

CONNECTION AND NON CONNECTION CUSTOMER SELF-BUILD

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PURPOSE AND SCOPE

The purpose of this procedure is to define the Customer Self-Build process in terms of the task definition, formal documentation, interface requirements, timescales and responsibilities for National Grid Electricity Transmission (NGET).

This procedure applies to all investments where the Customer elects to construct Connection Assets, as defined in the Transmission Licence and amended under the Utilities Act 2010 and transfer them to NGET on completion.

The process charts in Appendix E - F provide an overview. Such investments range from asset replacement on existing sites, to the construction of a new site and associated (dedicated) Super Grid Transformer (SGT) Connections.

This procedure sits outside of the Connection and Use of System Code (CUSC) but shall be applied to all Contracts relating to Customer Self-Build.

PART 1 – PROCEDURAL

1 RESPONSIBILITIES

1.1 Investment Team

The Investment Team will in conjunction with the Network Development Commercial Team will provide the interface with the Customer until the Customer signs the Customer Build Agreement. Thereafter this responsibility shall be undertaken by a Nominated Capital Delivery Project Engineer (PE).

The Investment Delivery Engineer (IDE) is the Appointed Person who is responsible for the progression of a project through each Investment Phase Gate:

- Gate B - NDP 4.2 Select Option
- Gate C - NDP 4.3 Sanction
- Gate E - NDP 4.5 Review and Close Investment

The Customer Self-Build will follow the investment process as prescribed UKBP/TP500 Network Development Process (NDP) and all other Transmission Procedures as determined applicable by the Investment Team and PE.

1.2 Customer

The Customer may be one of the following or defined as:

- Distribution Network Operator (DNO)
- Power Station (Gas, Nuclear etc)
- On Shore Windfarm Connection
- Bulk Supply Customer .i.e. Steelworks
- Tidal Barrage Connection
- Third Party System Operator
- Green Energy Connection
- Other
- Commercial Agreement with Customer to build NGET Assets
- Commercial Agreement with Customer to build own Assets

The Customer will be responsible for providing the Project Management and Procurement of a Principal Contractor, who will Design, Install and Commission all of the Assets identified in the Customer Build Agreement.

The Design of NGET Assets shall be assured by a Design Engineer (DE) authorised to UKBP/TP141.

The Customers appointed Principal Contractor shall approve the design of NGET assets and this shall be carried out by a TP141 Assessed Contractor Design Approval Engineer

The Customer will appoint a Lead Designer to the Project who will provide the interface with the NGET Investment Team.

1.3 Self-Build Customer

The Self-Build Customer is responsible for demonstrating that the Solution and its Components are capable of being Type Registered. The Self-Build Customer is required to document and demonstrate compliance in accordance with the requirements as defined in the relevant NGET Technical Specifications.

They also have responsibility for notifying NGET of any changes to the registered Solution which may require a re-registration.

The Self-Build Customer is responsible for confirming to the PE that all solutions being supplied have achieved full Type Registration status with either a 'Restricted' or 'Unrestricted' status.

1.4 Asset Owner (NGET Connection Assets)

NGET is the Asset Owner whose Assets are to be built by the Customer's and who is ultimately responsible for identifying and agreeing the scope of works for those Assets, and ensuring that the Equipment Installed complies with the relevant Licence, Commercial and Technical Requirements.

Ownership at each stage of the build will be agreed and defined within the Customer Build Agreement.

The Principles of Ownership in the Connection Use of System Code (CUSC) defines the standard Ownership boundaries for HV equipment.

Individual Site Responsibility Schedule's (SRS) shall define where these principles are varied by agreement with Users, due to local conditions; in practice the default interpretation from the CUSC.

1.5 Asset Owner (Customer Assets)

The Customer is the Asset Owner whose own Assets are to be built by the Customer's Contractor and who is ultimately responsible for identifying and agreeing the scope of works for those Assets, and ensuring that the Equipment Installed complies with the relevant Licence, Commercial Requirements.

1.6 NGET Site Occupier

The NGET Site Occupier shall provide information from the Site Health, Safety & Environmental Files to the Customer CDM Principal Designer where work is to be carried at an NGET Site Occupier's location.

