

Company Directive

ENGINEERING SPECIFICATION EE SPEC: 122

WPD Assessed Switchgear and Associated Plant for Use on the Distribution Network

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Implementation Date: January 2019

Approved by

Policy Manager

Date: 2 January 2019

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IMPLEMENTATION PLAN

Introduction

This document provides a guide for the selection of switchgear and associated plant items for Western Power Distribution (WPD) Engineering Design and Network Services, Independent Connections Providers and other external provider contracted to WPD.

Main Changes

This is a new EESPEC.

Impact of Changes

This document replaces any and all previous listings of switchgear approved or assessed for use in Western Power Distribution including those that have been issued by Central Networks, East Midlands Electricity and Midlands Electricity (and any successor companies).

Implementation Actions

None

Implementation Timetable

This revised document shall be implemented immediately.

EE SPEC: 122 January 2019 - 2 of 22 -

REVISION HISTORY

| Document Revis | Document Revision & Review Table | | | | | | | |
|-----------------------|----------------------------------|---------------|--|--|--|--|--|--|
| Date | Comments | Author | | | | | | |
| January 2019 | New document | Anthony Smith | | | | | | |
| | | | | | | | | |

EE SPEC: 122 January 2019 - 3 of 22 -

1.0 PURPOSE

This document provides a guide for the selection of switchgear and associated plant items for Western Power Distribution (WPD) Engineering Design and Network Services, Independent Connections Providers and other external provider contracted to WPD.

2.0 SCOPE

The switchgear and associated plant list in Schedule 1 of this document has been prepared by WPD and covers the provision of indoor and outdoor, three phase switchgear, at 12 kV, 36kV, 72.5 kV and 145 kV for continuous service at 50 Hertz, for use on the WPD 6.6kV, 11kV, 33kV, 66kV and 132kV distribution networks.

It supersedes all previous approved/assessed switchgear lists that have been issued by Western Power Distribution including those issued by Central Networks, East Midlands Electricity and Midlands Electricity (and any successor company).

Switchgear and associated plant included in this list shall comply with the relevant International and British Standards (BS) and Energy Networks Association Technical Specifications (ENATS) listed.

The list only includes the switchgear currently in production, available in the market and assessed by WPD.

3.0 REQUIREMENTS

The switchgear shall generally, except where varied by any related WPD technical specifications (Engineering Equipment Specification – EE SPEC) comply with the appropriate requirements of all relevant sections of the Energy Networks Association Technical Specification 41-36 and 41-37 (ENATS 41-36 & 41-37); IEC 60694 and IEC 62271.

It is WPD Policy that all new switchgear shall not utilise oil as an insulating or arc interrupting medium.

Switchgear and associated plant shall have been assessed by the ENA Switchgear Assessment Panel and hold a current Notice of Conformity. It shall also have been assessed by the WPD Engineering Policy Team and determined as suitable for use on the WPD network.

4.0 CATEGORIES FOR WPD ASSESSED SWITCHGEAR AND ASSOCIATED PLANT

All items of WPD assessed switchgear and associated plant in this EE SPEC have been assigned particular assessment categories. The categories are defined below:

- **Category F** Category F equipment has been Assessed by the WPD Engineering Policy Team and is available for purchase within WPD on a Framework Contract.
- Category A equipment has been Assessed by the WPD Engineering Policy Team and is available for purchase when Category F equipment is not suitable for use by virtue of ratings, need for equipment make/type diversity, for extension units to match existing units, or other significant factor.

EE SPEC: 122 January 2019 - 4 of 22 -

Category S Category S equipment has been Assessed for use by the WPD Engineering Policy Team, but only for a specific contract or site.

Prior approval of the WPD Policy Team (Plant Engineer) will be required before equipment in this category can be considered for purchase, installation and use.

Prior to any Equipment being installed on the WPD network it shall have obtained an appropriate WPD Engineering Policy Team Assessment, which shall be either category "F", "A" or "S.

Switchgear and plant not on the WPD Assessed Switchgear and Associated Plant list may be considered for use on the WPD network subject to it having a valid ENA Notice of Conformity, and a robust WPD business justification for the WPD Policy Team completing the assessment work to allocate a "F", "A" or "S" Assessment Category. Any request for assessment should be made to the WPD Engineering Policy Manager.

