Minutes

NOA committee - December 2021

Date:	09/12/2021	**Location:**	MS Teams
Start:	09:45	**End:**	13:45

Participants

Attendee	Role in meeting	Job role	Minutes attended
Matthew Wright	Chair	Head of ESO Strategy and Regulation - ESO	1-15
Isabelle Haigh	Committee member	Head of National Control- ESO	3-15
Amy Weltevreden	Proxy for Head of Markets	Market Requirements Senior Manager - ESO	1-12
Julian Leslie	Committee member	Head of Networks - ESO	1-15
Lauren Stuchfield	Committee member	Electricity Analysis Senior Manager - ESO	1-15
Nicholas Harvey	Support member	Network Development Manager - ESO	1-15
Jeremy Rawlings	Technical secretary	Power System Engineer - ESO	1-15
Jason Hicks	Presenter	Holistic Network Design Integration Manager- ESO	1-12
Emmanouil Belivanis	Presenter	Power System Engineer - ESO	1-15
Thomas Petty	Presenter	Power System Engineer - ESO	1-15
Victor Matilla	Presenter	Power System Engineer - ESO	1-15
Iain Shepherd	Observer	Technical Economic Assessment Manager - ESO	1-15
Paul Wakeley	Observer	Economic Assessment Manager - ESO	1-15
External Participants			
James Norman	Observer	Ofgem	1-15
Neil Copeland	Observer	Ofgem	1-15
David Willmot	Presenter	Network Development - National Grid Electricity Transmission	3-12
Owen Wilkes	Presenter	Network Development - National Grid Electricity Transmission	3-12
Mark Perry	Presenter	Network Development - National Grid Electricity Transmission	3-12
Roddy Wilson	Presenter	Network Planning Manager – SSEN-T	3-7

Graeme Dean	Presenter	Senior Transmission System Planning & Investment Engineer - SSEN-T	3-7
Bless Kuri	Presenter	Head of System Planning and Investment – SSEN-T	3-7
Kirsten McIver	Presenter	Lead Design Engineer - SP Transmission	3-7
Eric Leavy	Presenter	Head of Transmission Network – SP Transmission	3-7

Agenda

#	Topics to be discussed
1.	**Apologies and introduction** • Mr Wright welcomed the attendees and introductions were made. • Mrs O'Neill was unable to join the meeting.
2.	**Governance and process** [Redacted due to administrative nature]
3.	**TOs enter meeting**
4.	**Holistic Network Design (HND) update** [Redacted due to sensitive nature]
5.	**Scotland and the North of England** Mr Wright invited Mr Matilla to present an overview of the North region options. Regional results • Mr Matilla explained the NOA recommendation definitions and overview of 'North' region. 'North' covers all regions in GB north of the B9 boundary (south of the Midlands). • There is a significant increase in wind generation, comparing FES 2020 and FES 2021. Offshore wind capacity in the Leading the Way scenario in 2040 increases by 14 GW north of the B6 boundary (Scotland border) and by 25 GW north of the B8 boundary (North Midlands). There were 88 asset-based options, plus notional reinforcements and commercial solutions. Of these, 66 were 'optimal'; 22 were not 'optimal'. Of the 'optimal' options, 26 are recommended to "Proceed" and 40 to "Hold". • In the North region, 4 commercial solutions were developed by ESO and these are recommended to "Proceed". • PSDC was required on its EISD but further analysis is required on onshore vs offshore options. • 4 Eastern Links were presented this year. These were all 'critical' in NOA 2020/21. • CGNC and CLNC are new circuits needed to unlock flows in the North of England. • The commercial solutions are CS05 and CS06 across B6 and CS11 and CS12 across B7a. Some actual tender costs were used in calculating the cost of the commercial solutions. The commercial solutions bring a benefit of up to £1.9 bn in the Leading the Way scenario. Key changes from NOA 2020/21:

- Alternative Power control technology along the Creyke Beck – Thornton 1 (A319) 400kV circuit (CTP2) did not give any benefit from 2030.
- New Chesterfield – Ratcliffe-on-Soar 400kV double circuit (EDN2) has superseded EDNC and is earlier and lower cost.

Mr Wright invited Mr Petty to explain the optimal path and sensitive options.

- Optimal paths & narratives

There were no marginal options in NOA 2021/22. 'Marginal' options are where the decision is driven by one FES scenario.

Action: Mr Petty to look at the regrets of North of Scotland reinforcements in particular, "Proceed" and are now "Hold".

For NOA January Committee - agree a conditional "Proceed" for certain key reinforcements in the North of Scotland.

- Sensitive options
  - Case 1: Eastern Links
    - Four ‘critical’ offshore options from NOA 2020/21 were re-submitted. These are:
    - Eastern Scotland to England Link: Torness to Hawthorn Pit Offshore HVDC (E2DC)
    - Eastern Scotland to England Link: Peterhead to Drax offshore HVDC (E4D3)
    - 2GW HVDC link from Peterhead to South Humber Area (E4L5)
    - Eastern 2GW HVDC Subsea Link: South East Scotland to South Humber (TGDC)
    - They do not compete with each other and all remain ‘critical’.