In addition, the Site Occupier shall ensure that the necessary Authorisations and Permits are used for work at NGET Operational Sites.

Representatives from both ETAM Operations Substations and OHL teams shall be a member of the UKBP/TP153 Team with responsibility for agreeing the HVSCC and nomenclature change strategy, ensuring that all requirements accord with NGET Safety Rules.

They will also advise on local site issues and restrictions such as Technical Limitations and Risk Management Hazard Zones, these shall be identified as soon as possible in development to ensure they are added to the scope of works to remove them under the Project work scope.

1.7 ETAM Operations

At NGET sites where there is a Connection Point to a Third Party, or a Third Party site controlled by NGET, the ETAM Operations Delivery Manager/Site Occupier shall ensure the requirements of TP119 Transmission Operations Diagrams and Technical Data Schedules are complied with.

1.8 Customer Accounts 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 Investment Team apprised of the customer's requirements, especially if there is a change to the contracted milestones (i.e. a Modification Application).

1.9 Project Accountant

The Project Accountant shall act on behalf of Capital Delivery Construction and will be responsible for financial monitoring of the Customer Self-Build in conjunction with the Investment Team and PE and shall ensure the financial process are adhered to.

2 HEALTH, SAFETY & ENVIRONMENTAL MANAGEMENT

2.1 Customer

NGET and the Customer shall decide which party is best placed to provide the Construction Design Management (CDM) Client role for each Customer Build investment prior to Contract Award

Where the Customer is the CDM Client:

- CDM Client The Customer
- Principal Designer The Customer
- Principal Contractor The Customer's Contractors
- Designers NGET, Customer & the Customer's Contractors

CDM Health, Safety & Environmental Files handed over from Occupier to Principal Designer prior to Site Access

CDM Health, Safety & Environmental Files handed over from Principal Designer to Occupier within 4 weeks of final completion of all site works

The defined roles (above) require Competency Checks and Authorisation under CDM 2015 Regulations, to be carried out by the Customer.

2.2 Occupier Responsibilities

Where land is leased to the Customer then the Occupier Responsibilities will transfer as part of a temporary lease arrangement. The agreement shall include the Health, Safety & Environmental File for the duration of the temporary lease. Responsibility for compiling and signing the temporary lease is with the IDE and Land & Development.

Consideration will need to be given to which Safety Rules apply to the work. Should NGET Safety Rules be applicable, the Customer's workforce will need to be Authorised to work under these rules.

Where the Customer's Safety Rules are to be applied, existing NGET Assets will need to be transferred from NGET Safety Rules to those of the Customer, and later transferred back to NGET prior to energisation of the new equipment.

Transfer of responsibility from one set of Safety Rules to another is formalised by change in Site Responsibility Schedules and the issue of an HVSCC.

2.2.1 Site Access & Egress

As part of the discussions with the Customer, the Investment Team and Site Occupier shall agree the Site Access and Egress for the Pre, Delivery and Post Construction phases. This should be captured in the Self-Build Agreement and within the PEP.

2.3 Formal Documentation

The Procedure Is Managed By A Number Of Stages Defined In Formal Documentation As Follows:

- Customer Connection/Modification Application
- Customer Build Application
- NGET Investment Paper
- NGET Customer Build Agreement
- Customer Build Agreement Acceptance
- NGET Final Design Specification
- Quality Plan
- Customer Design Intent Document (DID) UKBP/TP188
- Asset Data Template (ADT) UKBP/TP221
- Design Intent Documentation Compliance Audit UKBP/TP155
- Scheme Requirements Document UKBP/TP500
- Technical Data Workbook (TDW) UKBP/TP221
- Commissioning and Test Documentation UKBP/TP106
- Site Responsibility Schedule (SRS) UKBP/TP137
- Taking Over Certificate UKBP/TP500

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|-----------------------------|------------|
| • Investment Closure Report | UKBP/TP500 |
| • Investment Closure Paper | UKBP/TP500 |

PART 2 CUSTOMER BUILD PROCESS - NETWORK DEVELOPMENT PROCESS (NDP)

3 NDP 4.1 ESTABLISH PORTFOLIO - CONNECTION OFFER PERIOD

3.1 Completed Application Received from Customer (Clock Start)

The Customer will indicate **on their application their intention to build** NGET Connection Assets.