EE SPEC: 122 January 2019 - 5 of 22 -

SCHEDULE

List of WPD Assessed Switchgear And Associated Plant

| 1.0 | 145KV OUTDOOR (AIS) | 7 |
|-----|---|----|
| 1.1 | Circuit Breaker | 7 |
| 1.2 | Disconnectors and Earthing Switches | 7 |
| 1.3 | Instrument Transformers | 8 |
| 2.0 | 145KV INDOOR (GIS) | 9 |
| 2.1 | Circuit Breaker | 9 |
| 3.0 | 72.5KV OUTDOOR (AIS) | 10 |
| 3.1 | Circuit Breaker | 10 |
| 3.2 | Disconnectors and Earthing Switches | 10 |
| 3.3 | Fault Throwing Switch | 11 |
| 3.4 | Instrument Transformers | 11 |
| 4.0 | 72.5KV INDOOR (GIS) | 12 |
| 4.1 | Circuit Breaker | 12 |
| 5.0 | 36KV OUTDOOR | 13 |
| 5.1 | Circuit Breaker | 13 |
| 5.2 | Disconnectors | 13 |
| 5.3 | Fault Throwing Switch | 14 |
| 5.4 | Instrument Transformers | 14 |
| 5.5 | Circuit Breaker (Overhead Line - Pole Mounted) | 14 |
| 5.6 | Switch Disconnector / Sectionaliser (Overhead Line - Pole Mounted) | 14 |
| 6.0 | 36KV INDOOR | 15 |
| 6.1 | Circuit Breaker | 15 |
| 7.0 | 12KV | 16 |
| 7.1 | Circuit Breaker (Indoor) | 16 |
| 7.3 | Circuit Breaker (Overhead Line - Pole Mounted) | 18 |
| 7.4 | Switch Disconnector / Sectionaliser (Overhead Line - Pole Mounted) | 18 |
| 7.5 | Secondary Ring Main Units and Extensible | 19 |
| 7.6 | Disconnectors and Miscellaneous Fusegear (Overhead Line - Pole Mounted) | 20 |
| 8.0 | 400/230V LOW VOLTAGE FUSE CABINETS | 21 |
| 9.0 | TRANSFORMERS | 21 |

SCHEDULE - LIST OF WPD ASSESSED SWITCHGEAR AND ASSOCIATED PLANT

1.0 145KV OUTDOOR (AIS)

1.1 Circuit Breaker

| | | | Fallinment Description | I (normal) | 3second Short Time | WPD sessment ategory | ENA | Assessi | ment |
|---|----------------------------------|------------------|--|------------|---------------------------|----------------------------|------|---------|-------|
| | Manufacturer | Designation | Equipment Description | (A) | Withstand Current (kA) | WPD Assessm Categol | Туре | No | Issue |
| 1 | UK Grid Solutions (GE Alstom) | DT1-145 F1 FK3-1 | 145kV dead tank outdoor SF6 circuit breaker | 2500 | 40kA | F | NOC | 1081 | 3 |
| | [Charleroi, USA] | | [SCBC - 45ms @ 40.0kA; 135ms @ 31.5kA] | | | | | | |
| 2 | UK Grid Solutions (GE Alstom) | GL312 | 145kV Live tank outdoor SF6 circuit breaker | 3150 | 31.5/40kA to EATS 41-10 | А | NOC | 1004 | 3.1 |
| 3 | Siemens | 3AP1-DT – 1S | 145kV dead tank outdoor SF6 circuit breaker [* - 2500A with composite insulators] [SCBC - 45ms @ 40.0kA; 135ms @ 31.5kA] | 3150* | 31.5kA/40kA to EATS 41-37 | F | NOC | 1131 | 1 |
| 4 | Siemens | 3AP1-FG | 145kV live tank outdoor SF6 circuit breaker | 3150 | 40kA | F | NOC | 1002 | 2.1 |

1.2 Disconnectors and Earthing Switches

| | | urer Designation | esignation Equipment Description | I (normal) (A) | 3second Short Time Withstand Current (kA) | oD iment gory | ENA | Assess | ment |
|---|----------------------------------|------------------|---|-------------------|--|--------------------------|------|--------|-------|
| | Manufacturer | Designation | Equipment Description | | | WPD Assessm Catego | Туре | No | Issue |
| 1 | UK Grid Solutions | S3C | 2000A single break 145kV 40kA Disconnector | 1250 | 31.5kA | S | NOC | 1068 | 3 |
| | (GE Alstom) | | TypeS S3C; S3C/T & S3C/B/T | 2000 | | | | 1069 | 3 |
| 2 | UK Grid Solutions (GE Alstom) | STA | 145kV Type STA free standing earthing switch and Disconnector Mounted earthing switch type (/T) | - | 40kA | S | NOC | 1071 | 3 |

