction/interface of known environmental and community constraints. These constraints need to be presentable spatially and based on current, known and consistent information.

To ensure consistency between the offshore appraisals and onshore appraisals, the same onshore environmental and community constraints will be used as those in the ESO Environment and Community assessment methodology for offshore . The constraints are at an appropriately high level considering the high-level nature of this appraisal.

They are similarly aligned with the first two Holford Rules[4] for locating overhead lines. Namely Holford Rule 1, constraints covering the major areas of highest amenity value and Holford Rule 2, constraints covering the regional areas of high amenity. The constraints generally covered by these rules are also included in this appraisal. Holford Rules 4-7 are concerned with micro-siting which is considered further in the project development process and outside the scope of this level of study (see section d below referencing Holford Rule 3).

These constraints are predominantly based on publicly available data and will be reviewed for currency prior to application. The constraints to be used are listed in Appendix A. The BRAG ratings are based on the potential each constraint has to constrain the development of the various works activities required to deliver an onshore reinforcement. This broadly considers its potential impact and therefore also its potential difficulty to consent. The BRAG ratings are the same as those used in the offshore appraisal. However, an additional column has been added to cover Overhead Lines (OHLs), which were not an activity covered in the offshore appraisals. The definitions of the BRAG ratings for constraints are in table 1.

Table 1 BRAG ratings of constraints

Rating	Environment	Community
Black	Features, receptors or designations which affect the likelihood of an Option being achievable to such a degree that they should not be considered as part of the design. This includes constraints which do not permit the proposed activities to be undertaken within them.	Features, receptors or designations which affect the likelihood of an Option being achievable to such a degree that they should not be considered as part of the design. This includes constraints which do not permit the proposed activities to be undertaken within them.
Red	Features, receptors or designations that are so significant, sensitive or pose such a high degree of risk to the design that they should be avoided, examples would include designated areas identified by statutory bodies to contain designated features sensitive to impacts of the proposed activities.	Features, receptors or designations that are so significant, sensitive or pose such a high degree of risk to the design that they should be avoided, examples would include designated areas identified by statutory bodies to contain designated features sensitive to impacts of the proposed activities.
Amber	Most protected features, sensitive receptors and/or areas that are likely to require detailed assessment and potentially mitigation and should be avoided if possible.	Most protected features, sensitive receptors and/or areas that are likely to require detailed assessment and potentially mitigation and should be avoided if possible.
Green	Features, receptors or designations to be considered in constraint assessment/study but which are likely to be capable of resolution.	Features, receptors or designations to be considered in constraint assessment/study but which are likely to be capable of resolution.

[4] Available here: The Holford Rules (nationalgrid.com)

d. Appraising each onshore reinforcement

An appraisal of each onshore reinforcement will be made based on the areas which the works fall within, as defined in section 2b, and using the constraints outlined in section 2c. The constraints will be mapped out within the areas accordingly, and a qualitative appraisal will be made on how much these constraints constrain the development of the onshore reinforcement. As with the offshore methodology, it should be noted a 'black' rated constraint will be considered to rule out development of an onshore reinforcement within their respective areas completely.

For each onshore reinforcement option, there will be one BRAG rating assigned for environment and one BRAG rating for community. Again, to ensure consistency with the offshore appraisals, the same BRAG definitions will be used. These definitions are a reflection of how much the constraints within the study area constrain the development of the onshore reinforcement being appraised, and are detailed in tables 2 and 3.

Table 2 Environmental BRAG definitions for onshore reinforcements

BRAG	Definition
Black	Significantly* constrained Option. Unlikely to be viable due to significant environmental issues.
Red	Heavily constrained Option. Potentially viable however, will have to overcome many environmental issues.
Amber	Moderately constrained Option. Likely viable however, may have to overcome some environmental issues.
Green	Lightly constrained Option. Likely viable without any major environmental issues.

*note this refers to the level of constraints and is not related to significant effects identified in the SEA/EIA process.

Table 3 Community BRAG definitions for onshore reinforcements

BRAG	Definition
Black	Significantly* constrained Option. Unlikely to be viable due social/community issues.
Red	Heavily constrained Option. Potentially viable however, will have to overcome many social/community issues.
Amber	Moderately constrained Option. Likely viable however, may have to overcome some social/community issues.
Green	Lightly constrained Option. Likely viable without any major social/community issues.

*note this refers to the level of constraints and is not related to significant effects identified in the SEA/EIA process.

