

**MINUTES OF THE MEETING OF
THE NETWORK OPTION ASSESSMENT COMMITTEE (the “NOA Committee” or the
“Committee”)**

Held in

**Hatton Room, Warwick Hilton, Warwick CV34 6RE
On**

Wednesday 13 December 2017 at 09:00

Present: Duncan Burt (Chair) – Acting Director of System Operations
Mike Breslin – Acting Head of Operate the System Electricity
Cathy McClay – Head of Commercial Operations
Julian Leslie – Head of Network Capability Electricity
Marcus Stewart – Head of Energy Insights

In attendance: Hannah Kirk-Wilson – Technical Secretary
Nicholas Harvey – Network Development Manager
Audrey Ramsay – Future Operability and Incentives Manager
Marc Vincent – Economic Assessment Manager
Kelvin Lambert – NOA Lead
Jason Hicks – NOA CBA Lead
Mark Pearce – NOA CBA Technical Specialist
Adam Hutchinson – Economist
Jingchao Deng – NOA Publication
Darshak Shah – Technical Analysis Lead
Alan Kelly – Commercial Manager, SPT – for minute 3
Kirsten McIver – Senior Design Engineer, SPT – for minute 3
Gareth Hislop – Transmission Commercial and Policy Manager, SPT
– for minute 3
David Adam Lead Design Engineer, SPT – for minute 3
Brian Punton Transmission Planning Manager, SHET – for minute 3
Paul Neilson – Technical Policy Manager, SHET – for minute 3
Mark Perry – System Design Manager, NGET TO – for minutes 3 and
4
Le Fu – NGET TO NOA Lead, NGET TO – for minutes 3 and 4

Apologies: Roisin Quinn – Head of SO Strategy
Ofgem

1	MEETING GOVERNANCE
	[This section is redacted due to its administrative nature]
2	NON-MARGINAL DECISIONS
2.1	Non-Marginal Decisions
	The Committee noted the paper in relation to Non-Marginal Recommendations within the NOA Committee Briefing pack.

The Chair requested from the above paper to be highlighted and the following matters were highlighted:

- There were options which have a delay/stop recommendation as part of the NOA analysis, which would form part of a Strategic Wider Works (SWW) submission. This could be confusing for stakeholders if a “Stop/Delay” recommendation was given and yet the option needed to be adequately developed to be assessed as part of the SWW submission. The Committee noted this concern and acknowledged the need to confirm the treatment of SWW in the NOA.
- The optimal paths for the four Future Energy Scenarios for Scotland and the North of England were described and the critical options requiring a decision highlighted. The Committee commented that a narrative would help on the optimal paths to provide the background of the marginal decisions. The Committee noted that some pre-read requirements may be beneficial.
 - **Action 1.1:** Provide a written narrative for the non-marginal results as discussed – due 10/01/18
- The impact of a commercial intertrip and the impact on flows on the network was challenged. This query was held for the relevant agenda item.
- It was queried what requirements had been considered for the reactive compensation given only a number of reactive equipment schemes had been progressed. It was queried whether only the benefit for boundary capability had been considered or other benefits. It was commented that the NOA currently only looked at boundary capability and other benefits were not yet included.
- The Committee noted that the NOA was being expanded next year using trials to include consideration of high voltage issues particularly away from the peak on certain areas of the network and across Distribution Network Operator (DNO) interface to include solutions from a range of participants including TO, DNO, storage and market participants.
- There were 4 investments which had a different recommendation from the NOA 2016/17.
- Lister Drive quad booster (LDQB): It was queried whether it would be possible to ascertain the value of the capability that LDQB provided. [Redacted due to commercially sensitive nature]
 - **Action 1.2:** The Committee requested the National Grid Electricity Transmission plc (NGET) TO for further costing and spend profile information for LDQB and to report back the findings – due 10/01/18
- Torness to North East England AC reinforcement (TLNO): The Committee noted that although the recommendation for the TLNO investment was to “Stop” this will form part of the SWW on the reinforcements required on the Eastern side of Scotland and Northern England.
- The Committee **RESOLVED THAT** the recommendation should be “Hold” as this reinforcement would need to be developed as a credible alternative option to the SWW. This is a change from the NOA recommendation which was “Stop” and would imply no more work whereas the SWW should assess it. For this reason, the NOA Committee recommendation changed to “Hold”.
- The Committee **AGREED** that both the economic recommendation and the NOA Committee recommendation would be published.
 - **Action 1.3:** Prepare suitable wording for the NOA publication to highlight both economic recommendation and NOA Committee recommendation for this investment option – due 10/01/18