3.2 Customer Build Application

The Customer Build Application Process commences when the Customer sends in a Connection Application to NGET Customer Services Team.

The Investment Team will develop the initial Design Specification for Investment Offer Sanction to include Assets to be built by the Customer, an estimate of costs, and any associated assets to be built by NGET.

For example:

- The Customer may build the 132kV Super Grid Transformer (SGT) Bays of a GIS Substation and incoming 132kV Cable - Substation.

3.3 Investment Team

During stage 4.1, the Investment Portfolio Engineer (IPE) or the Investment Delivery Engineer (IDE) leads the work required to identify the preferred option that meets NGET and the Customer's needs. To discharge this responsibility, the IPE/IDE shall form and lead the Investment Team. The IPE/IDE 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 IPE/IDE shall ensure that NGET and the Customer's Business Objectives for the investment are clearly understood by the Investment Team and are recorded in the relevant documentation. The IPE/IDE is responsible for preparing the Offer and driving the Sanction Process.

During development, the IPE/IDE continues as a member of the Investment Team to ensure that the selected Option remains consistent with NGET and the Customer's requirements. For low complexity schemes, the IPE/IDE may represent all of ETAM; for high complexity schemes, more representation may be necessary.

During this stage, a Needs Case Document UKBP/TP500.01 shall be drafted which records the driver for investment, the RIIO outputs and RIIO category for each scheme element comprising the overall Investment.

3.4 High Level Scope, Costs & Programme

The Investment team shall prepare a high level scope, costs and programme of works.

Confirm the full extent of the works and agree the Customer Build Work Packages with any variances explained on grounds of Safety, Engineering, Complexity, Consents and Technical Requirements.

Responsibilities at equipment interface points will be clearly defined.

The Investment team shall discuss with the Customer, National Grid's requirements to appoint CIE and Site Occupiers resource to the Customers Self-Build Project and ensure these requirements are captured.

3.5 Agree with Customer & Receive Indicative Costs

At 4.1 for Gate A1 Sanction and Authorisation to Proceed at this Stage Includes:

Define the full scope of Customer Build work packages and key dates.

Identify the total estimated costs of the work including Customer Build work packages which will be used for bench marking and contestability purposes.

The Investment Team will provide the indicative cost estimates and separately identify them on the sanction paper as the Customer Build elements.

Within a range based on cost information provided by the Customer which have been reviewed by E Hub, Cost Book and Capital Delivery Commercial for value for money. These costs shall be presented as a central sanction value with a standard contingency.

These costs will be used as a benchmark and form the basis of an agreed 'indicative price' specified in the Customer Build Agreement.

NGET and the Customer can raise queries to be resolved by the Investment Team prior to accepting the Finalised Customer Build Agreement.

3.6 Customer Accounts Manager (CAM)

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).

3.7 Design Assurance

Capital Delivery, Technical Assurance Design Assurance (Design Assurance) shall review the Customer Build Application, Design Specification once available. The specification should include a Single-Line Diagram, with clear identification of the work boundary. This shall be reviewed in relation to:

- Health, Safety, Security and Environmental Considerations
- Availability of Type Registered Equipment to Facilitate the Design
- Method of Installation, Including Staging
- Future Maintainability
- Clear Definition of Boundary of Design Responsibilities both HV and LV
- Project Risks
- Design Risks
- Planning and Consent
- Community Relations

- Change Management
- Plant, Equipment, Nomenclature and Changeover Methodology

3.8 Gate A1 Approval (Customer Offer)

The Investment shall then move to Gate A1 Approval, the Customer Accounts Manager (CAM) shall ensure the Investment meets the Gate A1 criteria before submission for approval.

Once the Investment has been approved at Gate A1, the CAM will receive authorisation to release the Bilateral Connection Agreement and Construction Agreement to the Customer along with a draft generic Customer Build Agreement.