[Redacted due to sensitive nature]

  - Case 3: New Circuits
    - Mr Petty stated that B0 and B1 do not require reinforcement until the more southerly boundaries have been reinforced. Option DBNC which reinforces the far north boundary, B0, will be needed later than the present EISD.

[Redacted due to sensitive nature]

  - Sensitive case 6: Strathaven – Smeaton OHL Conductor Replacement, VSRE
    - This option is essential in all scenarios. If the outages could be re-worked it could be optimised and the recommendation would be "Proceed". Discussions continue with SPT to work out a way forward. This will be discussed further at the January Committee.

- Key messages for publication

Mr Matilla outlined the key messages:

- The results for this year’s NOA will be available in January 2021.
- We recognise the sensitivity of the NOA publication.

We will continue to work with all TOs during the drafting phase to ensure the narrative is agreed and we thank our TO colleagues for their support.

6. **East Coast SWW updates**

Mr Wright invited Ms McIver of SPT to update the committee on the East Coast LOTI.

The three TOs have received Initial Needs Case determination by Ofgem recognising the need for these links, however highlighting the need to review the project in the context of offshore transmission network review (OTNR).

The final needs case is in progress and will be submitted by end of December 2021. There will be 2 final needs cases, recognising the need for separate delivery of these projects. The cost benefit analysis, CBA which supported both projects has been completed and this is being used to support the Final Needs Case submission.

Having begun environmental surveys, the TOs expect to apply for marine licences in Q2 of 2022. The onshore planning applications will be made in Q2 of 2022. There has been significant engagement with suppliers during 2020 and 2021 to inform the choices of technology. It is expected that the TOs will invite tenders in Q2 of 2022.

7. **Scottish TOs exit meeting & break (10 minutes)**

8. **Network access in the south and east region**

Mr Wright invited Mr Belivanis to update the committee on network access:

- The co-ordination of outage requirements in East Anglia and the South East is critical to achieving the EISDs of the reinforcements. ESO have discussed with NGET about TO co-ordinating outages for HWUP and BTNO.

Questions *and comments:*

- Mr Wilmot noted that BTNO was "Proceed" in NOA 2018/19, NOA 2019/20 and NOA 2020/21.
- HWUP was "Stop" in NOA 2019/20 and "Proceed" in NOA 2020/21.
- The problem is co-ordinating the outages in 2027 for BTNO and HWUP.
- A contract has not yet been awarded for HWUP. They are optimistic that there is a solution and HWUP could be delivered in a phased way.
- "Hold" or "Delay" will mean we will not achieve the EISD.
- "Proceed" is required as it gives a clear signal to deliver on time.
- Mr Wilkes said that they are keen to resolve this problem now. This probably means that HWUP has to be delivered incrementally. They are already considering potential contractors and will need continued engagement with ESO to deliver this scheme.

Based on the evidence presented, the Committee agreed to maintain the recommendation of "Proceed" for BTNO and continue to work towards an outage solution.

- Mr Harvey explained that NAP now have additional resource to work on the outage solution.
- Mr Norman stated that external stakeholders are concerned about planning and there is a risk that this could delay BTNO.
- Mr Perry stated that even if BTNO is delayed that would be quicker than a totally new solution because of the time spent on developing this option.

9. **Lunch break (40 minutes)**

10. **England and Wales excluding North:**

Regional results

Mr Wright invited Mr Matilla to give an overview of the Wales Region.

- Wales has boundaries in the South and the North (SW1, SW2 and NW1 to NW4).
- Generation is expected to increase in North Wales but not until 2028. From 2029 onwards the constraints start to become a problem.
- Asset based options PTC1 and PTNO are not required on their EISDs.

- There are no marginal options in Wales.

Questions and comments*:*

- Mr Perry asked how the commercial solutions interact with the Wylfa to Pembroke notional reinforcement (NR07).
- Mr Matilla stated that the commercial solutions were put at the end of the path in the modelling, to determine their benefit. The EISD for NR07 was 2031 and 2036 for NR08. NR08 was 'optimal' in 2036 and 'critical' in LW on EISD. NR07 was not required until 2033.
- Mr Wilkes asked about any interaction with HND.
- Mr Perry noted that we could see 3.5 GW of additional wind generation in the Irish Sea included in HND. This may affect the outcome, depending on where the onshore grid connections are.
- Mr Norman wanted to clarify the understanding of "Hold" for these options, where the asset based options are not required for several years, in contrast to options in the north of England where "Hold" means the option may be needed one year later.
- Mr Matilla stated that PTC1 and PTNO are not needed until 2029 or later.
- Mr Wright asked about the timescales for the Wylfa power station.
- Post-meeting note: New nuclear power is just shown in scenario ST and this starts generating in 2037.

