MORE-BAC-2025-002

Development of 30/36 MVA General Hughes Substation

TERMS OF REFERENCE

Section I: RATIONALE

MORE Electric and Power Corporation ("**MORE Power**") shall engage with the Contractor (**Contractor**) who shall provide, develop, manufacture, supply, deliver, install, test and commission the 30/36 MVA General Hughes Substation (hereinafter referred to as the "**Project**"), under its own control and method and shall be responsible for the execution of the specific activities under the contracted agreement in accordance with the specified specifications and standards. MORE Power shall intervene only in the desired and agreed results of the specific activities under the contracted agreement.

Section II: LOCATION AND SERVICES

The **Contractor** shall provide, develop, manufacture, supply, deliver, install, test/commission the 30/36 MVA General Hughes Substation with respect to the Scope of Works as defined in Section III below at General Hughes corner Duran St., City Proper, Iloilo City 5000.

Section III: SCOPE OF WORKS

To provide Engineering, Procurement, Construction, Commissioning of the 30/36 MVA General Hughes Project to include the following:

1. GENERAL REQUIREMENT:

- a. Site Development
- b. Soil treatment and conditioning
- c. Building and Occupancy/LGU/DENR/DPWH and other Permits
- d. Safety Signages and Equipment Labeling
- e. As Built Drawings
- f. Schematic Diagrams
- g. Protection Manuals
- h. Maintenance & Operation Manuals
- i. Equipment Manuals
- j. Trainings
- k. SCADA Integration
- I. Software, as may be required to ensure functionality and operation of certain Contractor-supplied equipment and devices

2. ELECTRICAL WORKS:

ENGINEERING, CONSTRUCTION, SUPPLY, DELIVERY, 2.1 FABRICATION, MANUFACTURING, INSTALLATION, CONFIGURATION, FUNCTIONAL TESTING AND COMMISSIONING OF THE SUBSTATION EQUIPMENT AND MATERIALS AS INDICATED IN THE TENDER DOCUMENTS AND APPROVED PLANS AND DRAWINGS

2.1.1 **POWER TRANSFORMER**

2.1.1.1 Supply and installation of covered conductors, terminal 1 Lot lugs, wedge type connectors, power supply and control cables. Termination and tapping of power supply, control cables, conductors, connectors, and other accessories to the existing power transformer are included in the scope of the Contractor

2.1.2 POWER CIRCUIT BREAKER

- 2.1.2.1 Hauling, Installation, Testing and Commissioning 2 Set/s of Owner Supplied 72.5 kV, Power Circuit Breaker, 2000 A, 40 kA, Three (3) Phase, Dead Tank Type, Three (3) Pole Operation. SF6 pressure transmitter, and all the required accessories shall be provided by the Contractor in accordance with the requirements of the Tender Documents to complete the installation.
- 2.1.2.2 Hauling, Installation, Testing and Commissioning 1 Set/s of Owner Supplied 72.5 kV, Power Circuit Breaker, 1200 A, 40 kA, Three (3) Phase, Dead Tank Type, Three (3) Pole Operation. SF6 pressure transmitter, and all the required accessories shall be provided by the Contractor in accordance with the requirements of the Tender Documents to complete the installation.

2.1.3 DISCONNECT SWITCH

2.1.3.1 Hauling, Installation, Testing and Commissioning 2 Set/s of Owner Supplied 72.5 kV, 2000A Motor Operated Air-Break Switch (MOABS). The Contractor shall provide connectors, conductors, brackets, grounding,

and all other required accessories needed to complete the installation in accordance with the requirements and specification indicated in the Tender Documents and approved plans and drawings. 2132 Hauling, Installation, Testing and Commissioning 2 Set/s of Owner Supplied 72.5 kV, 2000A Motor Operated Air-Break Switch (MOABS) with earthing switch. The Contractor shall provide connectors, conductors, brackets, grounding, and all other required accessories needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. 2.1.3.3 Hauling, Installation, Testing and Commissioning of Owner Supplied 72.5 kV, 1200A Group Operated Air-Break Switch (GOABS). The Contractor shall 2 Set/s provide connectors, conductors, brackets, grounding, and all other required accessories needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. Brackets and connectors should be hot dipped galvanized. 2.1.4 60kV SURGE ARRESTERS 2.1.4.1Hauling, Installation, Testing and Commissioning Unit/s 6 of Owner Supplied 60 kV MCOV Surge Arresters. The Contractor shall provide connectors, conductors, grounding, brackets. and all other required accessories, supporting structures/ brackets, etc. needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. Installation of the Owner supplied surge counter is part of the Contractor's scope of works. 2.1.5 POTENTIAL TRANSFORMER 2.1.5.1 Hauling, Installation, Testing and Commissioning Unit/s 3

of Owner Supplied 72.5 kV Potential Transformer.