After an indemnity or Offer Agreement is signed the Needs Case document will be completed and signed for authority to pass through Gate A2.

Gate A2 will provide the authority to proceed with phase 4.2 Select Option.

The IPE will also consider any portfolio implications of the proposed investment

3.9 Establish Portfolio

Before the Customer commences Detailed Design, the Customer shall sign the Finalised Customer Build Agreement.

Note this shall also prohibit any work on site until Detailed Design has been commenced and the Customer has signed the Finalised Customer Build Agreement.

The Investment shall then move to Gate A2 Approval, the IDE shall ensure the Investment meets the Gate A2 criteria before submission for approval.

During this process ongoing discussions shall continue with the customer, this is required to ensure the Investment decisions are made using accurate and up-to-date information.

The Investment Team shall provide the indicative cost estimates and separately identify them on the Sanction paper as the Customer Build elements within a range based on cost information provided by the Customer.

This shall be reviewed by Global Procurement for value for money (VFM). The Customer will provide an indicative payment profile at this stage.

3.10 Design Assurance

The Investment Team shall sign off the System Design Specification (SDS) this will form part of the Customer Build Agreement.

4 NDP 4.2 SELECT OPTION

The driver for the Investment will be reviewed, along with the initially proposed solutions and include appraisal work to identify the preferred option(s). This will enable further certainty on the scope, programme, forecast cost and risks associated with this option.

During this stage the Project Brief UKBP/TP500.02 shall be produced and sufficient work undertaken to identify the preferred option; this will be selected based on a financial (Net Present Value) and whole life value approach, along with any other qualitative considerations.

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. When the Investment Team are satisfied that it is timely to commit to the greater resources required to develop and sanction the preferred option, the Investment shall be submitted to pass through Gate B.

5 NDP 4.3 DEVELOP & SANCTION

During stage 4.3, the IDE and DE shall undertake further work to develop the preferred option to the level of accuracy required to achieve Financial Sanction.

The purpose of this stage is to confirm commitment to the preferred option, refine the design to identify efficiencies 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 scope 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 UKBP/TP500.03. Once the sanctioned option is due to progress to delivery, it shall be presented to Gate C for authorisation to proceed into stage 4.4.

5.1 Project Execution Plan (PEP)

The Project Execution Plan (PEP) is created by the DE during NDP 4.3 Develop and Sanction and develops the preferred option with sufficient detail to be able to achieve sanction for the investment and provide sufficient detail for handover to delivery. The Project Execution Plan is required to pass Gate C, and is subsequently an input to NDP 4.4 Execute Project.

5.2 Site Access and Egress

As part of the PEP the DE and Site Occupier and Customer shall have agreed the site access and egress for the duration of the pre-construction and construction delivery phase.

This will include Post Construction Access and Egress and have included discussions for Permanent, Temporary Buildings, Accommodation, Facilities Information e.g. Blockhouses, Workshops, Storage Containers, Laydown Areas, etc. and shall be included as part of the Self-Build Agreement and PEP.

5.3 Investment Sanction

The appropriate Sanctioning Authority shall Sanction Capital Delivery Construction expenditure to undertake remaining scope of work to complete the Design Specification Documentation. This is on the basis that a Signed Offer or Indemnity has been received from the Customer.

Financial Planning and monitoring shall be by the PE and Investment Team following sanction. The Customer and Capital Delivery Construction Finance elements shall be separately identified and monitored.

5.4 Design Assurance

Design Assurance shall following notification from the Investment Team authorising the work, undertake the Design Assurance of the Customer Self-Build.

This shall cover the deliverables identified in the Project Execution Plan (PEP) and System Design Specification (SDS)

5.5 System Outage Management

The Customer shall provide an indicative outage plan to confirm the availability of system access prior to commencement of on-site works.

System outages will be confirmed by NGET Network Operations and the Customer's System Operator when the Customer's Design Intent Documentation passes the design compliance audit in accordance with UKBP/TP188.