	<ul style="list-style-type: none"> • The Committee noted that both LDQB and the Uprate the Penwortham to Washway Farm to Kirkby 275kV double circuit to 400kV option (MRUP) investment recommendations have changed due to the differences seen in network flows this year. This had resulted in these investments not providing as much benefit as in previous years as flows and critical faults have moved from one side of the network to the other. <ul style="list-style-type: none"> ○ Action 1.4: The Committee requested that the drivers in the change of flows in the North of England from West to East were investigated to understand the sensitivity of generation in moving limiting faults from one side to the other – due 10/01/18 • [Redacted due to commercially sensitive nature] The Committee challenged whether the Earliest In Service Dates (EISD) were robust [redacted due to commercially sensitive nature]. For 2018, the Committee expected challenge to the TOs on spend profiles and EISD. <ul style="list-style-type: none"> ○ Action 1.5: The Committee requested to see multiple spend profiles for select projects for 2018 – due 01/10/18. <p>The following agenda item, tabled to the meeting, was reviewed by the NOA Committee:</p> <ul style="list-style-type: none"> • Intertrip sensitivity around the B6 boundary <p>The Chair requested matters to be highlighted from the material presented and the following matters were highlighted:</p> <ul style="list-style-type: none"> • The Committee noted the benefit the intertrip could provide in terms of reduction in congestion and mitigation of uncertainty in capability requirement for major investments. It also noted that consideration needs to be given to the number of intertrips which would be manageable in operation of the network and that it is developed in line with the national planning standards. • After careful consideration IT WAS RESOLVED that an intertrip was economically beneficial and that studies and work should commence to deliver 1GW of capacity to be further considered in NOA4. <ul style="list-style-type: none"> ○ Action 1.6: To provide a plan to progress work on the development of an intertrip over the coming year – due 10/01/18 <p>In relation to the non-marginal recommendations the NOA Committee RECOMMENDED endorsement of the results subject to the actions noted above.</p>
3	<p>EASTERN HVDC LINKS AND EAST COAST UPGRADES</p>
	<p>The following document, distributed prior to the meeting, was taken as read:</p> <ul style="list-style-type: none"> • NOA Committee Briefing – Eastern links and east coast upgrades <p>Additional information was presented included in the NOA Committee presentation pack “NOA Committee Slides – Master 131217”.</p> <p>The Chair requested matters to be highlighted from the above paper and the following matters were highlighted:</p> <ul style="list-style-type: none"> • There were clear economic signals to bring forward Earliest in Service Dates for Eastern Link reinforcements worth at least £100m. • The Committee requested to see the installed capacity of wind and conventional generation driving the system requirements. <ul style="list-style-type: none"> ○ Action 1.7: The Committee requested an update on the Eastern Project in January with clear confirmed delivery dates for the different options.

	The Committee NOTED the paper entitled “NOA Committee Briefing – Eastern links and east coast upgrades”.
4	MARGINAL NOA RECOMMENDATIONS
4.1	CPRE: Reconductor sections of Penwortham to Padiham to Carrington
	<p>The following document, distributed prior to the meeting, was taken as read:</p> <ul style="list-style-type: none"> • NOA Committee Briefing – CPRE <p>Additional information was presented included in the NOA Committee presentation pack “NOA Committee Slides – Master 131217”.</p> <p>The Chair requested matters to be highlighted from the above paper and the following matters were highlighted:</p> <ul style="list-style-type: none"> • The Committee noted that the generation background driving the investment was credible. • The Committee noted the implied probabilities and uncertainty of the closure of generation plant in the area that affected the reinforcement option including north west England and Scotland. <p>The Committee AGREED the recommendation to “Proceed” with this investment option.</p>
4.2	WHTI: Turn-in of West Boldon to Hartlepool circuit at Hawthorn Pit
	<p>The following document, distributed prior to the meeting, was taken as read:</p> <ul style="list-style-type: none"> • NOA Committee Briefing – WHTI <p>Additional information was presented included in the NOA Committee presentation pack “NOA Committee Slides – Master 131217”.</p> <p>The Chair requested matters from the above paper to be highlighted and the following matters were highlighted:</p> <ul style="list-style-type: none"> • The Committee noted that the assumptions for the generation driving this connection were credible. • The operability of the arrangement with a meshed substation was challenged. • The Committee requested the TO to compare a meshed substation and double bus bar as part of detailed design. <p>The Committee AGREED the recommendation to “Proceed” with this investment option.</p>
4.3	BTNO: A new 400kV double circuit between Bramford and Twinstead
	<p>The following document, distributed prior to the meeting, was taken as read:</p> <ul style="list-style-type: none"> • NOA Committee Briefing – BTNO <p>Additional information was presented included in the NOA Committee presentation pack “NOA Committee Slides – Master 131217”.</p> <p>The Chair requested matters from the above paper to be highlighted and the following matters were highlighted:</p> <ul style="list-style-type: none"> • The Committee asked for further clarification around the level of export from the East Anglia region required to justify the investment.