EE SPEC: 122 January 2019 - 7 of 22 -

1.3 Instrument Transformers

| | | | | I (normal) | 3second Short Time | oD iment gory | ENA | NA Assessment | | |
|----|------------------|-------------|--|--------------|------------------------|-------------------------------|------|---------------|-------|--|
| | Manufacturer | Designation | Equipment Description | (A) | Withstand Current (kA) | WPD Assessment Category | Туре | No | Issue | |
| 1 | ABB | IMB-145 | Current Transformer (hairpin type) | 1250 2000 | 63kA / 40kA 1s/3s | А | NOC | 1039 | 2.1 | |
| 2 | ABB | CPB145 | Capacitor Voltage Transformer Rated voltage 132/V3;- secondary 110/V3 | - | - | А | NOC | 1079 | 1.2 | |
| 3 | Arteche | CA-145 | Current Transformer (bar primary type) | 2000 | 80kA / 40kA 1s/3s | А | NOC | 1060 | 1.2 | |
| 4 | Arteche | KA-145 | Combined metering transformer | 2000 | 80kA / 40kA 1s/3s | А | NOC | 1061 | 2.2 | |
| 5 | Pfiffner | EOF 145 | Inductive voltage transformer | - | - | S | NOC | 1132 | 1 | |
| 6 | Pfiffner | ECF 145 | Capacitive voltage transformer | - | - | S | NOC | 1128 | 1 | |
| 7 | Pfiffner | JOF 145 | Current transformer | 2000 | | S | NOC | 1127 | 1 | |
| 8 | Pfiffner | EJOF 145 | Combined metering transformer | - | - | S | NOC | 1129 | 1 | |
| 9 | Siemens (Trench) | IVOKT 145 | HAM metering CTVT unit [Only units manufactured in France] | - | - | S | - | - | - | |
| 10 | Siemens (Trench) | VEOT 145 | Wound voltage transformer [Only units manufactured in France] | - | - | S | | - | - | |

2.0 145KV INDOOR (GIS)

2.1 Circuit Breaker

| | Manufacturer | Designation | Designation Equipment Description | I (normal) (A) | 3second Short Time Withstand Current (kA) | oD iment gory | ENA | ENA Assessment | | |
|---|--------------|-------------|-----------------------------------|-------------------|--|--------------------------|-----|----------------|-------|--|
| | | | | | | WPD Assessm Catego | T | No | Issue | |
| - | - | - | - | - | - | - | - | - | - | |

NOTE: No gas-insulated metal-enclosed 145kV switchgear is assessed for new application within WPD. [ST:SD1C]

3.0 72.5KV OUTDOOR (AIS)

3.1 Circuit Breaker

| | Manufacturer | ufacturer Designation | Equipment Description | I (normal) (A) | 3second Short Time Withstand Current (kA) | D ment gory | ENA Assessment | | |
|---|--|-----------------------|--|-------------------|--|--------------------------|----------------|------|-------|
| | | | | | | WPD Assessm Catego | Туре | No | Issue |
| 1 | UK Grid Solutions (GE Alstom) [Charleroi, USA] | DT1-72.5 F1 FK3-1 | 72.5kV outdoor dead tank SF6 circuit breaker | 2500 | 40kA | F | NOC | 1105 | 1.1 |
| 2 | Siemens | 3AP1-DT 72.5 | 72.5kV outdoor dead tank SF6 circuit breaker | 3150 | 25/31.5kA | А | NOC | 1030 | 2 |

3.2 **Disconnectors and Earthing Switches**

| | Manufacturer | Designation | Equipment Description | I (normal) (A) | 3second Short Time | WPD essment ategory | | Assessi | ment |
|---|----------------------------------|-------------|---|-------------------|------------------------|---------------------------|------|---------|-------|
| | | | | | Withstand Current (kA) | W Asses Cate | Туре | No | Issue |
| 1 | UK Grid Solutions (GE Alstom) | S3C | Disconnector – rotating post double break | 2000 | 40kA | А | NOC | 1117 | 1 |
| 2 | UK Grid Solutions (GE Alstom) | STW | Free standing earthing switch and Disconnector mounted earthing switch (/T/H) | - | 40kA | А | NOC | 1115 | 1 |
| 3 | UK Grid Solutions (GE Alstom) | STW | Disconnector mounted line earthing switch and Free standing line earthing switch (/T/H) | - | 40kA | А | NOC | 1116 | 1 |
| 4 | MLE (Morris Line Engineering) | RDB | Disconnector – rotating post double break | up to 2000 | 25 or 31.5kA/3s | А | - | - | - |
| 5 | Power Isolators (Lucy) | Rapier | Disconnector – rotating post double break | | | А | - | - | - |

EE SPEC: 122 January 2019 - 10 of 22 -

3.3 **Fault Throwing Switch**

| | Manufacturer | Designation | Equipment Description | I (normal) (A) | 3second Short Time Withstand Current (kA) | oD sment gorv | ENA | ment | |
|---|-----------------|-------------|--------------------------------------|-------------------|--|--------------------------|------|------|-------|
| | | | | | | WPD Assessm Catego | Туре | No | Issue |
| 1 | Morris Line | FTS | Fault Throwing Switch | - | 40kA/1s | S | - | - | - |
| | Equipment (MLE) | | [Not permitted for new installation] | | | | | | I |

