

NETWORK DEVELOPMENT PROCESS MAP ENABLING DOCUMENT

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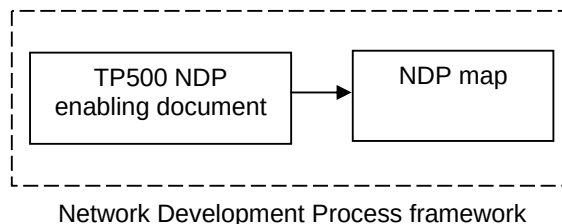
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PURPOSE & SCOPE

This procedure is the enabling document for the Network Development Process (NDP) map. This procedure and the NDP map jointly define the Network Development Process framework and should be used together.



The purpose of the NDP framework is to manage decision-making, optioneering, development, sanction, delivery and closure for all National Grid Electricity Transmission Owner investments in the regulated business, with the exception of IT and NG Property investments. The categories of investment covered by the NDP framework are listed in Appendix B. When unlicensed works are intrinsically linked to licensed works, these should also be developed within the framework of the NDP.

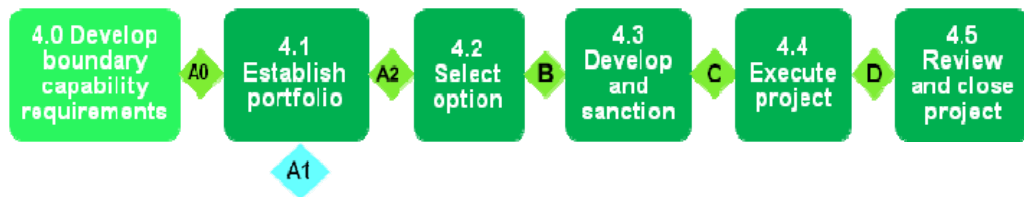
The aim of the end-to-end process is to deliver the lowest whole-life cost, fit-for-purpose projects required to meet the needs of our customers and stakeholders. The purpose of the process is to ensure that we do this:

- Consistently;
- To the quality required by our stakeholders;
- In a timely fashion;
- In a controlled and measurable way;
- With minimal waste and re-work across the business.

PART 1 – PROCEDURAL

1 HIGH-LEVEL PROCESS

The diagram below summarises Level 2 of the NDP map; it shows the six stages of the process and how the process control Gates A0 to E are arranged to control the movement of investments from stages 4.0 to 4.5.



2 PROCESS STAGES

The aims of each Level 2 process stages are summarised below.

2.1 Stage 4.0 Develop boundary capability requirements

This first stage considers the need for boundary capability increases potentially required as a consequence of changing generation and demand backgrounds. These are one of the two categories¹ of wider works as agreed with Ofgem as part of the RIIO-T1 framework and are defined as infrastructure assets that provide additional boundary transfer capacity across a boundary consistent with the principles of the Network Development Policy².

The Network Development Policy sets out how the construction of new assets should be assessed against the reinforcement of existing assets, possible commercial solutions and derogations as a way of assessing the 'least regret' works to progress against an uncertain background of generation and demand. The consideration of operational and commercial solutions requires the System Operator (Transmission Network Services) to lead this stage. The Transmission Owner's role is to identify and cost reinforcement solutions (build options or "SMART" options) for the System Operator to consider using a least regret cost benefit analysis approach. Recommended solutions with spend in the next ten years that meet a

¹ The other category of wider works covers infrastructure assets that are required due to changes in system background and not associated with a generation or demand customer request, the provision of boundary capacity nor as a result of cost-benefit analysis to reduce the forecast system operator constraint costs. These will be identified by ETAM and introduced at stage 4.1.

² <http://www2.nationalgrid.com/UK/Industry-information/Future-of-Energy/Electricity-Ten-Year-Statement/>

potential reinforcement driver shall be recorded in a Incremental Wider Works Recommendation and pass through Gate A0 into stage 4.1.

2.2 Stage 4.1 Establish portfolio

Stage 4.1 covers all drivers for investment, including wider works, customer-driven local and enabling works, legislative requirements, and asset health-related works. The aim of this stage is to maintain a portfolio of all potential works required to meet our current understanding of these drivers along with provisional costs and milestones, from which ten-year investment scenarios³ can be created for strategic and business planning purposes.

