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IMP/001/919 - Appendix A for ENA Engineering Recommendation G81 - Part 2 and Part 5: Materials Specification

1. Purpose

This document forms the combined Northern Powergrid Appendix A to Energy Networks Association (ENA) Engineering Recommendation (ER) G81 - Part 2: Materials Specification, “Framework for design and planning, materials specification, installation and record for low voltage housing development installations and associated new HV/LV distribution substations” and Part 5: Materials Specification, “Framework for design and planning of industrial and commercial underground connected loads up to and including 20kV” and should be read in conjunction with that document.

This document contains a summary of the information contained in Northern Powergrid network product specifications. Copies of which can be found within the document Library located on the Northern Powergrid Website.

<http://www.northernpowergrid.com/document-library/>

Please note that Northern Powergrid is unable to provide copies of external documentation, standards and specifications referenced in this document, but copies may be obtained from the relevant issuing body (such as the British Standards Institution (BSI) or Energy Networks Association).

Appendix 1 of this document details assessed products by reference, description, supplier and associated standards.

Appendix 2 of this document details the Northern Powergrid New Connections Buildings and Civils Drawings

If additional details are required, reference should be made to the individual policy documents cited in Appendix 1 or 2.

This document supersedes the following documents, all copies of which should be destroyed:

Document Reference	Document Title	Version	Published Date
IMP/001/919	Appendix A for ENA Engineering Recommendation G81 - Part 2 and Part 5: Materials Specification	2.0	March 2021

2. Scope

This document applies to the providers of network connections to the distribution network owned and operated by Northern Powergrid (Northeast) Ltd and Northern Powergrid (Yorkshire) plc

Northern Powergrid (Northeast) Ltd and Northern Powergrid (Yorkshire) plc are the Distribution Network Operators (DNOs) of Northern Powergrid.

The Northern Powergrid Appendices A of EREC G81-Part 2 and 5 have been combined to avoid extensive duplication and make the document easier to read for the end customer. Where there are points relevant to only Part 2 or Part 5 of EREC G81 they have been highlighted separately.

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3. Material Standards

Materials shall meet the requirements of all applicable standards and legislation. This will include the latest revisions of: -

- British Standards
- International and European Standards
- Energy Networks Association Technical Specifications
- Northern Powergrid Technical Specifications.

Consideration should also be given to other Northern Powergrid design documents and the business approach to customer connections as they may differ from other Distribution Licence Holders.

Appendix 1 of this document lists the Northern Powergrid product specifications relevant for each product type.

Appendix 2 of this document lists the Northern Powergrid New Connections Buildings and Civils Drawings.

3.1. Assessment Requirement

3.1.1. Product Assessment

All materials procured by Northern Powergrid have undergone assessment. Network products are assessed in compliance with Northern Powergrid documented procedure PRC/200/203 – Management Process for the Assessment of Changes to, and the Introduction of Network Plant, Equipment or Materials. The type of assessment will vary depending on the complexity of the product but may include field trials, witness type/routine testing, assessment of test data and product data sheets etc. This is a fully documented system that requires appropriate authorisation.

3.1.2. Supplier Assessment

It is Northern Powergrid policy to carry out audits of supplier’s quality management systems when the requirement arises. This procedure is documented in PRC/200/204 – Management Process for the Audit of Supplier Quality Management Systems. A commercial assessment of potential is also carried out prior to the placement of contract.

3.2. Provision of Materials

Plant and materials delivered from manufacturers shall be unloaded and stored in a way that avoids damage and exposure to moisture. Materials shall be inspected during installation, and any found defective shall be replaced.

It is important to note that manufacturers may manufacture a range of similar equipment types or designation and that all may not necessarily be assessed or suitable. It is the contractors’ responsibility to ensure that all material meets the requirements of this document.

