

THE COORDINATION OF HV SYSTEM ACCESS FOR CAPITAL DELIVERY & ASSET MANAGEMENT REQUIREMENTS

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PURPOSE AND SCOPE

TP153 specifies the procedural requirements for the coordination of HV system stage by stage connections for construction installation and commissioning including interaction between construction and maintenance activities Integral to the stage by stage process in the coordination of safety from the system.

This procedure shall apply to all projects that comprise the capital programme that are subject to the requirements of Network Development Process (NDP) Investment Process. See section 4 for the limits of application and where this procedure may not apply.

This procedure specifically coordinates project and maintenance work across interfacing sites / circuits. Any work not requiring inter site / circuit coordination must be left in the domain of the Commissioning Panel. For example, SGT tertiary connections or low voltage systems requiring stage by stage diagrams shall be defined by the TP106 Commissioning Panel for the site concerned.

Interfacing non outage projects (e.g. drainage upgrades) being delivered on site within the TP153 documents time scales will be coordinated by the project Engineers until Site Set up when the coordination of non outage interfacing work will be coordinated by the PC Site Manager as part of the weekly SHESQ&P meeting.

Excepting where the Client specifies alternative arrangements, this procedure shall apply to all unlicensed work. The procedure shall apply to the point of interface with self build projects.

The principles of this procedure shall apply to standalone maintenance work, when the maintenance complexity warrants the preparation of stage by stage diagrams.

PART 1 – PROCEDURAL

1 RESPONSIBILITIES

1.1 TP153 Project Coordination Chairperson (The TP153 Chair)

The TP153 Chair shall be drawn from the register of authorised chairperson held by Technical Assurance.

The TP153 Chair will undertake the following.

- a) Evaluate the work to conclude whether there is a requirement to convene a TP153 team.
- b) Determine the scope and boundary of the TP153 activities.
- c) Manage the TP153 team by planning and organising meetings, ensuring key stakeholder engagement, and ensuring (in conjunction with the team) preparation of the TP153 Stage by Stage Document.
- d) Ensure that the TP153 team meetings membership is correctly sized, i.e. obtaining the right balance between being too large / unwieldy and ensuring appropriate involvement.
- e) Ensuring adequate communication and coordination with reference to other TP153 groups and third parties at the boundary of responsibilities.
- f) Direct the formation of working parties drawn from the TP153 membership – to undertake specific detailed tasks as and when required.
- g) Ensure the outage duration is sufficient to allow the delivery of all stages of the work by each party (with confirmation from the TP106 commissioning meeting and Project Engineer).
- h) Any potential extra works to remove the risk management zones etc will be identified to the Project Engineer for discussion with the Development Engineer.

NB: Any change in Chair must be via a handover brief and recorded that this has been undertaken in the action log.

1.2 Capital Delivery Development Engineer (DE)

At the outset of the Development phase the DE will request the Technical Process Manager (in Capital Delivery Technical Assurance) to nominate a TP153 Chair. The DE will be a member of the TP153 Project Coordination Team up to DDD with specific responsibility for ensuring that the TP153 Stage by Stage Document proposals accord with the objectives and requirements of the investment.

The DE will identify the Project Team representatives to the TP153 Lead for invitation to the TP153 Meeting.

The DE will identify any interfacing projects that are in delivery or development which will affect delivery of the project.

The DE will be a member of the TP153 Project Coordination Team up to Contract Award and will support the Chair in the production of the TP153 Stage by Stage Document.

1.3 Lead Design Engineer (Assurance)

The Lead Design Engineer (Assurance) shall be a member of the TP153 Project Coordination Team throughout the duration of the project with specific responsibility for ensuring that the TP153 Stage by Stage Document requirements satisfies National Grid policy and process governance.

1.4 Network Operations Centre Representative (NOC)

A representative of the NOC shall be a member of the TP153 team throughout the duration of the project, with a specific responsibility for ensuring that HVSCC, nomenclature, HV safety document and database change strategies are both agreed and subsequently included in the TP153 Stage by Stage Document.

1.5 Electricity Transmission Asset Management (ETAM) Planning

The representative of ETAM shall be a member of the TP153 team throughout the duration of the project with a specific responsibility for identifying interfacing maintenance work, resource planning and both outage coordination and confirmation.