During the appraisal process, the following will be considered in the assignment of the BRAG rating:

- Scope of works
    - The scope of works will be considered in determining the BRAG rating. Onshore reinforcements such as the upgrading of existing infrastructure through no physical changes will be less constrained than an onshore reinforcement requiring a new overhead line and will therefore more likely be given a more favourable BRAG rating.
- Number of constraints
    - Within the study area, a qualitative review will be undertaken of the number and area of constraints. The greater the number/area of constraints within the study area, the more constrained the option would be and therefore the increase in likelihood of a less favourable BRAG rating being assigned.
- BRAG ratings of constraints
    - The BRAG ratings of the constraints themselves will also need to be considered. For example, a study area with predominantly red constraints will be more constrained than a study area with the same number of constraints but are predominantly green constraints.

It should be considered that some onshore reinforcements, such as overhead lines, are linear in nature and it will not be feasible for these types of works to make sudden changes in direction to avoid every constraint. Therefore, when undertaking the appraisals, as per Holford Rule 3, with all other things being equal, the most direct line will be considered with no sharp changes in direction.

A further consideration in the assignment of BRAG ratings will be the consideration of appropriate mitigation. During the appraisal process, a review on the avoidance of constraints will be prioritised, followed by minimising the interaction with constraints. Where interaction with certain constraints is unavoidable, an assumption will be made that suitable mitigation such as those associated with good/best construction practices will be implemented. It is acknowledged that the level of information available at this stage may not be sufficient to guarantee certain mitigations, as such mitigations put forward should be those which are considered more standard practice in the development of these onshore reinforcements. Any considerations and assumptions made on mitigation will be stated in the appraisals. Opportunities for enhancement of constrained areas will be considered in the detailed assessment. At this stage, there will be a focus on mitigation of any interference with constraints.

It is important to consider the impacts of developments on biodiversity. The focus at this stage, in the first instance, is avoidance of environmental constraints including those relating to biodiversity. We recognise the importance of biodiversity net gain; this is something that will be reviewed later in the project development process.

The length of onshore reinforcement is not necessarily a material consideration when assigning the BRAG ratings, with the emphasis more placed on interaction/interface with the known constraints. For example, there could be an onshore reinforcement within a small area but within that area is constrained by numerous red rated constraints. On the other hand, there could be an onshore reinforcement over a large area but within that area is constrained by very few constraints. It would therefore be appropriate to give a worse BRAG rating to the first example. Likewise, if there is an onshore reinforcement which covers a large area and has the same frequency and severity of constraints as an onshore reinforcement option covering a smaller area, it would be appropriate to give the former a worse BRAG rating, as again the BRAG ratings are based on the level of interaction with constraints.

It is recognised there may be some differences on how much these constraints constrain the development of onshore reinforcements depending on which region of Great Britain (England, Wales, Scotland) the works fall within. This may also be the case when reviewing the appropriate level of mitigation to be considered.

3. Appraisal of shortlisted design option

The output of the work undertaken in section 2 are appraisals for each individual onshore reinforcement required within a shortlisted design option. The next stage in the process will be combining the appraisals of the individual onshore reinforcement and assigning a BRAG rating to the shortlisted design option overall.

This is the same approach taken with the offshore appraisals, where cable corridors within a network design were initially individually appraised and given a BRAG rating. These were then amalgamated to produce an appraisal and BRAG rating for the network design as a whole.

The approach to the appraisal and assignment of BRAG ratings for a whole design option is the same principle to that applied for individual onshore reinforcements appraised in section 2. That is, the more the constrained a design option is, the less favourable the BRAG rating will be. As such the BRAG definitions for the design options will be the same as those in tables 2 and 3.

The information to be used to appraise and assign a BRAG rating to the design option overall will be the output of the appraisals of the individual onshore reinforcements as detailed in section 2. The scale of the works being appraised should be considered when assigning the BRAG ratings. For example, within one design option there may be numerous onshore reinforcements given a 'green' BRAG rating with one onshore reinforcement given a 'red' rating. The presence of one 'red' rated onshore reinforcement should not preclude the design option being given a more favourable BRAG rating as all the other onshore reinforcements are given a 'green' rating. The consideration of the BRAG rating needs to look at the design option as a whole.

An exception to this would be where an onshore reinforcement is given a 'black' rating. Here, the constraints of this onshore reinforcement are so significant that the reinforcement needs to be reflected in the overall rating for the design option.

4. Report format

The appraisals outlined in sections 2 and 3 will be undertaken by the TOs who will appraise the onshore reinforcements in their respective regions. The output from each TO will be an appraisal for each shortlisted design they will have works within.