South England

Mr Matilla gave an overview of the South Region.

- The 'South' Region is all of Great Britain south of the B9 boundary.
- Key boundaries are East Anglia (EC5), South Coast (SC1) and London (LE1). A large volume of generation capacity is forecast in East Anglia. This is not a big change from FES 2020. There is a considerable increase in north to south power flows. Sizewell C is expected to be commissioned later than previously expected (in 2030's). In 2030's there will be high interconnector export.
- NGET provided 46 asset-based options, of which 40 were 'optimal' and 6 are not 'optimal'. 22 of the 'optimal' options are recommended to "Proceed" and 18 to "Hold".
- Mr Norman noted that Ofgem will soon publish their review of new interconnectors that are not yet arranged through the 'cap and floor' regime. At a high level it is consistent with the electricity transmission network planning review.

Mr Belivanis presented the South Region marginal options:

- RHM2, PEM1, PEM2 are capacitors that are needed to help solve voltage drops under peak load conditions. These reinforcements have very low next year spend and will be required before other options can provide capability. The decision is more marginal for RHM2 as illustrated by the LWWR plots.

Based on the evidence presented, the Committee agreed to maintain the recommendation of "Proceed" for RHM2, PEM1 and PEM2.

- Reactive compensation protective switching scheme (SEEU) is a control scheme for existing capacitors to switch them into service, faster than at present, under fault conditions. It is required in specific locations. The probability of SP would have to be drastically reduced to overturn the "Proceed" decision.
- Ms Haigh asked if we have any of this equipment in the system elsewhere? How do we study it?
- Mr Perry explained that SEEU helps to prevent very fast voltage collapse as it operates in protection timescales. This is similar to a 'statcom' and more complex.
- Ms Stuchfield asked what the default probability of SP was? This is 25% likelihood by default.

Confirm decision: "Proceed".

Sensitive Case 4: Longer-term reinforcement of East Anglia and South East

- Getting power out of East Anglia to interconnectors becomes more of a driver in mid-2030's. New Offshore HVDC link between Suffolk and Kent option 1 (SCD1) and New Offshore HVDC link between Suffolk and Kent option 2 (SCD2) are able to bypass the South Coast boundaries but Tilbury - Grain new 400kV double circuit (TENC) is not able to do this directly.

Questions and comments:

- Mr Wilkes noted that SCD2 and TENC are not directly inter-changeable. It is a challenge for NGET if the recommendations keep changing, especially if the analysis done in HND changes the recommendations again.
- Mr Leslie asked what are the core 'no regrets' investments? He understands the concern in the short-term. Is there a different way of explaining "Hold" that gives the certainty for the present time?
- Mr Shepherd noted that TENC was a new option in NOA 2020/21. SCD2 was studied previously in such a way that it could not be alongside A new 400 kV double circuit in north East Anglia (AENC). ESO are looking into the benefit that TENC may bring to South Coast boundary SC3.

Action on Mr Belivanis to bring additional information on TENC's capability over SCD3 to the January committee meeting.

11. **South coast SWW updates**

- Mr Perry gave an update on LOTI projects. These are sensitive projects and at the concept stage. This information is not yet in the public domain and these items may need to be redacted.

- SCD1 – NGET have engaged with Suffolk and Kent Councils but have put on hold their stakeholder consultation until late spring / early summer to allow time to co-ordinate a plan for onshore works with National Grid Ventures (NGV). This will examine the feasibility of connecting SCD1 and planned European interconnectors via an offshore hub and reduce the number of onshore landing points. A 2 GW offshore link is currently in the plan.
- In the early opportunities part of the OTNR there are currently 2 generators. NGET are working with NGV and NGESO to work out whether it is possible to connect these developments through an offshore hub. This work is at an early stage.
- NGET are carrying out the initial work on the onshore circuits AENC and ATNC. An initial needs case is being developed for submission to Ofgem and a consultation will be launched in the early part of 2022.
- The Lincolnshire circuits are at an early stage of the development. These are Grimsby to Western Marsh and Creyke Beck to High Marnham circuits.
- Yorkshire Green: the initial needs case has been submitted and is on track for delivery in 2027.

Questions and comments:

- Mr Leslie asked if any of these projects will benefit from the BEIS project to streamline planning and consenting of projects.
- Mr Perry noted that many options to deliver 40 GW of wind by 2030 can only be delivered after 2030. This is limited by planning, consenting, and manufacturing but any streamlining of processes is welcomed.
- Mr Wright thanked the TO representatives for their hard work and co-operation.

12. **TOs exit meeting**

13. **Date and time of next meeting**

	• The next meeting is scheduled for 11 January 2022.
14.	**Any other business** [Redacted due to administrative nature]
15.	**Feedback and review** [Redacted due to administrative nature]

Action Item Log

[Redacted due to administrative nature]