1.5.1 Plan any outage-related condition monitoring (e.g. Delayed Auto Reclose testing, circuit breaker timing, cable sheath testing, etc) early into the overall programme to allow any subsequent remedial work to be carried out with minimal plan disruption. Discuss and prioritise any 'found on inspection' emergent work to efficiently complete or to minimise the impact of any deferment. E.g. Risk Management Zones (RMZ) identified due to Maintenance Policy or Defects.

1.5.2 Identify early in the planning phase any Technical Limitation / Equipment Modification Instruction / Operation & Engineering Safety Bulletin (OESBs) / Risk Managed Hazard Zone relevant to the execution of the work in question which may be a risk to the delivery of all work. Identify if the hazard can be removed by the project.

1.6 Commissioning Engineer (National Grid)

The Commissioning Engineers (National Grid) for the respective sites shall be members of the TP153 team. The Commissioning Engineers shall be responsible for shaping / agreeing to the HVSCC and nomenclature change strategy on behalf of MDE, for ensuring that all requirements accord with National Grid Safety Rules, and for supporting the Commissioning Panel Chair in the implementation of the TP153 Stage by Stage Document at the sites for which they have responsibility.

1.7 ETAM Operations (ETAM OPS) Sub Station & OHL Representatives

Representatives from both ETAM OPS sub station and OHL shall be a member of the TP153 team with responsibility for shaping / agreeing the HVSCC and nomenclature change strategy on behalf of ETAM OPS and ensuring that all requirements accord with National Grid Safety Rules. They will advise on local site issues and restrictions such as Technical Limitations and Risk Management Zones. Known RMZ or TL should be identified as soon as possible in development to allow for inclusion for their removal in the project work scope.

1.8 Market Operations Representative

A representative of Market Operations shall be a member of the TP153 team throughout the duration of the project with a specific responsibility for ensuring that the TP153 Stage by Stage Document accords with the Market Operations outage programme and the outage programme is kept up to date. Specific responsibilities also include agreeing ERTS Strategy for each outage, agreeing outage duration & work sequencing, managing outage risks and critical outage paths.

1.9 Commissioning Panel Chair

The Commissioning Panel Chair for the respective sites covered by the Stage by Stage Document shall be a member of the TP153 team. The Commissioning Panel Chair shall be responsible for ensuring the TP153 project coordination document requirements are implemented during site commissioning and that any proposed variations are fed back and agreed with the TP153 Chair and team.

1.10 National Grid Construction Interface Engineer (CIE)

The National Grid Construction Interface Engineer for the respective sites covered by the TP153 Stage by Stage Document shall be a member of the TP153 team. They shall be responsible for monitoring / ensuring that the TP153 Stage by Stage Document requirements are implemented during site installation.

1.11 Principal Contractor

A representative from the PC with suitable knowledge and authority to make decisions with responsibility for the respective sites covered by the TP153 Stage by Stage Document shall be appointed to the TP153 team within 6 weeks of Contract Award.

The PC shall be responsible for ensuring the TP153 Stage by Stage Document requirements are implemented during site installation and discussed at the Site SHESQ&P meeting. Any proposed deviations shall be fed back and agreed with the Project Engineer, TP153 Chair and the TP106 Chair.

1.12 Project Engineer (PE)

The Project Engineer for each project shall attend the TP153 team meeting as required following discussion / agreement with the TP153 Chair.

The PE is responsible for assessing system access for their project and confirming that they are sufficient for the expected work content during the preconstruction. During the construction phase the PE will confirm that any proposed changes to system access are agreed with the PC.

NB: This shall be the National Grid Project Engineer.

1.13 CDM Coordinator

The CDMC shall monitor invitees and attendance of TP153 meeting to ensure cooperation and coordination of all interested parties. They shall ensure that any interfacing projects identified in the Pre Construction Information Pack are considered by the meeting and identify those non outage projects that should be managed by the PM externally from the TP153 meeting unless they impinge on system outage requirements.

1.14 TP153 Project Coordination Team

The team specified in Appendix A with responsibility for defining and managing the project specific TP153 project Stage by Stage Document (see Appendix E).

2 PROCEDURE

2.1.1 The overall flow and management of information for the TP153 documentation throughout the Investment life is shown in Appendix B

2.1.2 The documentation associated with the management of meetings and production of stage by stage documents is given Appendix C, D & E.

Further guidance for the development of an ERTS strategy and stage by stage document/drawings are in the associated guidance notes identified in section 3

2.2 Appointment of TP153 Chairperson

2.2.1 On the commencement of the Pre Construction Phase the Investment Delivery Engineer (IDE)/Development Engineer will request the Technical Process Manager (in CDTA) to nominate a TP153 Chair.