3.3. Assessed Products

3.3.1. Assessed List

Appendix 1 of this document references the relevant Northern Powergrid product specifications and also provides details of how the “Assessed Product Database” (APD) can be accessed. The ownership and update of the APD is the responsibility of Northern Powergrid who has the right to remove products and/or suppliers if necessary. This may be due to product failures or a change in company policy. Materials shall be applied in accordance with Northern Powergrid or the supplier’s installation instructions.

The Assessed Product Database can be found in the document library on the Northern Powergrid website.

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3.3.2. Alternative Manufacturers Equipment

Alternative products will require a full assessment and will be considered at the discretion of Northern Powergrid. It must be noted that additional time will be needed to complete an appropriate assessment. Information shall be provided that will allow compliance and quality assessments to be made. The level of information required will relate to the complexity of the equipment and/or materials being considered.

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4. References

4.1. External Documentation

Reference	Title
G81 Part 2	Framework for new low voltage housing development installations – Part 2 Materials
G81 Part 5	Framework for new industrial and commercial underground connections – Part 5 Material specification

4.2. Internal Documentation

Reference	Title
NPS/001/001	Technical Specification for Wood Poles and Associated Products for Overhead Lines
NPS/001/002	Technical Specification for Helical Products
NPS/001/003	Technical Specification for 11kV, 20kV and 33kV Overhead Line Air Break Switch Disconnectors
NPS/001/004	Technical Specification for 11kV, 20kV and 33kV Pole Mounted Expulsion Switch, Fuse Tube and Solid Link
NPS/001/005	Technical Specification for Overhead Line Steelwork, Conductor Fittings, Insulator Fittings and Stay Fittings
NPS/001/006	Technical Specification for Insulators for Overhead Lines up to and including 132kV
NPS/001/007	Technical Specification for Overhead Line Conductors
NPS/001/008	Technical Specification for Gapless Metal Oxide Surge Arresters
NPS/001/009	Technical Specification for 11kV, 20kV and 33kV Pole Mounted Auto-reclose Circuit Breakers and Enclosed Switch Disconnectors
NPS/001/010	Technical Specification for Fasteners and Fixings for Wood Pole Overhead Lines and General Construction Works
NPS/001/011	Technical Specification for Notice Plates and Signs
NPS/001/012	Technical Specification for Cast Resin Pole Mounted Auxiliary Supply Transformers
NPS/001/013	Technical Specification for Galvanised Steel Stay wire
NPS/001/014	Technical Specification for Overhead Line Fault Passage Indicators
NPS/001/015	Technical Specification for Barbed Wire
NPS/001/016	Technical Specification for Compression and Mechanical Fittings for Overhead Lines
NPS/001/017	Technical Specification for Low Voltage and High Voltage Fuse Links
NPS/001/018	Technical Specification for Steel Poles
NPS/001/019	Technical Specification for Low Voltage Conductor Shrouding Materials
NPS/001/020	Technical Specification for Stay Ground Anchors for Overhead Lines
NPS/001/021	Technical Specification for Overhead Line Tower, Steel Pole and Substation Plant Paint Systems
NPS/001/022	Technical Specification for Aeolian Vibration Dampers
NPS/001/024	Technical Specification for Low Voltage Aerial Bundled Conductor Fittings
NPS/001/025	Technical Specification for Cable Guards
NPS/001/026	Technical Specification for Overhead Line Fibre Optic Wrap Fittings
NPS/001/028	Technical specification for Tower Steelwork and Fixings
NPS/001/029	Technical Specification for Wood Pole and Tower Anti-Climbing Guards
NPS/001/030	Technical Specification for Wall and Pole Mounted Outdoor Service Boxes
NPS/001/032	Technical Specification for 11 & 20kV Pole Mounted Auto Sectionalising Links
NPS/001/033	Specification for Fixed Fall Arrest Systems for use on Telecommunication Towers
NPS/001/034	Technical Specification for Aerial Network Surveying Technology – Light Detection and Ranging (LiDAR)
NPS/002/001	Technical Specification for Earthing Materials

