

PROVISION OF TELECOMMUNICATIONS & BUSINESS SERVICES AT HIGH VOLTAGE ELECTRICITY SITES

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PURPOSE AND SCOPE

Telecommunications and Business services for National Grid High Voltage electricity sites are delivered and supported through long-term contracts with service providers:

- The OPTel contract is for operational telecommunications services, also called **OPTel** services e.g. for tele-protection, Supervisory Control and Data Acquisition (SCADA), Operational Telephony, Operational Data such as EDL, CNI Security (CCTV) WAN and for Business WAN including RAMM remote access at Substations. There are two **OPTel** contracts
 - 1) The Managed Fibre (MF) contract for the fibre and 3rd party infrastructure connecting the sites, and
 - 2) The Managed Services (MS) contract for the communications hardware, network management systems and overall service management.

Where the OPTel contract is referred to in this document this may be the MF contract, MS contract or both contracts. These contracts are delivered by the Operational Service Providers (OSPs).

- The Business Networks and Enterprise Services Contracts for Business Services e.g. LAN at Substations, desktops, printers and business applications. These contracts are currently awarded to Verizon for Business Networks, CSC for Desktops and Laptops, and Xerox for Printers. For simplicity this document will refer to Business Services and Business Service Providers (BSPs) should any of the suppliers change in the future. A **Non Standard Service Request Form (NSSR)** is used for these services.

This Transmission Procedure document sets out the process for forecasting, designing and procuring telecommunications services for National Grid High Voltage electricity sites and the roles and responsibilities of each group involved in the process. All project teams within **Capital Delivery** (CD) requiring telecommunications services are required to follow the methods described in this Transmission Procedure.

The process steps referred to in this Transmission Procedure align with those defined in TP500 (Network Development Process).

PART 1 – PROCEDURAL

1 ROLES AND RESPONSIBILITIES

The following lists the teams involved in the provision of telecommunications services at National Grid High Voltage electricity sites together with their roles and responsibilities.

1.1 Capital Delivery – Development Engineer

The Capital Delivery – Development Engineer (CD-DE) is responsible for engagement of the OSP & BSP at investment stages 4.2 and 4.3. This will include advice on scope and deliverables of OSP and BSP proposals, provision of outline requirements and definition of the timescales of schemes. They will also consider any required connectivity to the existing OPTel Network at an early stage in the development process. Flow charts are provided in Appendix A which shows the appropriate timescales for OPTel infrastructure and service delivery.

The CD-DE will include proposal costs at submission stages for spend against the capital delivery schemes and request the placement of purchase orders on the OSP and BSP via National Grid's SAP system.

For the delivery of telecoms infrastructure for the scheme, a generic division of responsibilities is available on CPM Livelink and some of the key responsibilities are listed below. The OSP, BSP and **CD** may agree alternative responsibilities specific for each project.

- Within the CDM area provide external duct (with draw-rope) for fibre or copper inlet cables
- Supply and install internal marshalling cabinets, cables trays, conduit, and trunking for Operational and Business cabling to specifications provided by the OSP and BSP, as defined in their proposals
- Installation of cross-site multi-pair cabling (free issued by OSP).
- Supply and installation of telephony sockets (line jack units) and installation of telephony cabling (line jack units to be free issued by the OSP).
- Provide as-built documentation for telecommunications infrastructure delivered by CD.
- Responsible for engaging Capital Delivery - Technical Assurance (CD-TA) for the scheme/project.

Specifications are available via the hyperlink provided in Appendix B. Project specific responsibilities will be agreed at the project scoping meeting, documented at 4.3 (draft) and 4.4 following contract award.

Section 2 of this document provides guidance on the Development Process. Appendix A Figure 1 provides appropriate timescales when new OPTel infrastructure is required. Appendix A Figure 2 provides appropriate timescales when the existing OPTel infrastructure is used.

1.2 Capital Delivery – Project Engineer

The Capital Delivery – Project Engineer (CD-PE) is responsible for the engagement of the OSP and BSP at investment stages 4.4 and 4.5.

The CD-PE (and CD-DE during Development) is responsible for co-ordination and support of the delivery of OPTel and Business services via the nominated OSP or BSP project managers, and tracking progress of OSP and BSP delivery against programmes provided by these suppliers.