3.4 Instrument Transformers

| | | | | I (normal) | 3second Short Time | D ment gorv | ENA | Assessi | ment |
|----|------------------|-------------|--|--------------|------------------------|-------------------------------|------|---------|-------|
| | Manufacturer | Designation | Equipment Description | (A) | Withstand Current (kA) | WPD Assessment Category | Туре | No | Issue |
| 1 | ABB | IMB-72 | Current Transformer (hairpin type) | 1600 2000 | 63kA / 40kA 1s/3s | А | NOC | 1038 | 2 |
| 2 | ABB | CPB72 | Capacitor Voltage Transformer Rated voltage 69/V3;- secondary 110/V3 | - | - | А | NOC | 1079 | 1 |
| 3 | Arteche | DDB-72 | Capacitor voltage transformer | - | - | S | - | - | - |
| 4 | Arteche | UTB-72 | Wound voltage transformer | - | - | S | - | - | - |
| 5 | Pfiffner | EOF 72 | Inductive voltage transformer | - | - | S | NOC | 1135 | 1 |
| 6 | Pfiffner | ECF 72 | Capacitive voltage transformer | - | - | S | NOC | 1136 | 1 |
| 7 | Pfiffner | JOF 72 | Current transformer | <4000 | <63kA 1 sec | S | NOC | 1133 | 1 |
| 8 | Pfiffner | EJOF 72 | Combined metering transformer | - | - | S | NOC | 1134 | 1 |
| 9 | Siemens (Trench) | IVOKT 72.5 | HAM metering CTVT unit [Only units manufactured in France] | 2000 | - | S | - | - | - |
| 10 | Siemens (Trench) | VEOT 72.5 | Wound voltage transformer [Only units manufactured in France] | - | - | S | - | - | - |

EE SPEC: 122 January 2019 - 11 of 22 -

4.0 72.5KV INDOOR (GIS)

4.1 Circuit Breaker

| | Manufacturer D | | Designation Equipment Description | I (normal) | 3second Short Time Withstand Current (kA) | oD iment gory | ENA | ment | |
|---|----------------|-------------|-----------------------------------|------------|--|--------------------------|------|------|-------|
| | | Designation | | (A) | | WPD Assessm Catego | Туре | No | Issue |
| - | - | - | - | - | - | - | - | - | - |

NOTE: No gas-insulated metal-enclosed 72.5kV switchgear is assessed for new application within WPD. [ST:SD1C]

5.0 36KV OUTDOOR

5.1 **Circuit Breaker**

| | | S acionation | | I (normal) | l) 3second Short Time | D ment gory | ENA Assessment | | |
|---|------------------------------------|---------------------|---|--------------|------------------------|--------------------------|----------------|------|-------|
| | Manufacturer | Designation | Equipment Description | (A) | Withstand Current (kA) | WPD Assessm Catego | Туре | No | Issue |
| 1 | Hawker Siddeley Switchgear Ltd. | Horizon | Outdoor dead tank - vacuum in SF ₆ | 1250 2000 | 25kA | F | NOC | 1034 | 2.1 |
| 2 | Schneider | VOX | Outdoor dead tank - vacuum in SF ₆ | 1250 2000 | 25kA / 31.5kA / 40kA | S | NOC | 1029 | 3.1 |

5.2 **Disconnectors**

| | Manufacturer | | ୍ର ଓଡ଼ିଆ (normal) 3second Short Time | I (normal) 3second Short Time | | Assess | ment | | |
|---|--------------------------------|-------------|---|-------------------------------|------------------------|-----------------------|------|------|-------|
| | Manufacturer | Designation | Equipment Description | (A) | Withstand Current (kA) | WF Assess Cates | Туре | No | Issue |
| 1 | MLE (Morris Line Equipment) | MLS | 36kV Outdoor pole mounted Air Break Switch Disconnector Manual independent spring assisted high level rod operated mechanism. Fitted with 400 amp interrupter heads | 630 | 25kA | F | NOC | 1012 | 2 |
| 2 | MLE (Morris Line Equipment) | ML | 36kV overhead conductor connected three phase Air Break Switch Disconnector [* - 400A interrupter heads] | 630* | 25kA | F | NOC | 1012 | 2 |
| 3 | MLE (Morris Line Equipment) | RDB | 36kV Disconnector – rotating post double break | up to 2000 | 25 or 31.5kA/3s | А | - | - | - |
| 4 | MLE (Morris Line Equipment) | Type R | 36kV Outdoor Air Break Switch Disconnector Fitted with interrupter heads (CAT 0) | 800 1250 | 25kA / 3s | А | - | _ | - |
| 5 | Power Isolators (Lucy) | Rapier DSB | 36kV Double side break Disconnector Fitted with interrupter heads (CAT 0) | 800 | 25kA / 3s | А | - | - | - |