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NPS/002/002	Technical Specification for Industrial and Insulating Tapes and Mastic Compounds
NPS/002/003	Technical Specification for Protection Tile, Protection Tape, Cable Ducting and Route Markers
NPS/002/004	Technical Specification for 25-Amp Cut-outs for Street Furniture
NPS/002/006	Technical Specification for Service Cut-outs, Terminal Blocks, Meter Tail Protectors and Pole Mounted Fuse Units
NPS/002/007	Technical Specification for Outdoor Meter Cupboards, Meter Boards, Replacement Outdoor Meter Cupboard Frames and Doors
NPS/002/008	Technical Specification for Cold Pour Resin and Hot pour Compounds
NPS/002/009	Technical Specification for Mechanical Cable Lugs and Connectors
NPS/002/010	Technical Specification for Jointing Sundries
NPS/002/011	Technical Specification for Cable Cleats and Saddles
NPS/002/012	Technical Specification for Low Voltage Underground Link Boxes, and Protection Blankets
NPS/002/013	Technical Specification for Telephone and Pilot Cable Joints.
NPS/002/014	Technical Specification for LV joints and Terminations
NPS/002/015	Technical Specification for 11kV and 20kV Cable Joints and Terminations
NPS/002/016	Technical Specification for 33kV Cable Joints and Terminations
NPS/002/017	Technical Specification for 66kV and 132kV Cable Accessories
NPS/002/018	Technical Specification for Pilot, Control and Telephone Cables
NPS/002/019	Technical Specification for LV Distribution and Service Cables
NPS/002/020	Technical Specification for 11 & 20kV Power Cables
NPS/002/021	Technical Specification for 33kV Power Cables
NPS/002/022	Technical Specification for 66kV Power Cables
NPS/002/023	Technical Specification for 132kV Power Cables
NPS/002/024	Technical Specification for Fibre Optic Cables, Wrap, OPGW and ADSS
NPS/002/025	Technical Specification for Replacement Covers and Frames for Existing Design Underground Link Box Chambers and Cable Draw/Inspection Pits
NPS/002/026	Technical Specification for Cable Sheath Link Boxes
NPS/002/028	Technical Specification for Double Pole Isolation Switches
NPS/002/029	Technical Specification for Industrial Service Units with Integral Metering Current Transformers
NPS/002/030	Technical Specification for Heavy Duty Cut-outs with Integral Metering Current Transformers
NPS/002/031	Technical Specification for Metering Base/Panel Unit for Connection to Heavy Duty Cut-outs from 100-500 Amps with Integral Current Transformers and LV Air Circuit Breakers in accordance with CoP5 up to 1MW
NPS/002/032	Technical Specification for Metering Base/Panel Unit for connection to High Voltage Metering Circuit Breakers in Accordance with CoP3 up to a Circuit Capacity not Exceeding 10 MVA
NPS/002/033	Technical Specification for Metering Base/Panel Unit for Connection to LV Metering Air Circuit Breakers in Accordance with CoP3 Up to a Circuit Capacity not Exceeding 10 MVA
NPS/002/034	Technical Specification for Metering Base/Panel Unit for Connection to Extra High Voltage Metering Circuit breakers in Accordance with CoP2 up to a Circuit Capacity not Exceeding 100 MVA
NPS/002/035	Technical Specification for Metering Base/Panel Unit for Connection to 132kV Metering Circuit Breakers in accordance with CoP1 Up to a Circuit Capacity Exceeding 100 MVA
NPS/002/036	Technical Specification for Perfluorocarbon Tracer (PFT)
NPS/003/001	Technical Specification for 33kV, 66kV and 132kV Voltage Transformers
NPS/003/002	Technical Specification for 30V Distribution Tripping Battery and Charger Systems
NPS/003/003	Technical Specification for Arc Suppression Coils

