

# Meeting minutes

## NOA Committee meeting 02 October - redacted

### Meeting name

<b>Date:</b>	02/10/2019	<b>Location:</b>	Faraday House L1.16
<b>Start:</b>	10:00 AM	<b>End:</b>	12:00 AM

### Participants

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

Attendee	Role	Minute(s) attended
Jingchao Deng	Technical Secretary	Full
Nick Harvey	Network Development Manager, ESO	Full
James Greenhalgh	Electricity Customer Connections Manager, ESO	Full
Hannah Kirk-Wilson	Technical Economical Assessment Manager, ESO	Full
Marc Vincent	Economical Assessment Manager, ESO	Full
James Whiteford	System Capability Manager, ESO	Full
Kelvin Lambert	NOA lead, ESO	Full
Jason Hicks	NOA lead, ESO	Full
Iain Shepherd	NOA CBA lead	Full
Richard Proctor	Power System Engineer, ESO	Full
Djaved Rostom	Power System Engineer, ESO	Minute 4
Charlotte Friel	Head of RIIO Electricity Transmission, Ofgem	Full*

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David Adam	Transmission Networks Manager, SPT	Minutes 7-8*
Gareth Hislop	Transmission Policy and Commercial Manager, SPT	Minutes 7-8*
Eric Levy	Head of Transmission, SPT	Minutes 7-8*
Bless Kuri	Head of Transmission System Planning & Investment, SHE Transmission	Minutes 7-8*
Roddy Wilson	Network Planning Manager, SHE Transmission	Minutes 7-8*
Mark Perry	Network Development Manager, NGET	Minutes 7-10

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\*Joined by teleconference

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# **Topics to be discussed**

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**1. Apologies and introductions**

Mr Burt welcomed all attendees and introductions were made.

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**2. Meeting governance and process**

[Redacted due to administrative nature.]

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**3. Minutes of the NOA Committee meeting held on 14 May 2019**

The draft NOA committee minutes for the meeting held on 14 May 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.

There were no further comments and accordingly the Minutes were **APPROVED** as an accurate record and **APPROVED** for signature by the Chair.

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**4. Actions arising from the NOA Committee meeting of 14 May 2019**

[Redacted due to administrative nature.]

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## 5. What's new about NOA5?

### 5.1 CfD modelling

Mr Burt invited Mr Vincent to provide an update on CfD modelling and the following points were noted:

- CfD bids/offers have been modelled in bid3 which replace the ROC subsidy framework.
- Analysis has shown that the introduction of CfD wind farms and the use of strike prices could reduce the constraint costs when compared to the model without CfD modelling. This may impact some recommendations in future.
- It is vitally important to ensure that both the BID3 function and pricing assumptions are correct. ESO is working with Strathclyde University to review the preliminary findings.
- Due to its potential impact, CfD modelling will be used as additional scrutiny for this year's analysis. It is aimed to be considered as a standard practice for the next NOA.

Mr Burt asked Marc Vincent to take an action to walk through the assumptions about CfD modelling for NOA with Ofgem.

**Action 12.1 – Mr Vincent to walk through the assumptions about CfD modelling for NOA with Ofgem.**

### 5.2 Other improvements for NOA5

Mr Burt invited Mr Shepherd to provide an update on other NOA5 improvements and the following points were noted:

- ORACLE tool was developed with FES 19 background to help the TOs visualise constraints for different boundaries in the network. It can be used for developing reinforcements and gauging the costs and benefits. The aim is to provide more insightful information about the economic model to avoid a network that is under reinforced. Given no long term conceptual options have been proposed this year so far the tool is considered a success.
- Cloud computing is now available for additional analysis during the NOA economic analysis period.
- A handover tool was developed with the IT rapid development team. The tool allows the TOs to submit their data in a more automated and standardised format. It can significantly reduce the amount of work for data quality assurance.
- The NOA report this year will remove Chapter 3 – 'Boundaries' as it is mostly covered in the ETYS. Instead, the report will include more interactive elements for more insights and better visualisation.

Mr Burt appreciated the improvements on this year's NOA.

### 5.3 Offshore Wider Works

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

- The ESO is investigating the practicalities of how OWW can fit into the NOA.
- There are compromises that have to be made this year as the ESO does not possess the capability to cost such large infrastructure projects or providing a view on Earliest In Service Dates (EISDs).
- The initial proposal is to treat the ESO-led OWW in this NOA like a long term conceptual option in a simplified manner. Once the need is confirmed, it should be developed further so that it could be more accurately scoped and costed for the next NOA.
- A TO has submitted a new offshore option which is very similar to the simplified OWW proposal. Because they are so alike and the TO option is assumed to be better costed, the OWW option will therefore not be studied as a long term conceptual option. Instead, the TO option's outcome will be used as an indicator of the need for the OWW. A narrative will be provided in this year's NOA report.
- OWW's benefits on connections will also be considered as part of future development.

Mr Harvey commented that there were currently a lot of drivers for the OWW including the sector deal and the next round of Crown Estate leases; as such, the OWW development should take into account the broader picture.