EE SPEC: 122 January 2019 - 13 of 22 -

5.3 Fault Throwing Switch

| | | Manufacturer | Designation | Equipment Description | I (normal) (A) | 3second Short Time Withstand Current (kA) | WPD sessment ategory | | Assess | |
|---|---|-----------------|-------------|--|-------------------|--|----------------------------|------|--------|-------|
| | | | | | | | \ \{\sigma} \ | Туре | No | Issue |
| | 1 | Morris Line | FTS | 36kV Fault Throwing Switch | - | 40kA/1s | Α | - | - | - |
| | | Equipment (MLE) | | [Not permitted for new installation] | | | | | | |
| | | | | [Note: A covered FTS is required where all other | | | | | | |
| L | | | | plant on site is enclosed conductor.] | | | | | | |

5.4 **Instrument Transformers**

| | Manufacturer | Designation | gnation Equipment Description | I (normal) (A) | 3second Short Time Withstand Current (kA) | PD sment | ENA | IA Assessmer | |
|---|--------------|-------------|-------------------------------|-------------------|--|--------------------|------|--------------|-------|
| | | | | | | W Asses Cate | Туре | No | Issue |
| 1 | Transmag | "Trident" | Wound VT – oil insulated | - | - | F | - | - | - |

5.5 **Circuit Breaker (Overhead Line - Pole Mounted)**

| | Manufacturer | Designation | Equipment Description | I (normal) | 3second Short Time | PD sment gory | ENA | Assess | ment |
|---|-------------------|--------------|---|------------|------------------------|---------------------|------|--------|-------|
| | Wallulacturel | Designation | Equipment Description | (A) | Withstand Current (kA) | W Assess Cate | Туре | No | Issue |
| 1 | Nulec (Schneider) | N38 N Series | 36kV Outdoor pole mounted circuit breaker | 800 | 12kA | F | - | - | - |
| | | | (vacuum interrupter) | | | | | | |

5.6 Switch Disconnector / Sectionaliser (Overhead Line - Pole Mounted)

| | Manufacturer | Designation | Equipment Description | I (normal) | 3second Short Time | PD sment | ENA | Assessi | ment |
|---|-------------------|---------------|---|------------|------------------------|--------------------|------|---------|-------|
| | manaca.c. | Designation | _qupc.t 2 coc. pto | (A) | Withstand Current (kA) | W Asses Cate | Туре | No | Issue |
| 1 | Nulec (Schneider) | RL38 R Series | 36kV Outdoor pole mounted SF6 switch disconnector | 630 | 16kA | F | NOC | 1102 | 1.1 |

- 14 of 22 -

6.0 36KV INDOOR

6.1 Circuit Breaker

| | Manufacturer | | ion Fallinment Description | I (normal) | (normal) 3second Short Time | D ment gory | ENA | Assess | ment |
|---|--------------|------------------------------|---|--------------|-----------------------------|-------------------------------|------|--------|-------|
| | Manufacturer | Designation | Equipment Description | (A) | Withstand Current (kA) | WPD Assessment Category | Туре | No | Issue |
| 1 | Schneider | GHA 36-25-12 GHA 36-25-20 | 36kV indoor circuit breaker SF6 insulated vacuum interrupters [45ms & 120ms DC Time Constant] | 1250 2000 | 25kA | F | NOC | 1075 | 2.1 |
| 2 | Siemens | NX+ 36 V1.0 | 36kV indoor circuit breaker SF6 insulated vacuum interrupters (single busbar) [120 ms DC Time Constant] | 1250 2000 | 31.5kA | F | NOC | 1033 | 4 |
| 3 | Schneider | WSA 36 | 36kV indoor circuit breaker SF6 insulated vacuum interrupters (single busbar) [45ms & 120ms DC Time Constant] | 2000 2500 | 31.5kA | A | NOC | 1049 | 1 |
| 4 | Ormazabal | CPG.0 | 36kV indoor circuit breaker SF6 insulated vacuum interrupters [45ms DC Time Constant] Variants: feeder circuit breaker (CPG.0-V); nonauto feeder circuit-breaker (CPG.0-L); bussection circuit breaker (CPG.0-C) | 1250 | 25kA | S | NOC | 1074 | 3 |

[Note: Item 4 – ICP supplied only]