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NPS/003/004	Technical Specification for Indoor 33kV Switchgear
NPS/003/005	Technical Specification for LV PENDA ASSEMBLIES and TFX ASSEMBLIES
NPS/003/006	Technical Specification for Primary 11kv & 20kV Switchgear
NPS/003/007	Technical specification for 66kV and 132kV Disconnectors and earth switches
NPS/003/008	Technical Specification for Open Bushing, Air Insulated (AIS), 66kV and 132kV Circuit Breakers
NPS/003/009	Technical specification for 11kV, 20kV 33kV and 66kV neutral earthing resistors
NPS/003/010	Technical Specification for 415V LVAC Boards utilised in Major Substations
NPS/003/011	Technical Specification for Ground Mounted Distribution Transformers up to and including 20kV
NPS/003/012	Technical Specification for Continuous Emergency Rated (CER) Transformers
NPS/003/013	Specification for Fault Passage Indicators and their associated Current and Voltage Sensing Instruments for use with Ground Mounted 11 & 20kV Switchgear
NPS/003/014	Technical Specification for Ground Mounted Distribution RMU & Extensible Switchgear for use on 11kV & 20kV Networks
NPS/003/015	Technical Specification for 33kV, 66kV and 132kV Post Insulators
NPS/003/016	Technical Specification for 48V and 110V Battery and Charger Systems
NPS/003/017	Technical Specification for a ground mounted distribution switchgear remote control system
NPS/003/018	Technical Specification for Multi Service Distribution Boards (MSDBs)
NPS/003/019	Technical Specification for Electrical Insulating Fluids for use in Plant and Switchgear
NPS/003/020	Technical Specification for 11kV and 20kV Voltage Regulators
NPS/003/021	Technical Specification for Continuous Maximum Rated (CMR) Transformers
NPS/003/022	Technical Specification for 33kV Disconnectors, Switch Disconnectors and Earth Switches
NPS/003/023	Technical Specification for 33kV, 66kV and 132kV post CT's
NPS/003/024	Technical Specification for 66kV and 132kV Gas Insulated Switchgear
NPS/003/025	Technical Specification for Fault Throwers
NPS/003/027	Technical Specification of 24 volt Battery and Charger Systems for SCADA and Telecontrol
NPS/003/028	Technical Specification for Tubular Busbars, Busbar Connectors and Terminal fittings
NPS/003/029	Technical Specification for Retrofit 11 & 20kV Circuit Breakers
NPS/003/030	Technical Specification for Transformer and Switchgear Cable Boxes and their associated Bushing Assemblies up to 36kV
NPS/003/031	Technical Specification for Room Thermostats, Humidistats and Time Delay Switches
NPS/003/033	Technical Specification for Substation Support Structures
NPS/003/034	Technical Specification for 11kV & 20kV Pole-Mounted Distribution Transformers
NPS/003/035	Technical Specification for 11.5/20 kV Step Up Continuous Emergency Rated (CER) Transformers
NPS/003/037	Technical Specification for 48V DC Telecommunication Battery, Charger and Combined 24V DC Positive Earth and 230V Mains Inverter Systems
NPS/003/039	Technical specification for Substation DC Disconnection Schemes
NPS/003/040	Technical Specification for 132kV Combined Metering Transformers.
NPS/003/041	Technical Specification for 11kV & 20kV Pad Mounted Transformers.
NPS/003/042	Technical Specification for stand-alone Earthing Auxiliary Transformers and Auxiliary Transformers
NPS/003/043	Technical Specification for Outdoor 33kV Switchgear
NPS/003/045	Technical Specification for Ground Mounted Remote Terminal Unit (RTU) Battery Monobloc Cells