2.2.2 The Engineering Assurance Manager, in making the nomination, will review and consider the following.

- a) The level of experience required to undertake the role dependant of the complexity and nature of the coordination required
- b) Whether the appointment warrants a TP153 Chairperson drawn from Construction Major Investments and Development with umbrella responsibilities for a regional investment - including associated coordination of project activities
- c) The delivery Vehicle involved with the project to agree the nominated TP153 Chair.
- d) The substation or route (for TP153 coordination between substations or routes) with the greatest amount of work. The commissioning panel chair for this substation / route will usually be nominated as the TP153 Chair.
- e) The nominated TP153 Chair must be drawn from the register of chairpersons held by Technical Assurance and have suitable competency for the nature of coordination required.

2.3 Pre Construction Phase

2.3.1 The TP153 Chair will become a member of the Investment Team.

2.3.2 When a Major Infrastructure Development (MID) Engineer is appointed as the TP153 Lead the TP153 documentation will be developed to a level necessary to plan the system outage requirements, any items as identified in the documents section 'B' may be discharged by individual Delivery Vehicles. When the MID Engineer deems it appropriate to hand over the TP153 Lead for individual work packages there will be a formally documented hand over at the final overall TP153 meeting. If individual handover meetings are required then these will be documented and the CDMC invited to attend.

For regional Investments where a MID Engineer has been appointed as the Chair they may agree that separate TP153 meetings may be held for delivering separate areas of the investment delivery but they will maintain an overall TP153 coordination meeting to coordinate these activities until the projects are sufficiently developed to no longer require

this overall coordination. Where separate meetings are to be held the MID Engineer will request TP153 Chairpersons with Technical Assurance as identified above.

- 2.3.3 The CDMC from each interfacing project will be invited to all meetings. They will ensure that the TP153 process is enacted and any design documentation required to enable the timely completion of the 153 documentation is facilitated.

- 2.3.4 Both the TP153 Chair and IDE/DE will check whether there are other interacting or overlapping projects which need to be considered in determining the TP153 boundary.

- 2.3.5 The Development Engineer and Project Engineers will review the Outage duration, sequence & ERTS to ensure suitability for work delivery considering the nature of the other works taking place e.g. maintenance, trip tests and carrier protection line ups.

The TP153 Chair and ETAM OPS Representatives will identify local site issues and restrictions such as Technical Limitations and Risk Management Zones to allow for their mitigation or removal to be included in the project work scope by the appropriate PE.

- 2.3.6 The Design Justification Report will usually map out the high level stage by stage requirements for the chosen design. If this is sufficient the TP153 Chair need take no further action until the design has been developed sufficiently to require the formation of the TP153 Team and production of the TP153 documentation.

- 2.3.7 On formation the MDE maintenance requirements must be provided by Asset Management Planning and included in the TP153 Stage by Stage Document.

- 2.3.8 At the first issue of the TP153 Stage by Stage Document the front sheet must be completed to show authorisation by the Chair (see Appendix E), and filed in Livelink. All subsequent revisions must also be authorised by the TP153 Chair and filed in Livelink.

2.4 Construction Phase

- 2.4.1 The TP153 Chair will convene meetings through the Construction Phase with the first to be held no later than 10 weeks after contract award with the PC in attendance

Update the TP153 Stage by Stage Document if subject to change.

Apprise the Principal Contractor with installation responsibility for each substation and route concerned of the requirements of the TP153 document and confirm their ability and understanding to implement the TP153 Stage by Stage Documentation.

- 2.4.2 Confirm satisfactory execution of the TP153 Stage by Stage Documentation during site installation (see TP163) and arrange updating if subject to change.

2.5 Project Closure

- 2.5.1 Following completion of all stages of the work, the TP153 Chair shall convene a meeting if there is a requirement to consider lessons learned and notify the TP153 team that the work of the team is complete. The lessons learnt will be fed back in accordance with TP181

The TP153 Chair must confirm completion of all stages by finalising the front page of the TP153 Stage by Stage Document, and filed in the mandatory area of CPM Livelink/IMS.

3 TP153 STAGE BY STAGE DOCUMENT REQUIREMENTS

Appendix E illustrates the TP153 diagram colour code to be used and acts as a front sheet, guidance note identified in section 3 provides examples of stage by stage drawings which set the minimum standard of documentation. The example given is merely one possible