EE SPEC: 122 January 2019 - 15 of 22 -

7.0 12KV

7.1 Circuit Breaker (Indoor)

| | Manufacturer | | Don Equipment Description (Δ) | al) 3second Short Time | WPD ssessment Category | ENA | Assessi | ment | |
|---|-----------------|-------------|---|------------------------|------------------------------|------------------------------|---------|------|-------|
| | Manufacturer | Designation | Equipment Description | (A) | Withstand Current (kA) | WPD Assessmer Category | Туре | No | Issue |
| 1 | Hawker Siddeley | Quantum | Circuit Breaker (Fixed Pattern) Magnetic | 630 | 25kA | F | NOC | 1140 | 1 |
| | Switchgear | | actuator operated vacuum circuit breaker with | 1250 | | | | | |
| | | | integral three position disconnector / earthing | 2000 | | | | | |
| | | | switch. Air insulated busbars. | | | | | | |
| | | | | | | | | | |
| 2 | Hawker Siddeley | Eclipse | Circuit Breaker (Fixed Pattern) Magnetic | 630 | 25kA | Α | NOC | 1024 | 4 |
| | Switchgear | | actuator operated vacuum circuit breaker with | 1250 | | | | | |
| | | | integral three position disconnector / earthing | 2000 | | | | | |
| | | | switch. Air insulated busbars. | | | | | | |
| | | | [Note: Only to extend existing installations] | | | | | | |
| 3 | Schneider | Genie Evo | Circuit Breaker (Fixed Pattern) | 630 | 25kA | F | NOC | 1032 | 7 |
| | | | 630A feeder; 1250A incomer | 1250 | | | | | |
| | | | with fixed VT (removable primary fuses) & top | 2000 | 45ms | | | | |
| | | | and bottom entry cable compartment; | | D.C. component –27% | | | | |
| | | | 630A & 1250A Bus-section & 'riser' | | | | | | |

EE SPEC: 122 January 2019 - 16 of 22 -

7.2 Retrofit Circuit Breakers (Indoor)

| | Manufacturer | Designation | Equipment Description | I (normal) (A) | 3second Short Time | WPD Assessment | ENA A | ssessm | ent |
|---|-------------------------------|-------------|--|------------------------|---|-------------------|-------|--------|-------|
| | Wanulacturer | Designation | Equipment Description | (~) | Withstand Current (kA) | Wi Assess | Туре | No | Issue |
| 1 | Hawker Siddeley Switchgear | SWR 12/25 | 12kV Indoor moving portion. | 400/630 800 | 25kA; 45ms time constant | F | NOC | 1112 | 1 |
| | | | For replacement of OCB in SWS type C4X/D4X legacy housing/ back part with • busbars arranged vertically ('High' type) • busbars arranged horizontally ('Low' type) | 1250 | [Earthing adaptor equivalent to 13.1kA break /33kA make] | | | | |
| | | | [Rated normal current and rated short-circuit breaking current in use will be restricted by the fixed portion] | | | | | | |
| 2 | Hawker Siddeley Switchgear | BSR 12/25 | 12kV Indoor moving portion For replacement of OCB and VCB in Brush type VSI, VTD & VMV (D) legacy housing/ back part. [Rated normal current and rated short-circuit breaking current in use will be restricted by the fixed portion] | 400/630 800 1250 | 25kA; 45ms time constant | F | NOC | 1137 | 2 |
| 3 | Siemens | LMT-SION | 12kV Indoor moving portion for use with Reyrolle LMT fixed portion. Refer to ENA NoC for specific application. [Rated normal current and rated short-circuit breaking current in use will be restricted by the fixed portion] | 630 1250 2000 | 20kA; (630A) 25kA; (1250A & 2000A) 45ms time constant | S | NOC | 1103 | 3 |

EE SPEC: 122 January 2019 - 17 of 22 -

7.3 Circuit Breaker (Overhead Line - Pole Mounted)

| | Manufactura | Designation Equipment Description | I (normal) | 3second Short Time | PD sment gorv | ENA Assessment | | | |
|---|-------------------|-----------------------------------|--|--------------------|------------------------|----------------|------|------|-------|
| | Manufacturer | Designation | Equipment Description | (A) | Withstand Current (kA) | WPD Assessm | Туре | No | Issue |
| 1 | Nulec (Schneider) | U27 U Series | 12kV Outdoor pole mounted circuit breaker (vacuum interrupter) | 630 | 12.5kA | F | NOC | 1100 | 1 |