The Contractor shall provide cables, support structure, grounding, and all other required accessories needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.

2.1.6 BUS WORKS

- 2.1.6.1 Supply, Installation, Testing and Commissioning of 1 Lot 69kV, 2000A Rigid Aluminum Tubular Bus (Welded). The Contractor shall provide complete set of insulators, fittings, connectors, conductors, and other materials and accessories needed to complete the installation of 69kV, 2000A rigid aluminum tubular bus in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.
- 2.1.6.2 Supply, Installation, Testing and Commissioning of 1 Lot 15kV, 2000A Rigid Aluminum Insulated Tubular Bus (Welded). The Contractor shall provide complete set of insulators, insulation covers, fittings, connectors, conductors and other materials and accessories needed to complete the installation of 15kV, 2000A rigid aluminum insulated tubular bus in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. All accessories should be covered.
- 2.1.6.3 **Supply and Installation of Bus Support,** the 1 Lot Contractor shall supply and install a Bus support for both HV and LV side of the Power transformer. All other accessories necessary to complete the installation shall be provided by the contractor.

2.1.7 EMERGENCY GENERATOR SET & AUTO TRANSFER SWITCH

2.1.7.1 Supply, Delivery, Installation, Testing and 1 Lot Commissioning of 230V AC, 3-phase 60 Hz, 15kVA Generator Set & Auto Transfer Switch. The Contractor shall supply all necessary tools, materials,

and all other required accessories for the installation, testing and commissioning of Genset and the auto transfer switch with manual and automatic control. Supply, installation, and termination of cables from the genset ATS to main AC panel shall be the contractor's scope of work. The contractor shall also supply a fuel hand pump for fuel refilling in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. All protection features of the Genset should be tested and commissioned.

2.1.8 STATION SERVICE TRANSFORMERS

Hauling, Installation, Testing and Commissioning 2.1.8.1 1 of Owner Supplied Station Service Transformers, 3 units, 50 KVA Distribution Transformer. The Contractor shall provide the complete set of fuse cutouts, LA's, CT, connectors, conductors, conductor covers, terminal lugs, Station Service Panel (with isolation breaker) and all other accessories needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. All exposed connectors, conductors, etc. should be properly covered. Supply, installation and termination of cables from the station service transformer to the gen set ATS and to AC panel should be included in the scope of works of the Contractor.

2.1.9 **15kV VACUUM CIRCUIT BREAKER**

- 2.1.9.1 Hauling, Installation, Testing and Commissioning Set/s 1 of Owner supplied 15 kV, 2000 A Vacuum Circuit Breaker. The Contractor shall provide all other required accessories needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.
- 2.1.9.2 Hauling, Installation, Testing and Commissioning Set/s 4 of Owner supplied 15 kV, 1200 A Vacuum Circuit

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Breaker. The Contractor shall provide all other required accessories needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.

2.1.10 24kV DISCONNECTING SWITCH

- 2.1.10.1 Hauling, Installation, Testing and Commissioning 6 Pc/s of Owner Supplied 24 kV Single phase Hook-stick Operated Disconnect Switch, 2000A. The Contractor shall provide support structure, terminal/conductor covers, and other required accessories needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. Terminals, accessories, and any exposed part should be covered.
- 2.1.10.2 Hauling, Installation, Testing and Commissioning 24 Pc/s of Owner Supplied 24 kV Single phase Hook-stick Operated Disconnect Switch, 1600A. The Contractor shall provide support structure, terminal/conductor covers, and other required accessories needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. Terminals, accessories, and any exposed part should be covered.
- 2.1.11 15kV LOAD BREAK SWITCH
- 2.1.11.1 Hauling, Installation, Testing and Commissioning 2 Set/s of Owner Supplied 15kV Vacuum Interrupter Load Break Switch, 630A. The Contractor shall provide cables, connectors, support structure and other required accessories needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. All connectors should be covered.