Mr Burt remarked that the approach seemed reasonable for this NOA on the basis that it will be further developed as an individual OWW option for the coming years.

#### **5.4 Large ESO onshore option**

[Redacted due to commercially sensitive nature.]

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## 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

- Tender (long-term service) for Mersey voltage pathfinder will be published by 25 November 2019. Tendering will allow non-network options to compete with network options.
- The long-term reactive power service will now be from April 2022 – March 2031 (9 years) instead of starting from April 2021 so as not to disadvantage new builds. A short-term tender will be run to address the gap if required.
- Request for Information (RFI) for Pennine voltage pathfinder will be delayed to Q1 2020/21.
- The High Voltage Management Process, which is developed based on learnings from Mersey and Pennine pathfinder projects, is published as Section 6 of the NOA Methodology.

### 6.2 Probabilistic

- The tool has been used for Year 1 studies for all boundaries in this year's ETYS analysis
- The studies are being expanded to all years for selected boundaries and the results will be shared with the TOs for comparison
- Further development of the tool will be covered in a NIA project with Strathclyde University to look at the inclusion of voltage

### 6.3 Commercial solutions

- NOA 2018/19 had identified the needs for commercial solutions – one in the north region and one in the south – for thermal constraints.
- The scope of the RFI we planned to publish for the north region this year was limited by stability in Scotland. Ongoing work is to explore whether commercial solutions could resolve stability constraints post delivery of the stability pathfinder.
- The benefits of commercial solutions on thermal constraints are also diminished due to the short-term ratings and fast dispatch actions that are available to the control room.
- Initial proposal was to consider commercial solutions to resolve residual constraints in this year's NOA as uncertainties arose due to the lack of further market information. As delivery risk should also be considered for TO options, it is decided that commercial solutions would be considered to compete with the TO options in the optimal path.
- An optimal path without commercial solutions will also be studied for comparison. Where TO options and commercial solutions are competing, there is the option of keeping both options open to mitigate the delivery risk of selecting one over the other. This will be subject to further scrutiny of their first-year spend.

Mr Burt remarked that commercial intertrips might not be technically or commercially optimal, but it has to be clearly documented why and what alternatives there are and what has to be done to make these alternatives work.

### 6.4 Constraint management

- Constraint management looks at the usage of services at strategic locations for reducing residual constraints. It provides immediate actions in post-fault conditions where no additional response or reserve is required when installed at dual locations.
- A stakeholder webinar was held in May which attracted a lot of interest in the industry.
- The RFI is being prepared and will be published by Christmas for further stakeholder engagement.

### 6.5 Stability pathfinder

- Stability pathfinder RFI was published in July and closed in September 2019.
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- The RFI set out detailed requirements for stability products in Scotland and England and Wales areas.
  - Received 28 feedback submissions and more than 100 different solutions.
  - A post-RFI summary will be published in mid-October.
  - Aiming to run a tender before Christmas, prioritising England and Wales. A long-term tender for Scotland is planned for the new year.
  - Currently working with Future Markets to see how solutions can be converted into products.
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## 7. Regional commentaries and options – Scotland and the north of England

### 7.1 Regional commentaries – north

Mr Burt invited Dr Proctor to provide an update on regional commentaries and the following points were noted for the north region:

- Similar to last year's Future Energy Scenarios (FES), the FES 2019 has seen the need for increasing transfer capability from north to south under all four scenarios because of the growth of renewable generation and interconnector capacities.
- The north to south flow across the country is heavily driven by wind generation. With high wind, the south coast is constrained with interconnectors exporting. With moderate wind, the south coast is constrained with interconnectors importing.
- For boundary B4, the north-to-south flows are growing and could exceed 10GW. Anglo-Scottish boundary B6 flows from north to south could exceed 15GW within 10 years. There is also a mild growth of south-to-north flows.
- The ORACLE tool has shown a fair amount of constraints on B4 and B8 with the NOA 2018/19 optimal paths (excluding long term conceptual options).

Mr Burt remarked that there would be pinch points in bulk transfer capabilities that relied on the eastern HVDC reinforcements to address; it was vital these projects were delivered on time.

### 7.2 Options – north

Mr Burt invited Mr Lambert to provide an update on options and the following points were noted for the north region:

- There are two 275kV double circuit routes from Kintore (near Aberdeen) to Kincardine and Longannet (near Alloa). They are owned jointly by SHE Transmission and SPT.
- Eastern HVDC Links from Peterhead and Torness that terminate at Hawthorn Pit (in County Durham), Drax or Cottam. New options this year would connect between Blackhillock (near Elgin) or Tealing and north Lincolnshire.
- The TOs have investigated metallic returns to test the economic value where the link is the critical fault.
- Scottish Central Belt options include a new double circuit, thermal monitoring with a reactive compensation scheme, reconfiguration and reconductoring options.
- A new double circuit south from the south Humber area to the Lincolnshire.
- The number of power control devices increased from 9 to 36 (including a number of options in the south region).