Thereafter the outage programme will be managed in accordance with a standing programme and system outage co-ordination arrangements between NGET Network Operations and Customer's System Operator, and by the PE to secure Asset Management resource in accordance with UKBP/ TP205.

The Customer shall be made aware of the requirements of UKBP/TP205 and shall comply fully with these requirements. The Customer shall submit to NGET any outage requests and confirm any NGET resource requirements within defined timescales. This shall include Proximity Outages, Early Restore to Service timescales etc and be provided to NGET prior to commencement of on-site works.

5.5.1 Scheme Requirements Document (SRD)

A Scheme Requirements Document (SRD) will be produced by the DE and will include NGET outage and resource requirements for the Investment.

An initial draft version of the SRD will be submitted to support sanction for the Connection Offer. This will either be by the IDE or DE.

At an initial development phase it is recognised that timing of all activities, proximity and commissioning outages, or ERTS profiles, may not be fully known. As much detail as possible is to be provided on the SRD to minimise the chance of rejection either at the time or later when further requirements become apparent.

Plan preliminary NG resources requirements only for non-outage site establishment, commencing civil or ground works the scheme may be in 'develop Project Brief (UKBP/TP500).

The Investment Team shall ensure any Customer and NGET issues are fully resolved before proceeding to Gate C.

6 NDP 4.4 EXECUTE PROJECT

6.1 Construction Delivery Phase

The Customer will produce a Design Intent Document (DID) based on the Design Specification provided by NGET.

This stage encompasses the Delivery Phase, from tendering and contract award through physical works on site to commissioning and completion of as built drawings. The PE shall be accountable for each scheme element remaining in governance during this phase.

Should re-sanction be required, the necessary information shall be provided by the PE to the IDE in line with the agreed Change Board and Re-sanction process in accordance with UKBP/TP193.

Once physical works have been completed the Project Manager's (PMR) report will be finalised. This shall confirm that the outputs identified in the PEP as being required to meet the Investment driver have been physically delivered and recorded in the appropriate business systems.

The Project Manager's Report shall contain all the key information required to complete the Financial Closure Process and capture lessons learnt. The PE remains accountable for their scheme element until Gate D has been passed and accountability reverts to ETAM.

This shall include the delivering as applicable the requirements stipulated within NGUK/CD/BP230, which cover the following specific responsibilities.

- Project Engineer (PE)
- Project Accountant
- Quantity Surveyor (QS) (Cost Assurance Representative)
- Cost Engineer
- Assurance Planner (Planner)

6.2 Detail Design & Delivery Management

Following acceptance of the Customer Build Agreement the Customer shall provide a copy of the Equipment Tenders to NGET. This document will undergo a Design Compliance Check, to be carried out by Design Assurance, to take account of the following areas.

- Acceptability of Stage by Stage Drawings
- Acceptability of design from an over voltage and transient performance standpoint i.e. Earthing calculations
- An assessment from Asset Policy that Type Registration of new equipment can be resourced and achieved where this is required during the Investment timescales
- Availability of secondary wiring interface point documentation
- Availability of Alarm, Control, Indications, Analogue and metering interface schedule

6.3 Site Responsibility Schedule (SRS)

Once Authorisation for Capital Delivery Construction to proceed into Delivery has occurred the Customer Project Manager, PE and NGET Site Occupier will commence production of/or amendment to the Site Responsibility Schedule (SRS) as per the requirements of UKBP/TP136.

6.4 Design Intent Document (DID) (NGET Scope)

The Customer shall prepare a Design Intent Document (DID) covering the NGET scope of works and this shall be verified by the Lead Contractor Approval Engineer (LCAE) who is a TP141 Authorised.

The Customer produced DID will be compliance checked by Design Assurance in line with relevant sections of, after which the DID shall be used as a reference document to progress the design, particularly at interface meetings.

Following acceptance of the Customer DID and sign off of the Design Compliance Audit Assurance Report by Design Assurance the UKBP/TP188 Compliance Audit shall be completed by PE to confirm equipment build design compliance.

Any changes to the Customer DID by either the Customer or requested by NGET after the design compliance check shall be notified to Design Assurance Engineer, PE and Commissioning Panel for review.