2.1.12 15kV POTENTIAL TRANSFORMERS

2.1.12.1 Hauling, Installation, Testing and Commissioning 3 Unit/s of Owner Supplied 15 kV Potential Transformers. The Contractor shall provide cables, connectors, support structure and other required accessories needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.

2.1.13 CURRENT & POTENTIAL TRANSFORMERS MARSHALLING BOX

2.1.13.1 Test and Design, Supply, Deliver, Install, 1 Lot **Commission the Current & Potential Transformer** Marshalling Boxes. The Contractor shall supply and provide shop design, drawings, and install the 69kV & 15kV Current & Potential Transformer Marshalling Boxes (heavy duty - outdoor type) with complete termination, breakers, cable terminal lugs, labels & tags, terminal blocks with shorting capabilities and sliding link, cable gland, gland plate, liquid tight conduit, wire duct, cable wrap, grounding and other accessories needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.

2.1.14 10kV SURGE ARRESTERS (STATION TYPE)

2.1.14.1 Hauling, Installation, Testing and Commissioning 12 Unit/s of Owner Supplied 10kV Station Type Surge Arrester. The Contractor shall provide cables for surge counters, connectors, support structure and other required accessories needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. Installation of the Owner Supplied surge counter is included in the scope of works of the Contractor.

2.1.15 GROUNDING SYSTEM

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2.1.15.1 Supply, Installation, Testing and Commissioning of 1 Lot Grounding System. The Contractor shall provide all cables, lightning and ground rods, materials, ground wires, rods, connectors, lugs, fittings, hardware, equipment and structure grounding, spare parts and other accessories needed to complete the grounding system in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. All connections or tapping must be exothermic cad weld or equivalent. The Contractor shall use 2 pcs of solderless connector (2 - bolt copper) for the equipment grounding riser connecting to the grounding grid. All grounding cables connected directly to the lightning rods shall be properly harnessed

2.1.16 ELECTRICAL CONDUITS

2.1.16.1 **Supply and Installation of Various Type and Sizes** 1 Lot of uPVC Conduits. The Contractor shall provide all materials, supports, connectors, hangers, and other accessories needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.

2.1.17 STORAGE BATTERY, AND BATTERY CHARGER

- 2.1.17.1 Hauling, Installation, Testing and Commissioning 1 Lot of Owner supplied Storage Batteries (125VDC Battery Bank). The Contractor shall haul and install the battery and fabricate a battery rack with isolation breaker (with enclosure) and, test and commission the storage batteries. Terminal lugs, connectors, including other accessories needed to complete the installation shall be provided by the Contractor in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.
- 2.1.17.2 Hauling, Installation, Testing and Commissioning 1 Lot of Owner supplied Battery Charger (125VDC Battery Charger). The Contractor shall haul, install,

test and commission the owner supplied battery charger. All accessories necessary for termination (terminal lugs, connectors, etc.), and other accessories needed to complete the installation shall be provided by the Contractor in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.

2.1.18 SAFETY SIGNAGES AND SITE EQUIPMENT IDENTIFICATION AND LABELING (SEIL)

2.1.18.1 Supply and Installation of Safety Signages and 1 Lot SEIL Labeling and Tagging on all Substation Equipment and other Accessories, The Contractor shall supply, install, put, place construction and permanent operational safety signages, SEIL, phase tagging, and labeling of all substation equipment, panels and all other accessories in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.

2.1.19 CCTV SYSTEM

2.1.19.1 Supply, Installation, Testing and Commissioning of Lot 1 **CCTV System.** The Contractor shall supply, and install the new CCTV, switches, power supply, connections, connectors, cabinet, and monitor to the new General Hughes Substation accordance in with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. Testing and commissioning of the CCTV system is included in the contractor's scope of works. Exposed or outdoor conduits and junction boxes should be liquid tight and weatherproof. Layout of the conduit shall be well harnessed and organized, and placement of the junction/pull box should follow the approved plans and drawings.