During this stage, a Needs Case document shall be created which records the driver for investment, the RIIO Outputs and RIIO category for each scheme element comprising the overall project. The focus of this stage is to understand the driver for investment, and identify the high-level changes needed to address this driver, rather than developing solutions which happens in stage 4.2. A quick assessment will be undertaken of different high-level solutions to address that driver. A standard solution will be selected to give a first cost forecast (typically within an accuracy range of +/- 50%) and milestones to be used as the initial business plan entry for this stage. When the milestones indicate that it is necessary to begin pre-construction works, the project shall be presented to Gate A2 and, if successful, move into stage 4.2.

For customer connection projects, there are additional requirements as the customer offer is made during stage 4.1. An Investment Team is formed and works are developed to a point where it is possible to offer a contracted date against a reasonable scope within the three-month period. The making of the customer offer is sanctioned by the appropriate sanctioning authority, and the project would not pass through Gate A2 until the customer has signed the offer.

Needs Cases shall be reviewed every year to account for changes in driver (e.g. the latest Network Development Policy or Asset Health Review conclusions); this could change the preferred solution even if a project is in delivery.

2.3 Stage 4.2 Select option

All projects pass through stage 4.2. The driver for works will be reviewed, along with the initially proposed solutions, before optioneering work is undertaken to identify with more certainty the scope, programme, forecast cost and risks associated with a full set of options. During this stage, a Project Brief shall be created and sufficient work undertaken to identify the preferred option; this will be selected based on a financial (Net Present Value) and whole life value approach⁴. This stage will typically span two to six months of elapsed time. Once the Project Brief has been approved, the associated forecast costs (typically within an accuracy range of +/- 20%) will be used to update the portfolio view.

Once Investment Management are satisfied that it is timely to commit to the greater resources required to develop and sanction the preferred option, the project shall pass through Gate B and into stage 4.3.

2.4 Stage 4.3 Develop and sanction

During stage 4.3, further work will be undertaken to develop the preferred option to the level of accuracy required to achieve financial sanction and move into the delivery phase; this stage will typically span five to fourteen months of elapsed time. The purposes of this stage are to confirm commitment to the preferred option, refine the design to identify efficiencies

³ TP500 does not cover the creation and management of scenarios, nor other portfolio management activities which support the Network Development Process such as the assessment of deliverability.

⁴ Primary option assessment shall be performed on a financial (Net Present Value) basis which incorporates as many of the non-capital cost items into the assessment as possible (e.g. lifetime maintenance costs and forecast operational costs). Other, more qualitative, whole life value considerations would then be taken into account where two or more options have a similar NPV.

and address outstanding risks and opportunities, and provide baseline scope, outputs, programme and forecast costs for future tracking. A financial (Net Present Value) and whole life value approach will be used to identify the option to be taken forward for sanction.

A specification of appropriate detail for procurement and delivery activities will also form part of the Project Execution Plan. It is not necessary to have a complete, signed Project Execution Plan before sanction as it contains some information which is not finalised until after sanction. Once the sanctioned option is due to progress to delivery, it shall be presented to Gate C.

2.5 Stage 4.4 Execute project

This stage encompasses the delivery phase, from tendering and contract award through physical works on site to commissioning and completion of asset data drawings. The Delivery Vehicle Project Engineer(s) shall be accountable for each scheme element remaining in governance during this phase. The Investment Delivery Engineer shall be routinely apprised of progress and, if resanction is forecast to be required, the necessary information shall be provided by the Delivery Vehicle Project Engineer to the Investment Delivery Engineer as soon as is practicable.

Once physical works have been completed (i.e. the delivery vehicle has demobilised), the Project Manager's report will be finalised. This shall confirm that the outputs identified in the Needs Case as being required to meet the project driver have been physically delivered and recorded in the appropriate business systems. The Project Manager's Report shall contain all the key information required complete the financial closure process and capture lessons learnt. The Delivery Vehicle Project Engineer remains accountable for their scheme element until Gate D has been passed and accountability reverts to ETAM.

2.6 Stage 4.5 Review and close project

The purpose of this stage is to create a Closure Paper which is presented to the appropriate sanctioning body for approval. Gate E then provides final confirmation that the scheme elements have been closed in all business systems, and that all reported costs are final and complete.