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NPS/003/046	Technical Specification for Installation, Commissioning and ongoing maintenance of Online Dissolved Gas Analysers
NPS/005/002	Technical Specification for Remote Terminal Units (RTUs) for use at Primary Substations
NPS/005/002/001	Remote Terminal Unit (RTU) Upgrade & Replacement Project (Primary Substations) Technical Schedule
NPS/005/002/002	Remote Terminal Unit (RTU) Upgrade & Replacement Project (Primary Substations) RTU Sizing Guidance
NPS/005/002/003	Remote Terminal Unit (RTU) Upgrade & Replacement Project (Primary Substations) Legacy Communications Protocols
NPS/005/002/004	Remote Terminal Unit (RTU) Upgrade & Replacement Project (Primary Substations) Self-Certification Conformance Declaration
NPS/005/002/005	Remote Terminal Unit (RTU) Upgrade & Replacement Project (Primary Substations) Declaration of Deviations from the RTU Technical Specification
NPS/005/003	Technical Specification for Protection and Control Panels
NPS/005/004	Technical Specification for an IP Communications Solution to Serve Remote Terminal Units (RTUs) in Primary Substations
NPS/005/005	Technical Specification for Secondary SCADA IP-Based Telecommunications Network
NPS/006/002	Technical Specification for Distribution Substation Enclosures
NPS/006/003	Technical Specification for Operational Locks
NPS/007/020	Technical Specification for Active Network Management Schemes
NPS/007/021	Technical Specification for Secondary Distribution Substation Monitoring Systems
NPS/100/001	Technical Specification for LV Switchboard Matting
PRC/200/203	Management Process for the Assessment and Introduction of Distribution Plant, Equipment or Materials
PRC/200/204	Management Process for the Audit of Supplier Quality Management Systems

4.3. Amendments from Previous Version

Reference	Description
Appendix 1 Assessed Products / Suppliers	Updated process for viewing the list of approved products and suppliers on the Northern Powergrid website together with the update of the list of associated reference documents.
Appendix 2	Links updated to reflect external website changes
Clause 3.3.1	Updated to reflect the use of APD as opposed to a list in this document
Clause 4.1	External document number and titles updated
Clause 4.2 Internal Documentation	Amended list of internal reference documents

5. Definitions

Term	Definition
n/a	

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6. Authority for Issue

6.1. CDS Assurance

I sign to confirm that I have completed and checked this document and I am satisfied with its content and submit it for approval and authorisation.

		Date
Deb Dovinson	Governance Administrator	27/03/2024

6.2. Author

I sign to confirm that I have completed and checked this document and I am satisfied with its content and submit it for approval and authorisation.

Review Period – This document should be reviewed within the following time period:

Standard CDS review of 3 years?	Non-Standard Review Period & Reason	
Yes	Period: n/a	Reason: n/a
Should this document be displayed on the Northern Powergrid external website?		Yes
		Date
Paul McAdoo	Lead Policy & Standards Engineer	12/04/2024

6.3. Technical Assurance

I sign to confirm that I am satisfied with all aspects of the content and preparation of this document and submit it for approval and authorisation.

		Date
Steve Salkeld	Policy & Standards Engineer	02/07/2024

6.4. Authorisation

Authorisation is granted for publication of this document.

		Date
Paul Black	Head of System Engineering	22/05/2024

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Appendix 1 – Assessed Products/Suppliers

The following tables document the Northern Powergrid product specifications relevant for each product type. For details on the current list of manufactures products which have been assessed as being compliant against the associated standards please see the latest version of the “Assessed Product Database” located on the Northern Powergrid External Website at <http://www.northernpowergrid.com/document-library/>

Or to view the latest version of the product specification, then select “Network Product Specifications” from the “filter by Category” drop down List, followed by the appropriate selection from the “filter by sub-category” drop down list