7.4 Switch Disconnector / Sectionaliser (Overhead Line - Pole Mounted)

| | Manufacturer | Designation | Equipment Description | I (normal) (A) | 3second Short Time Withstand Current (kA) | WPD essment itegory | ENA Assessi | | ment |
|---|-------------------|---------------|---|-------------------|--|---------------------------|-------------|------|-------|
| | | | | | | WI Assess Cate | Туре | No | Issue |
| 1 | Nulec (Schneider) | RL27 R Series | 12kV Outdoor pole mounted SF6 switch disconnector | 630 | 16kA | F | NOC | 1102 | 1 |

EE SPEC: 122 January 2019 - 18 of 22 -

7.5 **Secondary Ring Main Units and Extensible**

| | | <u> </u> | - · · · · · · · · · · · · · · · · · · · | I (normal) | 3second Short Time | oD iment gorv | ENA | ENA Assessme | |
|----|--------------|-------------|--|------------|------------------------|-------------------------------|------|--------------|-------|
| | Manufacturer | Designation | Equipment Description | (A) | Withstand Current (kA) | WPD Assessment Category | Туре | No | Issue |
| 1 | Lucy | SABRE VRN2A | 12kV Outdoor RMU | 250 | 20kA 3 sec. 95kV | F | NOC | 1041 | 2 |
| | | | [630A ring switches / 250A circuit breaker | 630 | | | | | |
| 2 | Schneider | RN2d | 12kV Outdoor RMU 200A SF6 CB (95 kV BIL) | 630 | 21kA | F | NOC | 1130 | 2 |
| 3 | Schneider | RN6d | 12kV Outdoor RMU 630A SF6 CB (95 kV BIL) | 630 | 21kA | F | NOC | 1130 | 2 |
| 4 | Schneider | RN2c | 12kV Outdoor RMU 200A SF6 CB (95 kV BIL) [To be replaced by RN2d during 2019] | 630 | 21kA | А | NOC | 1007 | 2.1 |
| 5 | Schneider | RN6c | 12kV Outdoor RMU 630A SF6 CB (95 kV BIL) [To be replaced by RN6d during 2019] | 630 | 21kA | А | NOC | 1007 | 2.1 |
| 6 | Schneider | MU2 | 12kV Air Insulated Metering Unit (75kV BIL) | 200 630 | 16kA | F | - | - | - |
| 7 | Schneider | CE2 | 12kV Outdoor extensible SF6 switch disconnector (95kV BIL) | 200 | 20kA | F | NOC | 1085 | 1 |
| 8 | Schneider | CE6 | 12kV Outdoor extensible SF6 switch disconnector (95kV BIL) | 630 | 20kA | F | NOC | 1085 | 1 |
| 9 | Schneider | CE6-B5 | 12kV Outdoor extensible SF6 bus-section circuit breaker | 630 | 20kA | F | NOC | 1085 | 1 |
| 10 | Schneider | CN2 | 12kV Outdoor non-extensible SF6 circuit breaker (75kV BIL) | 200 | 20kA | F | NOC | 1085 | 1 |
| 11 | Schneider | SE6 | 12kV Outdoor extensible SF6 switch disconnector (95kV BIL) | 630 | 20kA | F | NOC | 1086 | 1.1 |
| 12 | Schneider | SE6-B1 | 12kV Outdoor extensible SF6 bus-section switch disconnector | 630 | 20kA | F | NOC | 1086 | 1.1 |
| 13 | Schneider | SE6-E1 | 12kV Outdoor extensible SF6 busbar earth switch (95kV BIL) | 630 | 20kA | F | NOC | 1086 | 1.1 |

[Note: Units shall be WPD variants and ordered using relevant WPD E5 and Manufacturer codes.]

[Note: Items 3 and 4 – ICP supplied only]

