Meeting minutes

NOA Committee meeting 10 December 2019 - redacted

Meeting name

Date:	10/12/2019	Location:	Faraday House L1.16
Start:	10:00 AM	End:	2:00 PM

Participants

Present	Attend/Regrets
Duncan Burt (Chair)	Attend
Gavin Brown (Delegate of Roisin Quinn)	Attend
Julian Leslie	Attend
Matthew Magill (Delegate of Richard Smith)	Attend
Lauren Moody	Attend

Attendee	Role	Minute(s) attended
Kelvin Lambert	Technical Secretary	Full
Nick Harvey	Network Development Manager, ESO	Full
Hannah Kirk-Wilson	Technical Economic Assessment Manager, ESO	Minutes 1-7
Marc Vincent	Economic Assessment Manager, ESO	Full
James Whiteford	System Capability Manager, ESO	Full
Jingchao Deng	NOA CBA lead - north, ESO	Full
Sean Williams	NOA CBA lead – south, ESO	Full
Jason Hicks	NOA lead, ESO	Full
Iain Shepherd	NOA CBA lead, ESO	Full
Charlotte Friel	Head of RIIO Electricity Transmission, Ofgem	Full
Joe Slater	Senior Manager RIIO Transmission, Ofgem	Full
David Adam	Transmission Networks Manager, SPT	Minutes 8-9*

Gareth Hislop	Transmission Policy and Commercial Manager, SPT	Minutes 8-9*
Kirsten McIver	Lead Design Engineer, SPT	Minutes 8-9*
Bless Kuri	Head of Transmission System Planning & Investment, SHE Transmission	Minutes 8-9*
Roddy Wilson	Network Planning Manager, SHE Transmission	Minutes 8-9*
Mark Perry	Network Development Manager, NGET	Minutes 8-11
Nicola Todd	Connection Portfolio Manager – Network Investment, NGET	Minutes 8-11
Le Fu	Power System Expert, NGET	Minutes 8-11
James Greenhalgh	Electricity Customer Connections Manager, ESO	Apologies

*Joined by teleconference

#	Topics to be discussed
1.	**Apologies and introductions** Mr Burt welcomed all attendees and introductions were made.
2.	**Meeting governance and process** [Redacted due to administrative nature.]
3.	**Minutes of the NOA Committee meeting held on 2 October 2019** The draft NOA committee minutes for the meeting held on 2 October 2019 (the "Minutes"), as circulated prior to the meeting, were taken as read. Mr Burt requested the members and attendees to provide any final comments. Mr Burt noted that three points were implicit actions, these points are in 4.1, 4.2, 8.2. There were no further comments and accordingly the Minutes were **APPROVED** as an accurate record and **APPROVED** for signature by the Chair.
4.	**Actions arising from the NOA Committee meeting of 2 October 2019** [Redacted due to administrative nature.]
5.	**NOA for Interconnectors** Mr Burt invited Mr Vincent to provide an update on NOA for interconnectors and the following points were noted: • The analysis is underway. • Key changes include generic capacities as baseline between different countries. This makes the process fairer to stakeholders. • In response to Mr Brown's question about operability, Mr Vincent said that the SOF is more thorough and we will signpost the SOF. Social economic welfare will not include operability costs. This represents a policy change. It is fairer when compared with ordinary generators but the interconnector swing within the one hour gate closure period means managing it is a challenge. We'll treat all types of technology in the same way and it was noted that ramping of ICs and the SEIMP constraint are well understood. **Action 13.1 - Mr Vincent is to investigate whether a conceptual interconnector would perform better for relieving GB system constraints. This action supersedes action 12.2.** **Action 13.2 - Following action 13.2 and the April NOA Committee meeting, Mr Vincent is to discuss with Ofgem congestion costs and location of interconnectors.**

6. Pathfinder projects

Mr Burt invited Mrs Kirk-Wilson to provide an update on pathfinder projects and the following points were noted:

6.1 High voltage management

- The Mersey voltage pathfinder has a phased tender, technical solutions due by mid-December, information in January about effectiveness and final commercial submission by end of February.
- For the Pennine region, we are learning from Mersey. The tender will be out by end of June 2020. The region is much larger hence extra complexities.

6.2 Probabilistic

- We have been comparing the probabilistic with the existing deterministic tool and wrote about it in the ETYS which we published at the end of November. We plan to focus on one region and cover all ten years and see whether it underestimates or overestimates in comparison with our current approach.

6.3 Commercial solutions

- The recommendations from NOA this year are the same as in NOA last year. We can vary the length more this year of commercial solutions and we are looking to develop them into actual solutions.
- The solutions are complicated but we have set milestones for how to deliver in 2021/22. The Committee was concerned about containing the number of solutions to avoid prolonged analysis delaying implementation. The Committee will review the approach to commercial solutions in January's meeting.