Section 3 of this document provides guidance on the Delivery Process.

1.3 National Grid Electricity Transmission Asset Management Site Representative (ETAM-Ops)

Responsible for ensuring proposals are complete, the commissioning tests are acceptable, test records have been completed and as-built documentation handed-over by the CD-PE, the OSP and the BSP. Accepts and signs the commissioning tests on behalf of National Grid.

1.4 Operational Service Provider (OSP): Operational Telecommunications

Provide proposals for delivery of OPTel fibre connections, equipment e.g. multiplexers and control telephony exchange, and services e.g. tele-protection, SCADA, CNI Security WAN (CCTV) and Business WAN. The OSP's proposals are reviewed by NG ETO Commercial, CD, CD-TA and IS to ensure they align with National Grid's requirements and conform to the terms of the OPTel contracts.

For the delivery of telecoms infrastructure for the scheme, a generic division of responsibilities is available in CPM Livelihood (See Appendix B) that will list the responsibilities of the OSP. These are listed below but not limited to:

- Project manage, deliver, install and commission OPTel fibre inlet cables, Telecoms cabinets, Multiplexer equipment, inter-cabinet telecommunications cabling and provision of OPTel services.
- Supply, installation, and termination of Point of Service (POS) cabling.
- Supply cross-site multi-pair cabling and local telephony cabling or, if agreed with CD, specify the cable for CD to supply. Termination and testing of this cabling.
- Advise on number and location of telephone sockets for inclusion by the CD in the building services drawings. The OSP must be engaged at an early stage if this advice is required.
- Initiate fibre infrastructure requests via National Grid Electricity Asset Investment (AI).
- Perform end-to-end testing of OPTel services and equipment.
- Provide as-built documentation and labelling for OPTel fibre, site cabling, equipment and services.
- Provide CD with details of fibre and copper cabling that has been installed and/or terminated and tested by the OSP for inclusion by the CD in site drawings
- Responsible for design assurance of the OPTel Network solution for a site. This includes Optical connectivity, network multiplexers and operational telephony exchanges.
- Project manages the delivery of BT and other third party exchange lines.

- Provide completion reports and invoice for completed work.

1.4.1 Service Offerings from the OSP:

The OSP provides different service offerings depending on the size and scope of the project to be delivered. These are briefly described (but not limited to) the examples below:

1.4.2 Option 1: Small Project Proposal where the CD or CD-TA fully scopes the requirements and does not therefore require OSP consultancy

The OSP scope for this type of service offering is typically:

- Small Projects involve a co-ordination of actives, but do not require formal project management.
- Small projects require less documentation and are less resource intensive.
- The OSP will provide a Project Proposal but with less detail than in other Options

1.4.3 Option 2: Consultancy and Fully Managed Service for a new site

The OSP scope for this type of service offering is typically:

- Allocation of a Project Manager to provide a fully managed service: Progress Reporting during delivery, identification and management of Risks and Issues, Planning and Coordination of site activities.
- Co-ordination of CDM requirements.
- The costs for these activities depend on the project timescales, size and amount of sites and services included with the scope of the project.
- Deviation from the agreed project scope and timescales during the delivery stage of the project will require a change request from the CD- DE/PE and additional funding may be necessary
- Consultancy can be provided at an additional cost if the CD- DE/PE needs assistance from the OSP to scope and define their requirements.

1.4.4 Option 3: Consultancy Service for engagement of the OSP for detailed 4.3 development work

The OSP scope for this type of service offering is typically:

- Site survey to determine the service types, locations etc.
- Allocation of a Technical Architect to design the solution and determine the information required for the Engagement and Service Request Forms
- Project coordinator to complete the Engagement and Service Request Forms
- Depending on the size of the project, the services may be delivered under the business as usual process with no further OSP project management involvement. However, the full list of required services for the completion of the project will be recorded and provided to CD-TA. Larger projects will follow Option 2
- The costs for the activities depend on the project timescales, size and amount of sites and services included with the scope of the project.

1.5 Business Service Provider (BSP): Business Networks

Provide proposals for delivery of business network services and infrastructure (LAN and WAN services). These proposals are reviewed by CD-PE, CD-TA and IS to ensure they align with National Grid's requirements and conform to the terms of the Business contracts.