Each appraisal will contain the following:

- An appraisal and BRAG rating of each onshore reinforcement within the shortlisted design option. This will contain:
    - Details on the scope of works
    - Map of onshore reinforcement (if available)
    - BRAG rating for environment.
    - Brief narrative appraising this onshore reinforcement, including the reasoning for the BRAG rating including any notable constraints and mitigation considered.
    - BRAG rating for community.
    - Brief narrative appraising this onshore reinforcement, including the reasoning for the BRAG rating including any notable constraints and mitigation considered.
- An appraisal and BRAG rating for the shortlisted design option as a whole.

- BRAG rating for environment.
- Narrative appraising the shortlisted design option, including the reasoning for the BRAG rating.
- BRAG rating for community.
- Narrative appraising the shortlisted design option, including the reasoning for the BRAG rating.

5. Amalgamation of the Transmission Owner reports

It is anticipated that for some shortlisted designs, there will be onshore reinforcements required from more than one TO. In these circumstances, there will be an amalgamation of TO appraisals to produce an appraisal for the shortlisted design option as a whole.

This will be undertaken by ESO, using the information in the appraisals produced by the TOs. Here an appraisal and BRAG rating will be produced. The approach to the appraisal and assignment of BRAG ratings for whole design options is the same in principle to that applied for sections 2 and 3. That is, the more the constrained a design option is, the less favourable the BRAG rating will be. As such the BRAG definitions for the design options will be the same as those in tables 2 and 3.

The output of this amalgamation of the TO reports will be:

- BRAG rating for environment.
- Narrative appraising the shortlisted design option, including the reasoning for the BRAG rating.
- BRAG rating for community.
- Narrative appraising the shortlisted design option, including the reasoning for the BRAG rating.

6. Appendix A

Subject	Theme	Data displaying	Onshore cables	OHL	Onshore stations	Buffer (m)
Landscape and Visual						
Comm	National Parks	UK National Parks	A	R	R	0
Comm	Areas of Outstanding Natural Beauty & National Scenic Areas	England and Wales AONB and Scotland NSAs	A	R	R	0
Comm	Heritage Coasts	England and Wales Heritage Coasts	A	R	R	0
Comm	National trails	England and Wales National Trails, and Scotland's Great Trails	A	A	A	0
Comm	Wild Land Areas (WLAs)	Scotland WLAs – identified as having sensitive features	N/A	A	A	0
Ecology						
Env	NRW Key Sensitive Habitats	Natural Resources Wales Key Sensitive Habitats	R	R	R	0
Env	SACs	UK SACs	R	R	R	0
Env	SPAs	UK SPAs	R	R	R	0
Env	pSPAs	England and Scotland proposed SPAs	R	R	R	0
Env	cSACs	UK candidate SACs	R	R	R	0
Env	SCI	Sites of Community Importance	A	A	R	0
Env	Ramsar sites	UK RAMSAR sites	R	R	R	0
Env	Proposed Ramsar sites	UK Proposed RAMSAR sites	R	R	R	0
Env	SSSIs	UK SSSIs	R	R	R	0
Env	National Nature Reserves (NNRs)	UK National Nature Reserves	R	R	R	0
Env	Biosphere Reserves	UK Biosphere Reserves	G	G	G	0
Env	Ancient Woodlands	UK Ancient Woodlands	A	R	R	0
Env	Important Bird Areas	UK Important Bird Areas	G	G	A	0
Env	RSPB Reserves	UK RSPB Reserves	G	A	A	0
Historic Environment						
Comm	World Heritage Sites (WHS)	UK World Heritage Sites	R	R	B	0
Comm	Scheduled Monuments	UK Scheduled Monuments	R	R	R	20
Comm	Listed Buildings	England listed buildings (Grade I, II* and II listed buildings) Scotland listed buildings (Grade A, B and C listed buildings)	A	A	R	20
Comm	Registered Parks and Gardens & Gardens and Designed Landscape	Scotland gardens and designed landscapes	A	A	R	0
Comm	Registered Battlefields	England and Scotland Registered Battlefields	A	A	B	0
Air Quality						
Comm	Air Quality Management Areas (AQMAs)	UK Air Quality Management Areas	G	G	G	0
Noise						
Comm	Major Settlements	UK Major Urban Settlements	G	A	A	0

Subject	Theme	Data displaying	Onshore cables	OHL	Onshore stations	Buffer (m)
Geology and soils						
Env	Peatland	UK Peatland	A	A	A	0
Env	Geoparks	UK Geoparks	G	G	G	1000
Env	National Flood Zones/Areas Benefiting from Defences	3 National Flood Zones & 3 Areas benefiting from defences	G	A	A	0
Env	Former landfill sites		A	A	A	0
Socio- Economics						
Comm	Major settlements/Urban Areas	UK Major Urban Settlements	A	R	R	0
Comm	National Trust Land	National Trust Open Land and Limited Access Land	A	A	R	0