ACTION 13.14 – Mrs Kirk-Wilson is to set out how we are going to implement commercial solutions next year and the milestones we are aiming at while limiting it to a sensible number of options.

6.4 Constraint management

- The pathfinder was to see if a new market can be created for thermal constraints notably B6/Scotland. It would work having post fault actions similar to intertrips to take MWs off the system.
- One approach would bring equivalent MWs onto the system. The pathfinder seeks interest from the market in providing services, but we realise that response times are a factor in their usefulness. A 'single location' is a single region as opposed to multi-region.
- We studied 200MW as an initial volume though Mr Burt pointed out that this might be too small.
- We will hold a webinar in January and aim to hold the RFI so that it closes at the end of February. [Redacted due to commercially sensitive nature].

6.5 Stability pathfinder

- We published the RFI in July and as a result of feedback, we split the pathfinder into phase 1 and 2. The nearer time solution runs up to Apr 2021. The tender for phase 1 was launched in early November, and stakeholder feedback caused us to extend the response date to January. A key reason for this feedback was that the tender did not provide long enough for participants to pull together well considered bids.

7. Offshore Wider Works

Mr Burt invited Mr Vincent and Mr Worsley to provide an update on Offshore Wider Works (OWW) and the following points were noted:

- The ESO made some initial OWW designs for the NOA but TO option is very similar. Because of the similarity and the TO's more informed understanding of costs, we used the TO option.
- The NOA can signal need with boundary capacity but it doesn't consider connection costs. It showed that some HVDC links were triggered on boundary capacity alone. These links could provide connections for certain offshore windfarms. This would save connection costs for customers and reduce multiple landing points.
- [Redacted due to commercially sensitive nature].

8. Scotland and the North of England

8.1 NOA recommendation definitions and overview

Mr Burt invited Mr Shepherd to provide an update on NOA recommendation definitions and an overview of the north results and the following points were noted:

- Mr Shepherd gave a quick reminder of the NOA recommendation definitions.
- Commercial solutions have not changed from last year's NOA. The analysis tested 1000 MW solutions though the effectiveness varies. [Redacted due to commercially sensitive nature.] Commercial solutions did not push back any asset solutions this year, but this may change for future assessment.
- Key points:
- 56 non-marginal options are not optimal across all scenarios, and our recommendation for them is either 'Stop' or 'Do not start'.
- 50 non-marginal options are optimal but non-critical, and our recommendation is put these options on 'Hold' until there is greater certainty in the future.
- 42 options are optimal and critical which entered the single year least worst regret (SYLWR) analysis:
    - 2 non-marginal options to be delayed.
    - 39 non-marginal options to proceed with.
- Eastern link options E2DC and E2D2 are each supported by two scenarios but only one will be needed.

8.2 Regional results

Mr Burt invited Dr Deng to provide an update on Scotland and the North of England and the following points were noted:

- The north pattern of more generation and its location means most constrained part of network moved from B6 to B7a. The optimal path has over 40 reinforcements whereas there were about 30 last year. Reasons include last year's long term conceptual option became an actual reinforcement (third eastern link). Scenarios TD and CR are more aggressive, SP and CE less so.
- The Norton – Osbaldwick reconductoring options (NORx) to be split into two options (NOR2, NOR4) with second part (NOR4) later on.
- Windyhill–Lambhill–Longannet 275kV circuit turn-in to Denny North 275kV substation (WLTI) is a pre-requisite for East coast onshore 275kV upgrade (ECU2) which is critical.
- The network needs reinforcements for B8 for the mid-2020s.
- 2027 is a splitting point between TD/CR and CE/SP. The Eastern subsea HVDC link to Cottam (E2D2) is better for high renewables scenarios but the link to Hawthorn Pit (E2DC) is better for the less renewables scenarios. Other smaller reinforcements are aligned with eastern link to make use of its capability.
- Eastern subsea HVDC link E4D3 from Peterhead to Drax is consistent across all scenarios.
- In 2031 an Eastern HVDC link (E4L5) from Peterhead to the south Humber area is needed. To support it, additional new circuits are needed to connect to the link in the south Humber area. These are south Humber to South Lincolnshire (GWNC) and south Humber to Creyke Beck (CGNC).
- West of Orkney offshore wind drives the option Reconductoring 275kV Beauly to Loch Buidhe circuits (LBRE), though the optimum time varies slightly across the four scenarios.
- The Committee noted that scenarios TD and CR reach 80% by 2050 but a change in policy to achieve 'net zero' by 2050 is likely to increase these two scenarios' renewables level in next year's NOA analysis.
- The option CS35 commercial solution for B6 and B7a is economically beneficial. The commercial solution CS34 for B2 and B4 is not beneficial across all scenarios.
- As the NOA analysis gave equal weighting to the Eastern subsea HVDC link options E2DC and E2D2, the TOs expressed concern about their ability to meet the EISDs if there's a conflict over resources and the impact of continuing with both E2DC and E2D2. B7a operational experience indicates that the Cottam (E2D2) option is best and also TD and CR will have higher renewables levels next year to meet the net zero target. [Redacted due to commercially sensitive nature.].