Reference	Title
Overhead line Products	
NPS/001/001	Technical Specification for Wood Poles and Associated Products for Overhead Lines
NPS/001/002	Technical Specification for Helical Products
NPS/001/003	Technical Specification for 11kV, 20kV and 33kV Overhead Line Air Break Switch Disconnectors
NPS/001/004	Technical Specification for 11kV, 20kV and 33kV Pole Mounted Expulsion Switch, Fuse Tube and Solid Link
NPS/001/005	Technical Specification for Overhead Line Steelwork, Conductor Fittings, Insulator Fittings and Stay Fittings
NPS/001/006	Technical Specification for Insulators for Overhead Lines up to and including 132kV
NPS/001/007	Technical Specification for Overhead Line Conductors
NPS/001/008	Technical Specification for Gapless Metal Oxide Surge Arresters
NPS/001/009	Technical Specification for 11kV, 20kV and 33kV Pole Mounted Auto-reclose Circuit Breakers and Enclosed Switch Disconnectors
NPS/001/010	Technical Specification for Fasteners and Fixings for Wood Pole Overhead Lines and General Construction Works
NPS/001/011	Technical Specification for Notice Plates and Signs
NPS/001/012	Technical Specification for Cast Resin Pole Mounted Auxiliary Supply Transformers
NPS/001/013	Technical Specification for Galvanised Steel Stay wire
NPS/001/014	Technical Specification for Overhead Line Fault Passage Indicators
NPS/001/015	Technical Specification for Barbed Wire
NPS/001/016	Technical Specification for Compression and Mechanical Fittings for Overhead Lines
NPS/001/017	Technical Specification for Low Voltage and High Voltage Fuse Links
NPS/001/018	Technical Specification for Steel Poles
NPS/001/019	Technical Specification for Low Voltage Conductor Shrouding Materials
NPS/001/020	Technical Specification for Stay Ground Anchors for Overhead Lines
NPS/001/021	Technical Specification for Overhead Line Tower, Steel Pole and Substation Plant Paint Systems
NPS/001/022	Technical Specification for Aeolian Vibration Dampers
NPS/001/024	Technical Specification for Low Voltage Aerial Bundled Conductor Fittings
NPS/001/025	Technical Specification for Cable Guards
NPS/001/026	Technical Specification for Overhead Line Fibre Optic Wrap Fittings
NPS/001/028	Technical specification for tower steelwork and fixings
NPS/001/029	Technical Specification for Wood Pole and Tower Anti-Climbing Guards
NPS/001/030	Technical Specification for Wall and Pole Mounted Outdoor Service Boxes
NPS/001/032	Technical Specification for 11 & 20kV Pole Mounted Auto Sectionalising Links
NPS/001/033	Specification for Fixed Fall Arrest Systems for use on Telecommunication Towers
NPS/001/034	Technical Specification for Aerial Network Surveying Technology – Light Detection and Ranging (LiDAR)
Underground Network Products	
NPS/002/001	Technical Specification for Earthing Materials
NPS/002/002	Technical Specification for Industrial and Insulating Tapes and Mastic Compounds
NPS/002/003	Technical Specification for Protection Tile, Protection Tape, Cable Ducting and Route Markers
NPS/002/004	Technical Specification for 25-Amp Cut-outs for Street Furniture
NPS/002/006	Technical Specification for Service Cut-outs, Terminal Blocks, Meter Tail Protectors and Pole