	<ul style="list-style-type: none"> ○ Action 1.8: To provide a view of the level of East Anglia export requirements required to justify the investment, including how this was comprised in terms of wind and embedded generation. ● The Committee challenged whether an investment was the right solution or whether there may be benefit in an operational solution. <ul style="list-style-type: none"> ○ Action 1.9: To provide an initial view as to what benefit an operational intertrip could bring in the East Anglia region for further information in January. ● The Committee challenged NGET TO on the work which was proposed for the next year to justify the spend. <ul style="list-style-type: none"> ○ Action 1.10: NGET TO to provide further information as to what works are required next year to progress the BTNO investment option. ● The NOA Committee requested a pre-brief ahead of the January meeting on this option. <p>The Committee POSTPONED the recommendation to a decision in the January meeting.</p>
4.4	BNRC: Bolney and Ninfield additional reactive compensation
	<p>The following document, distributed prior to the meeting, was taken as read:</p> <ul style="list-style-type: none"> ● NOA Committee Briefing – BNRC <p>Additional information was presented included in the NOA Committee presentation pack “NOA Committee Slides – Master 131217”.</p> <p>The Chair requested matters from the above paper to be highlighted and the following matters were highlighted:</p> <ul style="list-style-type: none"> ● The Committee requested a view from NGET TO as to what was being delivered for the first year spend and if it was accurate. <ul style="list-style-type: none"> ○ Action 1.11: First year spend for BNRC and associated work to be presented back to the NOA Committee in January 2018. ● The Committee noted that one of the interconnectors is under construction and likely to meet the 2021 connection date. ● The Committee noted that further consideration should be given during 2018 to the potential for further studies on year-round capability ● The Committee also noted the need to consider analysis for further dynamic compensation. <p>The Committee AGREED to the recommendation to a decision to “Proceed” the investment option.</p>
4.5	SCN2: New 400kV transmission route between South London and the south coast (outline option 2)
	<p>The following document, distributed prior to the meeting, was taken as read:</p> <ul style="list-style-type: none"> ● NOA Committee Briefing – SCN2 <p>Additional information was presented included in the NOA Committee presentation pack “NOA Committee Slides – Master 131217”.</p> <p>The Chair requested matters from the above paper to be highlighted and the following matters were highlighted:</p> <ul style="list-style-type: none"> ● The Committee challenged how the option provided capability on the B15 boundary.

	<ul style="list-style-type: none"> • The Committee challenged the flows on the interconnectors and the assumptions on the rate of decarbonisation in GB and across EU. • The Committee noted that significant further analysis was required to investigate the issues and drivers around this investment. The Committee noted that this option met SWW criteria and as such more in-depth analysis would be covered by a SWW. • The Committee noted that the SWW should also cover smart wide area control schemes. <p>The Committee AGREED the recommendation to “Proceed to SWW” with this investment option.</p>
4.6	Summary
	<p>The Chair summarised the conclusions reached on the option recommendations which are as follows:</p> <ul style="list-style-type: none"> • The Committee AGREED the non-marginal option recommendations (subject to the actions and those tabled for further discussion at the January meeting) • The Committee AGREED to a “Proceed” recommendation for the following investment options: <ul style="list-style-type: none"> • CPRE • WHTI • BNRC • The Committee AGREED to a “Proceed to SWW” recommendation for SCN2. • The following options are tabled to come back to the January NOA Committee meeting: <ul style="list-style-type: none"> • BTNO – Decision pending further information • TLNO – review of external messaging on “Stop” recommendation and need to be included in SWW • MRUP and LDQB – understanding of the drivers behind and sensitivity to critical fault variation between East and West of Northern England.
5	KEY MESSAGING
	<p>The Committee discussed the key messaging of the meeting to go into the NOA report. The Committee CONCLUDED that the following items should be highlighted:</p> <ol style="list-style-type: none"> 1. The non-marginal NOA recommendations have been endorsed with the majority proceeding as recommended but a few with some adjustments. The Committee has provided recommendation to progress some additional analysis in key areas focussing on understanding sensitivity of investment drivers and exploration of the use of smart control systems. 2. The Committee has noted the need for the expansion of the NOA to cover additional network requirements such as voltage and off-peak network conditions which are being explored through trials next year. 3. The Committee has requested additional analysis to understand the sensitivity to generation background on the movement of critical faults from East to West in Northern England. 4. To protect the interest of consumers it is important to look early as to where the risk of uncertainty can be managed through the use of

	operational actions.
6	FEEDBACK
	[This section is redacted due to its administrative nature]
7	Meeting Governance
	[This section is redacted due to its administrative nature]
7.3	Date of next meeting
	Wednesday 10 January 2018
8	ANY OTHER BUSINESS
	As there was no other business the meeting was closed.