ACTION 13.3 - Mr Vincent is to explain why we believe the total constraint costs have changed year on year.

ACTION 13.4 – Mr Vincent to investigate what drives E2DC and E2D2 recommendations in the FES and the CBA.

ACTION 13.5 – Ms Todd, Mr Adam and Mr Wilson are to explain why it is not possible to take both E2DC and E2D2 forward, and the costs.

ACTION 13.6 - Mr Vincent is to walk through with SPT the changes in capability that affect B6 and B7a before January NOA Committee meeting.

Changes in recommendations from NOA 18/19

- Cellarhead to Drakelow reconductoring (CDRE) is now 'stop' as there are other options that provide capability.
- 225MVAr MSCs within the North East Region (NEMS) is now 'hold' as it is needed a little later for boundary B7a.
- Reconductor Lackenby to Norton single 400kV circuit (LNRE) is now 'hold' for B7a, the EISD has been delayed but the option is not needed until quite late. The power flow control device option for the Lackenby – Norton circuit is an economic alternative. It is essential to understand operability of power flow control devices.

8.3 Marginal options/recommendations

Mr Burt invited Dr Deng to provide an update on Scotland and the North of England and the following points were noted:

- Case 1: CTP2: Alternative power control device along Creyke Beck to Thornton1 (CTP2) is marginal. It is needed by all scenarios but is critical only in TD. [Redacted due to commercially sensitive nature.] The Committee considered the evidence and on the balance of that CTP2 is recommended to PROCEED.

8.4 Sensitive options

- Case 2: This was covered under item 8.2 regional results.
- Case 3: Central Yorkshire reinforcements (OPNx) options as alternatives to Central Yorkshire reinforcement (OENO) option. The NOA analysis showed that the option is still needed for different eastern link options. The Committee agreed that a new 275kV double circuit between Osbaldwick and Poppleton (OPN2) is recommended to PROCEED for its EISD.
- Case 4: Torness to north east England AC onshore reinforcement (TLNO) was not optimal in previous NOAs but for this NOA, it has a strong proceed for three scenarios (TD, CR, CE). Its EISD has been delayed to 2036 because of a review of its construction programme and the number of crossings (river, rail, road, urban as well as circuits). [Redacted due to commercially sensitive nature.]

ACTION 13.7 - Mr Perry to check what the boundary benefit of TLNO would be.

The Committee agreed the recommendation for TLNO is to PROCEED.

- Case 5: post eastern HVDC link options. [Redacted due to commercially sensitive nature.] The regret values are high. Agreed to 'Proceed'. [Redacted due to commercially sensitive nature.] The Committee agreed that the post eastern HVDC link options are recommended to PROCEED. Metallic return values will be counted in the SWW analysis.

8.4 Key messages for publication

- The Future Energy Scenarios show a significant increase in flows from the north.
- Some NOA recommendations are for large and complex options.

9. East Coast SWW updates

The TOs plan to submit SWW needs case for the eastern links in March 2020 though when depends on the recommendation from the NOA. [Redacted due to commercially sensitive nature.]

10. England and Wales excluding the north of England

10.1 Regional results

Mr Burt invited Mr Williams to provide an update on England and Wales region excluding the north of England and the following points were noted:

- East Anglia export boundary EC5 is constrained, especially in TD.
- Three options in 2020 are critical.
- The option Reconductor remainder of Rayleigh to Tilbury circuit (RTRE) was critical last year but this year it only provides benefit to boundary LE1 on its EISD, hence it is delayed a year. Low Interconnector exports in the early years are a factor here.
- New Offshore HVDC link between Suffolk and Kent (SCD1) is recommended instead of SCN1. It has a strong benefit because it relieves a lot of boundaries.
- The Tilbury to Grain and Tilbury to Kingsnorth Upgrade (TKRE) needed on its EISD.
- The Bramford to Twinstead new double circuit (BTNO) is needed on its EISD in 2028 for EC5 boundary as wind builds up.
- New Offshore HVDC link between Suffolk and Kent (SCD2) second link, is needed for exports from East Anglia.
- One notional reinforcement is needed for EC5 this year as opposed to three in the south region last year.

