Electricity Transmission

Network Development Policy Decisions

30th June 2020

Purpose

This document describes the investment options National Grid Electricity Transmission (NGET[1]) has selected to progress under our Network Development Policy (NDP) dated 31st August 2017.

Background

There is significant uncertainty around the quantity, type and location of future generation, demand, and interconnector connections. As these connections may lead to the need to provide additional capacity on the wider transmission network, the nature of the wider works required is also uncertain. This uncertainty is compounded by the lead-time for some transmission reinforcements often being greater than the lead-time for the development of new connections.

For wider works, this uncertainty is managed through our NDP. The purpose of this is to balance the risks of investing too early, which include the risk of inefficient financing costs and an increased stranding risk, with the risks of investing too late, which include inefficient congestion costs.

The NDP provides the framework on which NGET decides to proceed, not start or to delay wider investment in an economic, efficient and coordinated manner. The analysis is conducted annually so that investment options are reviewed for the coming year.

Each year, a range of Future Energy Scenarios (FES) are developed by the National Grid Electricity System Operator (NGESO) following extensive stakeholder consultation. These scenarios are then used in NGESO's Electricity Ten Year Statement (ETYS) to establish the future need for boundary reinforcements in each of the scenarios. Against these needs in England and Wales transmission network, NGET has identified investment options that can meet the possible future needs of the network.

NGESO compares the expected congestion costs against the cost of the investment options in an economic analysis as part of the Network Options Assessment (NOA) process. The purpose of this is to identify investments that have the least regret of proceeding.

[1] The terms 'National Grid Electricity Transmission', 'NGET', 'we', 'our' and 'us' are used interchangeably in this document.

NGET uses the NOA output to assist making investment decisions to ensure that the transmission part of the industry provides the best value outcome for existing and future consumers.

It is worth noting that in some cases 'enabling works' in our customers' connection agreements include some of the same works as in this document which are subject to NOA or NDP assessment. The NOA or NDP assessment determines only if these should be progressed to support the wider transmission system. The delivery of these 'enabling works' is communicated and planned jointly with the relevant connection customer on a project by project basis.

Network Options Assessment 2019/20

The 2019/20 NOA results[2] were published by NGESO in January 2020. As part of this NOA, NGET submitted 152 investment options for economic analysis. Of these, 78 options were considered by NGESO to provide an economic benefit in one or more scenarios in FES, with 34 (including 5 joint projects with other TOs) being recommended to 'Proceed' with their Earliest In Service Dates (EISDs).

Network Development Policy Decisions (30th June 2020)

We have reviewed the NOA 2019/20 recommendations and made our investment decisions in line with NDP. The table in Appendix 1 provides a summary of our conclusions. Our NDP decisions align with NGESO's NOA recommendations this year. Comments on some notable projects are provided as below.

Eastern HVDC Links and Central Yorkshire Reinforcement (E2DC, E2D2, E4D3, E4L5, OPN2)

There continues to be a strong driver to deliver an increased level of Scottish-Anglo transmission capacity. In NOA 2019/20, ESO has identified a requirement for three Eastern Links, but a 'Proceed' signal has been given to four projects:

- Eastern Link 1: Torness – Hawthorn Pit in 2027 or Torness – Cottam in 2028
- Eastern Link 2: Peterhead to Drax in 2029
- Eastern Link 3: Peterhead to South Humber (nominally Grimsby West) in 2031

The split recommendation for the first Eastern Link is driven by a divergence in the underlying assumptions across the FES which underpin the economic analysis for the NOA process. The recommendation is therefore for the TOs to spend as required to keep both projects on track for the next 12 months to keep both options available for the next NOA cycle and we will proceed accordingly.

There remains a driver to deliver the Central Yorkshire Reinforcement in all scenarios, regardless of where Eastern Link connects. This year we provided alternative options that had been identified our through strategic optioneering following last year's NOA and this has changed recommendation to proceed with OPN2.