By exception, projects will be selected for a more in-depth post investment appraisal which could occur in parallel with or a number of years after Gate E.

3 PROCESS CONTROL GATES

Seven governance gates are used as process controls; these are detailed below.

Gate	Title	Gatekeeper directorates	Purpose
A0	Recommended solutions for boundary reinforcements	TNS	For wider works only, hand over to the Transmission Owner recommended solutions for increases in network boundary capability for the next year and a ten-year forecast against a given scenario
A1	Approval to make customer offer	TNS	For customer projects, approve the making of an offer
A2	Approval to develop Project Brief	ETAM	Demonstrate that there is a needs case aligned to our latest strategy, and it is the right time to move to option selection
B	Approval to develop and sanction preferred option	ETAM	Review range of options considered and agree a preferred option to develop and sanction (build or non-build)

Gate	Title	Gatekeeper directorate	Purpose
C	Approval to execute project	ETAM	Reconfirm need for investment and agree that sanctioned option shall progress to delivery
D	Approval to close Project Execution Plan	ETAM	Confirm project completion. Assets are commissioned and handed over to Operate. Progress to project closure
E	Approval to close project	ETAM	Review benefits delivered and lessons learnt; formally close project

The function of the gates is to assure the quality of the work completed up to that point, and approve the start of the next phase. The role of each gatekeeper is to provide technical, commercial and strategic challenge and review of projects. This is important to make sure that all relevant issues have been considered at an appropriate stage, thus ensuring that the right option is being progressed as we move through the process (which entails increasing cost commitment throughout).

4 ACCOUNTABILITIES

Overall directorate accountabilities for each stage of the process and for the key TP500 documents produced are detailed below.

Level 2 stage	4.0	4.1	4.2	4.3		4.4	4.5
Title	Develop boundary capability requirement	Establish portfolio	Select option	Develop	Sanction	Execute project	Review and close project
Accountable function for CD-delivered projects	TNS ENS	ETAM NE	ETAM IM	CD Dev	ETAM IM	CD	ETAM IM
Responsible role	NSE	Sponsor, CAM	IDE	DE	IDE	PM	IDE
Accountable function for ETAM-delivered projects	TNS	ETAM	ETAM	ETAM	ETAM	ETAM	ETAM
Responsible role	Sponsor	Sponsor, CAM	IDE	TBC	IDE	TBC	IDE
Key TP500 documents	Network Capability Request	Needs Case, Customer Offer	Project Brief	Project Execution Plan	Sanction paper	Project Manager's Report	Scheme closure paper

5 KEY ROLES AND RESPONSIBILITIES IN THE INVESTMENT TEAM

The following is not a complete listing of all roles and responsibilities. Instead, this focuses on those with responsibility at Level 2 of the process. For accountabilities and responsibilities at Levels 3 and 4, please see the NDP maps in ARIS business publisher.

5.1 Investment Team

For customer connection projects, an Investment Team shall be established at stage 4.1. For all other projects, the Investment Team shall be established at stage 4.2. This team shall be made up of the relevant stakeholder representatives from across the business and shall endure for the lifetime of the project. In order to reflect the different accountabilities at each stage, leadership of this team shall be transferred at each stage gate according to the identified responsible role.

5.2 Network Strategy Engineer (NSE)

For wider works projects, the Network Strategy Engineer is the appointed person who is responsible for the identification of recommended solutions for boundary capability reinforcement during *NDP 4.0 Develop Boundary Capability requirement*. The Network Strategy Engineer shall assess both build and non-build options for network reinforcement, using the Network Development Policy process, and will recommend which solutions are triggered for pre-construction or construction, and which projects are no longer supported, for the following year. In addition, they shall identify network reinforcements which may be required over the subsequent ten years against an agreed generation and demand background scenario.

5.3 Sponsor

The Sponsor is the appointed person who is responsible for the passage of each investment or project through *NDP 4.1 Establish Portfolio*. The Sponsor is the business owner for the investment driver, as captured and maintained in the Needs Case document.