Action 12.4 - Investigate what is driving the early year constraints on SC1 and see if the problem persists in the upcoming NOA economic analysis. This was covered in item **9.1 regional results**.

10.2 Changes from last year

Mr Burt invited Mr Williams to provide an update on the changes in England and Wales excluding the north from last year and the following points were noted:

- The option, New 400kV transmission route between south London and the South Coast (SCN1) is replaced by the new Suffolk to Kent HVDC link (SCD1). SCN1's EISD has been delayed by three years. The Committee noted that there will be a lot of HVDC connections on the south coast AC ring [Redacted due to commercially sensitive nature.] The Committee requested studies on high level of asynchronous injections in the relatively small area of the south east.

ACTION 13.8 - Mr Leslie and Mr Magill to review stability on the south coast.

- The Tilbury to Grain and Tilbury to Kingsnorth Upgrade (TKRE) wasn't needed in last year's NOA because SCN1 had a 'proceed'. Without SCN1, TKRE is now needed.
- The option Reconductor remainder of Rayleigh to Tilbury circuit (RTRE) now 'hold' for interconnector flows from GB to France. [Redacted due to commercially sensitive nature.]

ACTION 13.9 - Mr Vincent to review RTRE as a marginal 'proceed' for January NOA Committee meeting.

- Elstree to Sundon reconductoring (SER1) is now 'proceed'.
- The option Reconductoring newly formed second Bramford –Braintree –Rayleigh Main circuit (Post BTNO) (BPRE) is recommended to proceed. Its later EISD depends on BTNO being delivered first.
- The option Reconductor the remainder of existing Bramford –Braintree –Rayleigh OHL (BRRE)'s EISD is delayed.

ACTION 13.10 - Mr Perry is to check the cause of the delayed EISD of BRRE.

10.3 Sensitive options

Mr Burt invited Mr Williams to provide an update on the changes in England and Wales excluding the north about sensitive options and the following points were noted:

- Case 1: SCN1 - New Transmission Route Between South London and the South East Coast was covered under item **10.2 Changes from last year**.
- Case 3: SCD1 - New transmission route between Suffolk and Kent was covered under item **10.2 Changes from last year**.
- Case 3: BTNO - New 400kV double circuit between Bramford and Twinstead. The TO has stated the EISD has been delayed by two years compared to that in the last NOA. The TO has reviewed the consents because the design is around 10 years old so the TO is looking at alternative routes including ones that might not go to Twinstead. [Redacted due to commercially sensitive nature.]

ACTION 13.11 - Considering the significant constraint cost impact, Mr Perry to investigate if can BTNO be delivered on its original EISD (2026) and if so what are the risks and costs of that, or if not, why not.

ACTION 13.12 – Mr Vincent to investigate congestion costs associated with the BTNO delay and report to the January NOA Committee meeting.

- Case 5: FLR3 - Fleet - Lovedean Reconductoring: the NOA analysis was that the option is optimal in 2023 but delay costs that the TO has provided mean analysis indicates 2020. This is consistent with the 'proceed' from last year's NOA.
- Commercial solutions CS51 and CS53 are both recommended to proceed. CS51 benefits EC5 and CS53 benefits SC1/SC3.

10.4 Wales and West Midlands

The withdrawal of the nuclear proposal in North Wales has removed the needs for major NETS reinforcements. The region has therefore not been studied this year but may be revisited in future NOAs. This closes action 12.3.

10.5 Marginal options/recommendations

There were no marginal options or recommendations in the England and Wales excluding the north of England region.

10.6 Key messages for publication

- The effect of interconnector flows on transmission system reinforcement needs.
- Key messages for BTNO - New 400kV double circuit between Bramford and Twinstead need to be finalised from the January NOA Committee meeting.

11. South coast SWW

Covered under item **10.2 changes from last year**.

12. The next meeting date

9 January 2020

13. Any other business

NGET present

- Mr Harvey highlighted the levels of coordination needed for additional studies and that if needed for next NOA Committee meeting puts pressure on time.
- Mr Brown noted that a lot of new technology would be coming onto the transmission system and so operational staff would need training. This needs to follow an early start on how the new technology works operationally and ensuring National Control systems, processes and procedures are in place to operate the new technology.

No TOs present

- Mr Vincent asked if a reinforcement is in RIIO2 baseline, whether it would go into NOA. Mr Slater said that if Ofgem approved it, the reinforcement would become baseline for NOA. Mr Vincent pointed out that the NOA assessment is less thorough than a SWW assessment.
- Mr Vincent said that SPT has a 'proceed' for an option comprising synchronous compensation but that this directly overlaps with the stability pathfinder. The Committee considered this and agreed that it is acceptable system development must continue while the new competitive model for operational services comes into effect.

14. Feedback

None.