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Reference	Title
	Mounted Fuse Units
NPS/002/007	Technical Specification for Outdoor Meter Cupboards, Meter Boards, Replacement Outdoor Meter Cupboard Frames and Doors
NPS/002/008	Technical Specification For Cold Pour Resin and Hot pour Compounds
NPS/002/009	Technical Specification for Mechanical Cable Lugs and Connectors
NPS/002/010	Technical Specification For Jointing Sundries
NPS/002/011	Technical Specification For Cable cleats and saddles
NPS/002/012	Technical Specification for Low Voltage Underground Link Boxes, and Protection Blankets
NPS/002/013	Technical Specification For Telephone and pilot cable joints.
NPS/002/014	Technical Specification for LV joints and Terminations
NPS/002/015	Technical Specification for 11kV and 20kV Cable Joints and Terminations
NPS/002/016	Technical Specification For 33kV Cable Joints and Terminations
NPS/002/017	Technical Specification for 66kV and 132kV Cable Accessories
NPS/002/018	Technical Specification For Pilot, Control and Telephone Cables
NPS/002/019	Technical Specification for LV Distribution and Service Cables
NPS/002/020	Technical Specification for 11 & 20kV Power Cables
NPS/002/021	Technical Specification For 33kV Power Cables
NPS/002/022	Technical Specification For 66kV Power Cables
NPS/002/023	Technical Specification for 132kV Power Cables
NPS/002/024	Technical Specification for Fibre Optic Cables, Wrap, OPGW and ADSS
NPS/002/025	Technical Specification for Replacement Covers and Frames for Existing Design Underground Link Box Chambers and Cable Draw/Inspection Pits
NPS/002/026	Technical Specification for cable sheath link boxes
NPS/002/028	Technical specification for double pole isolation switches
NPS/002/029	Technical Specification for Industrial Service Units with Integral Metering Current Transformers
NPS/002/030	Technical Specification for Heavy Duty Cut-outs with Integral Metering Current Transformers
NPS/002/031	Technical Specification for Metering Base/Panel Unit for Connection to Heavy Duty Cut-outs from 100-500 Amps with Integral Current Transformers and LV Air Circuit Breakers in accordance with CoP5 up to 1MW
NPS/002/032	Technical Specification for Metering Base/Panel Unit for connection to High Voltage Metering Circuit Breakers in Accordance with CoP3 up to a Circuit Capacity not Exceeding 10 MVA
NPS/002/033	Technical Specification for Metering Base/Panel Unit for Connection to LV Metering Air Circuit Breakers in Accordance with CoP3 Up to a Circuit Capacity not Exceeding 10 MVA
NPS/002/034	Technical Specification for Metering Base/Panel Unit for Connection to Extra High Voltage Metering Circuit breakers in Accordance with CoP2 up to a Circuit Capacity not Exceeding 100 MVA
NPS/002/035	Technical Specification for Metering Base/Panel Unit for Connection to 132kV Metering Circuit Breakers in accordance with CoP1 Up to a Circuit Capacity Exceeding 100 MVA
NPS/002/036	Technical Specification for Perfluorocarbon Tracer (PFT)
Plant and Switchgear Network Products	
NPS/003/001	Technical Specification for 33kV, 66kV and 132kV Voltage Transformers
NPS/003/002	Technical Specification for 30V Distribution Tripping Battery and Charger Systems
NPS/003/003	Technical Specification for Arc Suppression Coils
NPS/003/004	Technical Specification for Indoor 33kV Switchgear
NPS/003/005	Technical Specification for LV PENDA ASSEMBLIES and TFX ASSEMBLIES
NPS/003/006	Technical Specification for Primary 11kV & 20kV Switchgear
NPS/003/007	Technical specification for 66kV and 132kV Disconnectors and earth switches
NPS/003/008	Technical Specification for Open Bushing, Air Insulated (AIS), 66kV and 132kV Circuit Breakers
NPS/003/009	Technical specification for 11kV, 20kV 33kV and 66kV neutral earthing resistors
NPS/003/010	Technical Specification for 415V LVAC Boards utilised in Major Substations