5.4 Customer Account Manager (CAM)

The Customer Account Manager is the appointed person who is responsible for the customer application process (including the making of offers required for customer-related works during *NDP 4.1 Establish Portfolio*) and modification notices for asset replacement at shared sites. The Customer Account Manager represents the interests of the customer, and acts as the channel for two-way communications. They are responsible for:

- Keeping the customer up to date on the state of their project, especially if there is a forecast change to the contracted milestones, scope or forecast cost;
- Keeping the Investment Team apprised of the customer's requirements, especially if there is a change to the contracted milestones (i.e. a Modification Application).

5.5 Investment Delivery Engineer (IDE)

The Investment Delivery Engineer is the appointed person who is responsible for the passage of each investment or project through *NDP 4.2 Select Option*, *NDP 4.3 Sanction* and *NDP 4.5 Review and Close Project*.

During stage 4.2, the Investment Delivery Engineer leads the work required to identify the preferred option that meets the Sponsor's needs. In order to discharge this responsibility, the Investment Delivery Engineer shall lead the Investment Team. The Investment Delivery Engineer shall convene meetings of the Investment Team as required by the process milestones, and record minutes/actions to provide a thorough audit trail of the decisions made during these stages.

The Investment Delivery Engineer shall ensure that the business objectives for the investment are clearly understood by the Investment Team and are recorded in the Project Brief and associated documentation. The Investment Delivery Engineer is responsible for preparing the sanction paper and driving the sanction process.

During development, the Investment Delivery Engineer continues as a member of the Investment Team to ensure that the developed option remains consistent with the Sponsor's requirements. For low complexity schemes, the Investment Delivery Engineer may represent all of ETAM; for high complexity schemes, more representation may be necessary.

During construction, the Investment Delivery Engineer (on behalf of the Sponsor) receives routine updates, provides advice when required and assurance to the Sponsor that their requirements are being met. If resanction is forecast to be required, the Investment Delivery Engineer shall be responsible for presenting the revised options to the sanctioning authority.

If the Sponsor's requirements change during the course of a project, it is the Investment Delivery Engineer's responsibility to ensure that this is communicated to the Delivery Vehicle Project Engineer and that appropriate action is taken.

At Gate D, responsibility for a project returns to the Investment Delivery Engineer who shall review and close the investment in accordance with the Transmission Investment Management Procedure.

5.6 Development Engineer (DE)

For works to be delivered by capital delivery, the Development Engineer is the appointed person who is responsible for the passage of each investment or project through *NDP 4.3 Develop*.

The Development Engineer leads the work required to develop the preferred option to a state suitable for sanction and progression through Gate C. In order to discharge this responsibility, the Development Engineer shall take over leadership of the Investment Team (adding members as needed). The Development Engineer shall ensure that meetings are convened as required by the process milestones, and that minutes/actions are recorded to provide a thorough audit trail of the decisions made during these stages.

The Development Engineer shall ensure that the scope, forecast cost and detailed programme milestones for the project are recorded in the Project Execution Plan and associated documentation.

5.7 Delivery Vehicle Project Engineer (DVPE)

The Delivery Vehicle Project Engineer is person appointed by Capital Delivery to be responsible for the passage of each investment or project through *NDP 4.4 Execute Project*. A Delivery Vehicle Project Engineer manages the procurement, construction and commissioning of the project within the sanctioned parameters and according to the specifications developed by the Investment Team.

If the project is forecast to go outside its sanctioned parameters (budget, scope or time), the Delivery Vehicle Project Engineer shall as soon as is practicable provide the necessary information to the Investment Delivery Engineer to allow the reconsideration of options and begin the resanction process.

When work is complete, the Delivery Vehicle Project Engineer shall prepare the Project Manager's Report by the milestone date established in the Project Execution Plan. Once Gate D has been passed, responsibility for the project shall return to the Investment Delivery Engineer.

6 VARIATIONS TO ACCOUNTABILITIES

6.1 Projects Requiring Development Consent

During the *NDP 4.2 Select Option* stage, any projects identified as requiring Development Consent from the Planning Inspectorate need support from Capital Delivery Major Infrastructure Development (MID).

The Investment Delivery Engineer shall request a Major Infrastructure Development Senior Project Manager be appointed to the project. The Development Consent for the project will then be delivered in line with the Development Consent Guidance flow chart.

MID schemes shall follow the NDP framework recognising that, because significant funding is required in order to complete optioneering and achieve Development Consent, separate sanction will be sought from the relevant Investment Committee.