New Major Projects (CGNC, CWNC, TLNO)

As well as a third Eastern Link, there were a number of other new major projects that received a proceed recommendation:

[2] https://www.nationalgrideso.com/document/162356/download

- New circuit from Creyke Beck to South Humber in 2031 (CGNC)
- New circuit from South Humber to South Lincolnshire in 2031 (CWNC)
- New circuit from Torness to Lackenby in 2036 (TLNO)

This is the first time these projects received Proceed recommendation from ESO. Further work is required to establish driver and needs case. This will be followed by strategic optioneering to understand further in options and alternatives.

Power Flow Control Devices (HSP1, LNPC, MRPC, NTP1, NEP1, CTP2)

This years' NOA provides a 'Proceed' recommendation to the five Power Flow Control projects that are currently in delivery at three sites, and due to be commissioned in 2020. A number of new devices were proposed as part of NGET's submission to ESO, the majority with an EISD of 2023. Three new deployments have been given a recommendation to proceed for delivery at this stage.

South Coast Reinforcement (SCD1) and Bramford – Twinstead New 400kV Double Circuit (BTNO)

We accept ESO's NOA recommendation on the two projects as strong drivers to reinforce both East Anglia and South Coast for additional network capacity. Further strategic optioneering work has been under development since NOA publication in January 2020. That work is drawing to a conclusion and we will be looking to take both projects forward later this year.

We welcome your feedback

We believe that the above outputs from our Network Development Policy provide an appropriate balance between asset investment and operational costs to achieve the best use of consumers' money. We hope that the information contained within this document provides a useful insight of how we are seeking to protect consumers' interests by ensuring that investment is made at an appropriate time.

We would welcome your views on the contents of this document. Please send any feedback to Mark Perry, Network Development Manager (mark.perry@nationalgrid.com).

APPENDIX 1

KEY

1. **PROCEED** – Work should continue, or start, to maintain the EISD.
2. **HOLD** - The option is optimal but not critical and an investment decision should be put on hold. Delivery of this option should be delayed by at least one year.
3. **DELAY** – The option is optimal and critical, but it is not economical to be delivered by its EISD. Delivery should be delayed by one year.
4. **DO NOT START** – The option is currently non-optimal. Delivery should not begin.
5. **STOP** - The option is currently non-optimal. Delivery should not be continued.

	NOA Option Code	Description	EISD	NOA 18/19	NOA 19/20	NGET NDP Decision (In coloured wordings)/Comments
Eastern Link						
1	E2DC	HVDC Link from Torness to Hawthorn Pit	2027	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation, but continue to follow SWW process to include further work to determine the optimal option for the Eastern Link projects.
2	E2D2	HVDC Link from Torness to Cottam	2028	**Do Not Start**	**Proceed**	**PROCEED** in line with NOA recommendation, but continue to follow SWW process to include further work to determine the optimal option for the Eastern Link projects.
3	E4D3	HVDC Link from Peterhead to Drax	2029	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation, but continue to follow SWW process to include further work to determine the optimal option for the Eastern Link projects.
4	E4L5	HVDC Link from Peterhead to South Humber	2031	**Not Featured**	**Proceed**	**PROCEED** in line with NOA recommendation. This will require further work to be done to understand the driver and strength of need case, followed by Strategic Optioneering.
Central Yorkshire Reinforcement						
5	OENO	New 400kV circuit from Eggborough to Osbaldwick	2028	**Proceed**	**Stop**	**STOP** in line with NOA recommendation.
6	OPN2	New 400kV circuit from (near) Osbaldwick to Poppleton and re-conductoring of Poppleton to Monk Fryston	2027	**Not Featured**	**Proceed**	**PROCEED** in line with NOA recommendation.
South Coast Reinforcement						
7	SCN1	New 400kV transmission route between South London and the south coast	2029	**Proceed**	**Stop**	**STOP** in line with NOA recommendation.
8	SCD1	HVDC Link from Suffolk to Kent	2028	**Not Featured**	**Proceed**	**PROCEED** in line with NOA recommendation.
Bramford to Twinstead OHL						
9	BTNO	New 400Kv double circuit from Bramford to Twinstead	2028	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation.
10	BPRE	Reconductor the newly formed second Bramford – Braintree – Rayleigh Circuit	2029	**Hold**	**Proceed**	**PROCEED** in line with NOA recommendation.
Other New Major Projects						
11	CGNC	New 400kV double circuit between Creyke Beck and South Humber	2031	**Not Featured**	**Proceed**	**PROCEED** in line with NOA recommendation. This will require further work to be done to understand the driver and strength of need case, followed by Strategic Optioneering.
12	GWNC	New 400kV double circuit between South Humber and South Lincolnshire	2031	**Not Featured**	**Proceed**	**PROCEED** in line with NOA recommendation. This will require further work to be done to understand the driver and strength of need case, followed by Strategic Optioneering.
13	TLNO	New 400kV double circuit from Torness to Lackenby	2036	**Do Not Start**	**Proceed**	**PROCEED** in line with NOA recommendation. This will require further work to be done to understand the driver and strength of need case, followed by Strategic Optioneering.
Power Flow Control Devices						
14	HSP1	Power Flow Control Device on the Harker – Fourstones – Stella West	2020	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation – project is already in delivery.
15	LNPC	Power Flow Control Device on the Lackenby - Norton	2020	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation – project is already in delivery.
16	MRPC	Power Flow Control Device on the Penwortham - Kirkby	2020	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation – project is already in delivery.
17	NTP1	Power Flow Control Device on the North Tilbury Circuits	2023	**Not Featured**	**Proceed**	**PROCEED** in line with NOA recommendation.
18	NEP1	Power Flow Control Device on the Blyth – Tynemouth/Blyth – South Shields	2024	**Not Featured**	**Proceed**	**PROCEED** in line with NOA recommendation.