2.1.20 SUBSTATION PROTECTION SYSTEM

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- 2.1.20.1 Installation. Configuration, Testing and 1 Lot Commissioning of Owner Supplied General Hughes - Molo - Diversion Line Differential Protection Relay (SEL 311L), the Contractor shall install, configure, test and commission the **OWNER** SUPPLIED Line Differential Protection Relays in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.2 Installation. Configuration, Testing and 1 Lot Commissioning of Owner beilgguZ General Hughes – Line 2, Line Differential Protection Relay (SEL 311L), the Contractor shall install, configure, test and commission the OWNER SUPPLIED Line Differential Protection Relays in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.3 Installation. Configuration, Testing and 1 Lot Commissioning of Owner Supplied General Hughes - Molo – Diversion Bus Overcurrent Protection Relay (SEL 751), the Contractor shall install, configure, test and commission the OWNER SUPPLIED Bus Overcurrent Protection Relays in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.4 Installation, Configuration, Testing and 1 Lot Commissioning of Owner Supplied General Hughes – Line 2 Bus Overcurrent Protection Relay (SEL 751), the Contractor shall install, configure, test and commission the OWNER SUPPLIED Bus Overcurrent Protection Relays in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the

installation, and configuration will be provided by the Contractor.

- 2.1.20.5 Installation. Configuration, Testing 1 Lot and Commissioning of Owner Supplied Power Circuit Breaker Monitoring and Protection Relay (SEL **2411),** the Contractor shall install, configure, test and commission the **OWNER SUPPLIED** Power Circuit Breaker Monitoring and Protection Relays in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.6 Installation. Configuration, Testing and 1 I of Commissioning of Owner Supplied Transformer Monitoring, Tap Changer and Cooling Fan Control Relay (SEL 2411), the Contractor shall install, configure, test and commission the **OWNER SUPPLIED** Transformer Monitoring, Tap Changer and Cooling Fan Control Relays in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.7 Configuration, Testing Installation, and 1 Lot of Owner Supplied Commissioning Main Transformer Differential Overcurrent and Protection Relay (SEL 787), the Contractor shall install, configure, test and commission the OWNER Transformer SUPPLIED Main Differential and Overcurrent Protection Relays in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.8 Installation, Configuration, Testing and 1 Lot Commissioning of Owner Supplied Backup Transformer Differential and Overcurrent Protection Relay (SEL 787), the Contractor shall

install, configure, test and commission the **OWNER SUPPLIED** Backup Transformer Differential and Overcurrent Protection Relays in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.

- 2.1.20.9 Installation, Configuration, Testing and 1 Lot Commissioning of Owner Supplied Substation Automation Mechanical Protection Relay (SEL 2440), the Contractor shall install, configure, test and commission the OWNER SUPPLIED Mechanical Protection Relays in approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.10 Installation, Configuration, Testing and 1 Lot Commissioning of Owner Supplied General Alarm and Monitoring Relay (SEL 2440), the Contractor shall install, configure, test and commission the OWNER SUPPLIED General Alarm and Monitoring Relays in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.11 Installation, Configuration, Testing and 1 Lot Commissioning of Owner Supplied Feeder 1 Overcurrent Protection Relay (SEL 751), the Contractor shall install, configure, test and commission the OWNER SUPPLIED Feeder 1 Overcurrent Relays in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.12 Installation, Configuration, Testing and 1 Lot Commissioning of Owner Supplied Feeder 2 Overcurrent Protection Relay (SEL 751), the Contractor shall install, configure, test and commission

the **OWNER SUPPLIED** Feeder 2 Overcurrent Relays in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.

- 2.1.20.13 Installation, Configuration, Testing 1 and Commissioning of Owner Supplied Feeder 3 Overcurrent Protection Relay (SEL 751), the Contractor shall install, configure, test and commission the **OWNER SUPPLIED** Feeder 3 Overcurrent Relays in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.14 Installation. Configuration, Testing 1 Lot and Commissioning of Owner Supplied Feeder 4 Overcurrent Protection Relay (SEL 751), the Contractor shall install, configure, test and commission the **OWNER SUPPLIED** Feeder 4 Overcurrent Relays in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.15 Configuration, Installation, Testing and 1 of Owner Supplied Commissioning Power Transformer Main 69kV Power Meter, the Contractor shall install, configure, test and commission the **OWNER SUPPLIED** Power Transformer Main 69kV Power Meter in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.16 Installation. Configuration, Testing and 1 Lot Commissioning of Owner Supplied Power Transformer Main 13.8kV Power Meter, the Contractor shall install, configure, test and commission the **OWNER SUPPLIED** Power Transformer Main 13.8kV Power Meter in accordance with the approved

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plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.