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Reference	Title
NPS/003/011	Technical Specification for Ground Mounted Distribution Transformers up to and including 20kV
NPS/003/012	Technical Specification for Continuous Emergency Rated (CER) Transformers
NPS/003/013	Specification for Fault Passage Indicators and their associated Current and Voltage Sensing Instruments for use with Ground Mounted 11 & 20kV Switchgear
NPS/003/014	Technical Specification for Ground Mounted Distribution RMU & Extensible Switchgear for use on 11kV & 20kV Networks
NPS/003/015	Technical Specification for 33kV, 66kV and 132kV Post Insulators
NPS/003/016	Technical Specification for 48V and 110V Battery and Charger Systems
NPS/003/017	Technical Specification For a ground mounted distribution switchgear remote control system
NPS/003/018	Technical Specification for Multi Service Distribution Boards (MSDBs)
NPS/003/019	Technical Specification for Electrical Insulating Fluids for use in Plant and Switchgear
NPS/003/020	Technical Specification for 11kV and 20kV Voltage Regulators
NPS/003/021	Technical Specification for Continuous Maximum Rated (CMR) Transformers
NPS/003/022	Technical Specification for 33kV Disconnectors, Switch Disconnectors and Earth Switches
NPS/003/023	Technical Specification for 33kV, 66kV and 132kV post CT's
NPS/003/024	Technical Specification for 66kV and 132kV Gas Insulated Switchgear
NPS/003/025	Technical Specification for Fault Throwers
NPS/003/027	Technical Specification of 24 volt Battery and Charger Systems for SCADA and Telecontrol
NPS/003/028	Technical Specification for Tubular Busbars, Busbar Connectors and Terminal fittings
NPS/003/029	Technical Specification for Retrofit 11 & 20kV Circuit Breakers
NPS/003/030	Technical Specification for Transformer and Switchgear Cable Boxes and their associated Bushing Assemblies up to 36kV
NPS/003/031	Technical Specification for Room Thermostats, Humidistats and Time Delay Switches
NPS/003/033	Technical Specification for Substation Support Structures
NPS/003/034	Technical Specification for 11kV & 20kV Pole-Mounted Distribution Transformers
NPS/003/035	Technical Specification for 11.5/20 kV Step Up Continuous Emergency Rated (CER) Transformers
NPS/003/037	Technical Specification for 48V DC Telecommunication Battery, Charger and Combined 24V DC Positive Earth and 230V Mains Inverter Systems
NPS/003/039	Technical specification for Substation DC Disconnection Schemes
NPS/003/040	Technical Specification for 132kV Combined Metering Transformers.
NPS/003/041	Technical Specification for 11kV & 20kV Pad Mounted Transformers.
NPS/003/042	Technical Specification for stand-alone Earthing Auxiliary Transformers and Auxiliary Transformers
NPS/003/043	Technical Specification for Outdoor 33kV Switchgear
NPS/003/045	Technical Specification for Ground Mounted Remote Terminal Unit (RTU) Battery Monobloc Cells
NPS/003/046	Technical Specification for Installation, Commissioning and ongoing maintenance of Online Dissolved Gas Analysers
Other Equipment	
NPS/005/002	Technical Specification for Remote Terminal Units (RTUs) for use at Primary Substations
NPS/005/002/001	Remote Terminal Unit (RTU) Upgrade & Replacement Project (Primary Substations) Technical Schedule
NPS/005/002/002	Remote Terminal Unit (RTU) Upgrade & Replacement Project (Primary Substations) RTU Sizing Guidance
NPS/005/002/003	Remote Terminal Unit (RTU) Upgrade & Replacement Project (Primary Substations) Legacy Communications Protocols
NPS/005/002/004	Remote Terminal Unit (RTU) Upgrade & Replacement Project (Primary Substations) Self-Certification Conformance Declaration

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Reference	Title
NPS/005/002/005	Remote Terminal Unit (RTU) Upgrade & Replacement Project (Primary Substations) Declaration of Deviations from the RTU Technical Specification
NPS/005/003	Technical Specification for Protection and Control Panels
NPS/005/004	Remote Terminal Unit (RTU) Upgrade & Replacement Project (Primary Substations) Self-Certification Conformance Declaration
NPS/005/005	Technical Specification for Secondary SCADA IP-Based Telecommunications Network
NPS/006/002	Technical Specification for Distribution Substation Enclosures
NPS/006/003	Technical Specification for Operational Locks
NPS/007/020	Technical Specification for Active Network Management Schemes
NPS/007/021	Technical Specification for Secondary Distribution Substation Monitoring Systems
NPS/100/001	Technical Specification for LV Switchboard Matting

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Appendix 2 – Assessed Substation Buildings and Civils Drawings

For details on Northern Powergrid New Connections Buildings and Civils drawings please the following web links available on the Northern Powergrid external Website: -

Substation General Arrangement Drawings, Companion Drawings or Working Drawings	https://www.northernpowergrid.com/document-library/New-Connections-Building-and-Civils/Substation---General-Arrangement-Drawings
Substation Earthing Arrangement Drawings	https://www.northernpowergrid.com/document-library/New-Connections-Building-and-Civils/Substation---Earthing-Arrangement-Drawings