Project manage the delivery, installation and commissioning of business network inlet cables and site network cabling and equipment. Perform end to end testing of equipment and services; provide test results and as-built records. Provide regular progress reports.

Provide completion reports, invoice for completed work. Provide as-built documentation.

A Solution Design Document providing examples of LAN installations at National Grid Substations is available in Communications Infrastructure Info folder in CPM Public Library. This can be accessed via a hyperlink in Appendix B.

1.6 National Grid NSSR Team

Receives and processes Non-Standard Service Requests for Business Services and EDL connectivity, and passes them to the BSP.

Point of escalation for proposal delivery issues. The primary point for NSSR questions is: NationalGridNSSR@hp.com. The National Grid NSSR mailbox is: box.NSSRTeam2@nationalgrid.com.

1.7 National Grid Information Services (IS)

Provides overall governance of the OPTel Managed Fibre and Managed Service Contracts i.e. OSP contracts.

Provides overall governance of the BSP Contract. Reviews, challenges and approves the technical content and commercial aspects of OSP and BSP proposals.

Perform quality assurance audit and sign-off of the OSP installation using checklists which are stored in CPM Livelink.

Act as NG interface for Telecommunications Network changes and equipment upgrade/replacement working in conjunction with NG Technical Assurance and Asset Policy.

Act as NG interface for the agreement of concessions for routed services working in conjunction with NG Technical Assurance and System Operations.

1.8 National Grid Capital Delivery Technical Assurance (CD-TA)

Provide technical consultancy and raise requests for project work not requiring OPTel infrastructure. Provide the interface between CD, OSP and BSP as required for delivery and acceptance of this work.

1.9 National Grid Electricity Asset Investment – Investment Delivery Engineer (IDE)

Provide proposals for the delivery of OPTel Fibre infrastructure.

Sponsors and sanctions schemes for OPTel fibre infrastructure and gives approval to deliver this infrastructure. Provide governance for the delivery of OPTel fibre infrastructure. Approves proposals issued by CD and OSP.

2 DEVELOPMENT PROCESS

The tasks identified in this section are the responsibility of the NG Development Engineer (CD-DE). The same principles should be followed by others who are required to complete this process.

2.1 Operational Telecommunications

All communication services required on the existing OPTel Network can be obtained via CD-TA by using Service Request Forms (SRF) or Telephony Request Forms (TRF). Contact CD-TA for advice and information.

The process below is to be followed where new telecommunications infrastructure will be required for the project e.g. a new substation or other site is being added to the Transmission System where OPTel services do not currently exist. It also applies to instances where infrastructure is being removed e.g. site closures

Guidance for any telecommunication service requirement should be sought from CD-TA.

The engagement is initiated by an Engagement Request Form (ERF) to the OSP requesting a budgetary estimate. The OSP will lead the work, under the governance of NG IS. In some cases the CD may engage CD-TA to assist in defining the requirements and submitting the ERF. Typical services the ERF will include are:-

- New or modifications to OHL/underground fibre route connections.
- Protection
- SCADA
- Telephony
- EDL
- RAMM (provision of Miscellaneous Cubicle to house RAMM equipment)
- BWAN (communication channel only)

This will include the diverse connection of any additional fibre connectivity to the OPTel Network. The preference for any new or modified connectivity is a direct connection to the Core Network. This should use OHL OPGW or fibre wrap as a first choice with underground fibre ducting as a second choice, the specific detail must be included in the ERF. The engagement of third party OSP (such as British Telecommunications) should be given detailed consideration as this may not be the most efficient method in terms of cost and timescales. Where this approach is taken a dedicated Project Manager from the sub-contracted OSP must be identified to manage the feasibility study and delivery. All OSPs shall have identifiable Project Managers with clear allocated responsibilities. Any required fibre diversions of the existing infrastructure will be identified during this stage of development.

Where BT circuits are required for OPTel services, BT delivery lead-times can be many months. In order to mitigate this, CD-DE or PE should

- a) Request a feasibility study to understand complexity and cost of BT circuit delivery
- b) Provide Purchase Orders with sufficient lead-time to enable BT to deliver on time

Provision of RAMM services. The requirement for RAMM will be stated on the ERF to ensure the communication service requirement is captured and to engage the services of the