Mr Burt asked whether SP Transmission and SHE Transmission were also considering power control devices as alternative options, and the following points were noted:

- Dr Kuri responded that SHE Transmission was investigating but had not completed in time to deliver for this year's NOA. Dr Kuri hoped that sensitivity studies could be done regarding the power control devices.
- Mr Adam stated SP Transmission didn't have a specific application in the meantime and would continue to look for the opportunities in the future.

Mr Perry stated that many of the new power control device applications were also included in the current regional Connection Infrastructure Options Note (CION) process. Mr Perry hoped that these options could fit into the NOA process and their connection benefits could be highlighted even if they were not recommended by the NOA. Mr Burt remarked that the NOA process will continue its development on offshore integration and to see how connection benefits could be technically considered in the future.

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## 8. East coast SWW

### 8.1 East coast SWW

Mr Burt invited Mr Wilson (SHE Transmission) to provide an update on 'East coast SWW' and the following points were noted:

- A briefing note was circulated ahead of the committee meeting and the note was taken as **READ**.
- The three TOs Technical working group has concluded a supply chain engagement exercise. The conclusion was that the proposed ratings submitted to the NOA were achievable.
- The System Requirements working group is reviewing the final CBA report for the initial Needs Case and the NOA 2019/20 results will be included in the Needs Case in Spring 2020 for support.
- The Development and Delivery working group continues to review and develop the programmes for the proceed options, with the current EISDs being maintained under current programme revisions.

### 8.2 NOA/SWW processes

Mr Burt invited Mr Vincent to provide an update on 'NOA/SWW process' and the following points were noted:

- The current east coast SWW CBA was conducted on the FES 2017 which has the lowest requirements compared to the FES 2018 or 2019. The needs for the eastern HVDC link options are certain.
  - How the SWW and NOA processes could be integrated has been looked at this year. The NOA 2019/20 results will be extended for the east coast SWW studies early next year to support the Needs Case.
  - The methodologies for NOA and SWW will be updated to strengthen the relationship between the two processes.
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## 9. Regional commentaries and options – England and Wales excluding the north of England

### 9.1 Regional commentaries

Mr Burt invited Dr Proctor to provide an update on regional commentaries and the following points were noted for the south region:

- There is a significant growth of wind in the East Anglia area. The capability required could be 3 to 4 times the current level.
- The south coast will see heavier exports in later years due to high wind conditions and north-to-south flows.
- The unconstrained flows in South Wales are considerably low.
- The ORACLE tool has shown some early year SC1 constraints with the NOA 2018/29 optimal paths.

Mr Burt questioned how interconnector flows to the continent were considered in the economic model as the south coast export conditions are likely to be based on unconstrained flows across the interconnectors.

**Action 12.2 – Mr Vincent to look at how NOA can take into account of the development of future Interconnectors to resolve internal constraints and document the necessary next steps for improving NOA, NOA for interconnectors and connection processes.**

**Action 12.3 – Investigate what is causing the reduction of future South Wales flows and how will that impact the NOA recommendations.**

**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.**

### 9.2 Options

Mr Burt invited Mr Lambert to provide an update on options and the following points were noted for the south region:

- New power control device options were proposed for East Anglia boundary EC5.
- A new route between London and the south coast was proposed to relieve constraints in and out of Kent.
- Two new HVDC options were proposed between Kent and Suffolk to manage constraints in the south and east.

Mr Perry highlighted that there might be further complexities in developing the new options between Kent and Suffolk and the intention is to use NOA to confirm the need then have a closer look at the details in the coming years.

Mr Magill asked how the power control devices are used and optimised. Mr Perry said there would be 5 installations in the north of England next year and each installation would be a single device configured for post-fault conditions. Mr Perry said it is important to understand how post-fault actions on those devices will impact network operation.

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## 10. South coast SWW

### 10.1 South coast SWW

Mr Burt invited Mr Perry to provide an update on 'south coast SWW' and the following points were noted:

- A number of new options are being looked at in the NOA 2019/20 for the south coast and will be included in the south coast SWW.
- As the need will shift from interconnectors predominantly importing to exporting in the later years, new options are proposed to cover these and the scope is expanding to include EC5 and LE1.

### 10.2 South coast SWW ESO options

Mr Burt invited Dr Deng to provide an update on 'south coast SWW ESO options' and the following points were noted:

- The ESO has investigated a number of potential options including Power Potential project, UKPN RDP, commercial solutions and constraint management using storage.
- Power Potential/UKPN Regional Development Programme (RDP) will give the ESO the capability to control Distributed Energy Resources (DERs) to manage wider network constraints. This is already covered by BID3.
- Commercial solutions, such as intertripping and fast de-loading schemes, can be used but subject to several factors including stability margin, Rate of Change of Frequency (RoCoF) limit, response and reserve.
- Storage can be used but more information is needed from the upcoming RFI for detailed studies.
- The intention is that the ESO options will be studied in coordination with the TO options in the SWW so they can compete.

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## 11. The next meeting date

10 December 2019

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## 12. AOB

None

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## 13. Feedback

Mr Burt appreciated that the briefing pack was well prepared.

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