EE SPEC: 122 January 2019 - 19 of 22 -

7.6 **Disconnectors and Miscellaneous Fusegear (Overhead Line - Pole Mounted)**

| | | Davisuskiau | Facility and Description | I (normal) | 3second Short Time | WPD ssessment | ENA | Assess | ment |
|---|--------------------------------|---------------------------|---|-------------------------|------------------------|-------------------|------|--------|-------|
| | Manufacturer | Designation | Equipment Description | (A) | Withstand Current (kA) | WPD Assessment | Type | No | Issue |
| 1 | Morris Line Equipment (MLE) | - | 12kV Outdoor pole mounted Air Break Switch Disconnector Rated short-circuit making current 25kA pk. Manual independent spring assisted high level rod operated mechanism. Fitted with 400 amp interrupter heads (CAT 0) | 630A load 400A break | 10kA | F | - | - | - |
| 2 | Allied Insulators | - | 12kV Outdoor pole mounted Air Break Switch Disconnector Rated short-circuit making current 25kA pk. Manual independent spring assisted high level rod operated mechanism. Fitted with 400 amp interrupter heads (CAT 0) | 630A load 400A break | 10kA | F | - | - | - |
| 3 | Morris Line Equipment (MLE) | - | 12kV Outdoor pole mounted Air Break Switch Disconnector Rated short-circuit making current 25kA pk. Dependent Manual high level rod operated mechanism with arcing horns. (CAT 2) | 630A load 20A break | 3kA | F | - | - | - |
| 4 | Allied Insulators | - | 12kV Outdoor pole mounted Air Break Switch Disconnector Rated short-circuit making current 25kA pk. Dependent Manual high level rod operated mechanism with arcing horn. (CAT 2) | 630A load 20A break | 3kA | F | - | - | - |
| 5 | Cooper Power Systems | Type L Cut-out L9COP1A | 27kV Pole mounted Dropout Expulsion Fuse to NEMA standard. Including: 100 amp fuse holder LDCA00A 300 amp link LDC300A. | Up to 300 | 10kA | А | - | - | - |
| 6 | Cooper Bussmann | 27ASL50CR5-2 | 27kV Automatic Sectionalising Link for use in NEMA standard 27kV cut-out | Up to 50 | 10kA | А | _ | - | - |

EE SPEC: 122 January 2019 - 20 of 22 -

8.0 400/230V LOW VOLTAGE FUSE CABINETS

| | Manufacturer | Designation | Equipment Description | I (normal) (A) | 3second Short Time Withstand Current (kA) | PD sment gory | ENA Assessment | | |
|---|--------------|---------------------|--------------------------------|-------------------|--|--------------------------|----------------|------|-------|
| | | | | | | WPD Assessm Catego | Туре | No | Issue |
| 1 | Lucy | Acculock | Transformer mounted LV cabinet | 1600 | | Α | NOC | 1083 | 1.1 |
| | | | | | | | | 1087 | 1.1 |
| 2 | Schneider | Shielded LV Cabinet | Transformer mounted LV cabinet | 1600 | | F | NOC | 1054 | 3.1 |
| | | | | | | | | 1056 | 3.1 |
| | | | | | | | | 1058 | 3.1 |

9.0 TRANSFORMERS

WPD Assessed Manufacturers of power transformers are:

| | Voltage | | | | | | | | | | |
|--------------|---------|--------|--------|-----------|-------|-------|----------|-------|------------------------|------------------------|------------------------------|
| Manufacturer | 132/66 | 132/33 | 132/11 | 132/11/11 | 86/33 | 66/11 | 66/11/11 | 33/11 | 11/0.400/0.230 (GM) | 11/0.400/0.230 (PM) | 11/0.400/0.230 (Padmount) |
| ABB | Х | Χ | Х | Х | | | | | | | |
| Brush | | | | | | | | Х | | | |
| CG | | | | | | | | | | | |
| Cooper | | | | | | | | | | | Χ |
| Pauwels | | | | | | | | | | · | |
| Schneider | | | | | | | | | | · | |
| Siemens | Х | Χ | Χ | Χ | | | | | | · | |
| SGB | Х | Χ | Χ | Χ | | | | | | · | |
| Tironi | Χ | Χ | Χ | Χ | | | | | | | · |

APPENDIX A

SUPERSEDED DOCUMENTATION

This document replaces any and all previous listings of switchgear assessed or approved for use in Western Power Distribution including those that have been issued by Central Networks, East Midlands Electricity and Midlands Electricity (and any successor companies).

APPENDIX B

ASSOCIATED DOCUMENTATION

Current versions of:-

| EE SPEC 2 | "12kV Cable Connected Outdoor Switchgear – Non Oil" |
|-------------|--|
| EE SPEC 7 | "Switchgear for use on 66kV and 132kV Distribution Systems" |
| EE SPEC 10 | "12kV and 36kV Outdoor Overhead Conductor Connected Switchgear and Voltage Transformers" |
| EE SPEC 13 | "12kV and 36kV Pole Mounted Enclosed Switchgear – Non Oil Type" |
| EE SPEC 16 | "LV Distribution Fuseboards" |
| EE SPEC 182 | "36kV Indoor Primary Circuit Breakers" |
| EE SPEC 185 | "12kV Indoor Circuit Breakers" |
| ST:SD1C | "Selection and Application of WPD Assessed Switchgear for Use on the Distribution Network" |

APPENDIX C

POLICY IMPLEMENTATION

This specification is implemented on issue. There is no retrospective action required as a result of the issue of this document.

APPENDIX D

POLICY IMPACT

This document is relevant to all staff involved with the specification, purchase, design, and installation of new switchgear and associated plant.

APPENDIX E

KEY WORDS

Assessed; Assessed Switchgear; Circuit Breaker; Disconnector; Instrument Transformer; VT; CT

EE SPEC : 122 January 2019 - 22 of 22 -