19	CTP2	Alternative Power Flow Control Device on the Creyke Beck – Thornton Circuit	2024	**Not Featured**	**Proceed**	**PROCEED** in line with NOA recommendation.
Substation Works						
20	GRRA	Grain Running Arrangement Change	2020	**Hold**	**Proceed**	**PROCEED** in line with NOA recommendation.
21	SEEU	Reactive Series Compensation Protective Switching Scheme	2022	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation.
22	HAEU	Harker SGT6 Replacement	2022	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation.
23	BMM2	2 x 225MVAr MSCs at Burwell Main	2022	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation.
24	THS1	Series reactors at Thornton	2023	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation.
25	HAE2	Harker SGT5 Replacement	2023	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation.
26	BNRC	Bolney and Ninfield reactive Compensation	2023	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation.
27	SHNS	Upgrade Substation in the South Humber (for new circuits/Eastern Link Connection)	2031	**Not Featured**	**Proceed**	**PROCEED** in line with NOA recommendation.
Circuit Upgrades						
28	KLRE	Kemsley - Littlebrook Reconductoring	2020	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation – project is already in delivery.
29	FLR3	Fleet – Lovedean Reconductoring	2020	**Proceed***	**Proceed**	**PROCEED** in line with NOA recommendation – project is already in delivery. *The NOA publication in 2019 says Hold, however ESO subsequently wrote to NGET to confirm we should proceed.
30	RTRE	Reconductor remainder of Rayleigh - Tilbury	2021	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation.
31	WHTI	Turn in West Boldon - Hartlepool cct at Hawthorn Pit	2021	**Proceed**	**Proceed**	**PROCEED** in line with NOA recommendation.
32	NOR2	Reconductor 13.75km of Norton – Osbladwick 1 circuit	2022	**Hold**	**Proceed**	**PROCEED** in line with NOA recommendation.
33	SER1	Elstree – Sundon Reconductoring	2023	**Delay**	**Proceed**	**PROCEED** in line with NOA recommendation.
34	MBHW	Bramley – Melksham Hotwiring	2023	**Not Featured**	**Proceed**	**PROCEED** in line with NOA recommendation.
35	BRRE	Reconductor the remainder of the Bramford – Braintree – Rayleigh	2024	**Hold**	**Proceed**	**PROCEED** in line with NOA recommendation.
36	TKRE	Tilbury - Grain and Tilbury - Kingsnorth Upgrade	2026	**Stop**	**Proceed**	**PROCEED** in line with NOA recommendation.