- 2.1.20.17 Installation, Configuration, Testing and 1 Lot Commissioning of Owner Supplied Feeder 1 Power Meter, the Contractor shall install, configure, test and commission the OWNER SUPPLIED Feeder 1 Power Meter in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.18 Installation, Configuration, Testing and 1 Lot Commissioning of Owner Supplied Feeder 2 Power Meter, the Contractor shall install, configure, test and commission the OWNER SUPPLIED Feeder 2 Power Meter in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.19 Installation, Configuration, Testing and 1 Lot Commissioning of Owner Supplied Feeder 3 Power Meter, the Contractor shall install, configure, test and commission the OWNER SUPPLIED Feeder 3 Power Meter in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.20 Installation, Configuration, Testing and 1 Lot Commissioning of Owner Supplied Feeder 4 Power Meter, the Contractor shall install, configure, test and commission the OWNER SUPPLIED Feeder 4 Power Meter in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.20.21 Installation, Configuration, Testing and 1 Lot Commissioning of Owner Supplied Station Service

Power Meter, the Contractor shall install, configure, test and commission the **OWNER SUPPLIED** Station Service Power Meter in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.

2.1.21 PROTECTION, CONTROL, AND COMMUNICATION PANELS

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2.1.21.1 Supply, Fabrication, Manufacturing, Delivery, Installation. Testina & Commissioning of Protection, Control and Communication/ Active Equipment Panels, the Contractor shall supply, fabricate, manufacture, deliver, install, test and Protection. commission the Control and Communication/ Active Equipment Panels in accordance with the approved plans, drawings, and Owner's requirements. All other accessories needed to complete the installation will be provided by the Contractor.

> The Contractor shall facilitate the factory acceptance of at least three (3) Owner's representative during the fabrication/manufacturing/electrical assembly of all the panels. All expenses shall be for the account of the contractor.

2.1.22 AC & DC PANELS

- 2.1.22.1 Supply, Fabrication, Manufacturing, Delivery, 1 Lot Installation, Testing & Commissioning of AC Panels, the Contractor shall supply, fabricate, manufacture, deliver, install, test and commission the Free-Standing AC Panels in accordance with the approved plans and drawings. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.
- 2.1.22.2 Supply, Fabrication, Manufacturing, Delivery, 1 Lot Installation, Testing & Commissioning of DC

Panels, the Contractor shall supply, fabricate, manufacture, deliver, install, test and commission the **Free-Standing** DC Panels in accordance with the approved plans and drawings. All other accessories needed to complete the installation, and configuration will be provided by the Contractor.

2.1.23 POWER, CONTROL AND COMMUNICATION CABLES

2.1.23.1 Power, Control and Communication Cables, the 1 Lot Contractor shall supply, deliver, install, test and commission all the Power, Communication, and Control Cables including conductors necessary to complete the construction of the new substation in accordance with the approved plans and drawings. All other accessories needed to complete the installation and configuration (bus/line hardware, terminal lugs, termination kit, connectors, fittings, etc., for line works) will be provided by the Contractor. All takeoff line conductors, line accessories and connectors should be covered. Layout of the conduit and placement of the junction/pull box should follow the circuiting of the approved plans and drawings. Layout should be well harnessed and organized. Power and control cables of substation electrical system outside the new control building shall be included in the Contractor's scope of works. Power and control cables (For: Cooling fans, Bushing current transformer, mechanical protection devices, gauges, alarm devices, and other transformer accessories) for the power transformer shall be also included in the Contractor's scope of works.

2.1.24 SCADA INTEGRATION

2.1.24.1 **Mapping, Simulation, Test and Commissioning.** The 1 Lot Contractor shall conduct mapping of the relays, gateway, power meters, load break switch and other devices to be integrated to the SCADA system. Conduct simulation of control, status, measured values, counters, and testing and commissioning of all inputs and outputs in accordance with the approved SCADA requirements.

2.2 LINE WORKS

- 2.2.1 **Supply and Installation of 1 unit 80 ft Self** 1 Lot **Supporting Steel Pole**. The Contractor shall supply and install 1 unit of 80 ft. Self-Support Steel pole including anchor bolts, climbing rungs, step bolts, cross-arms and other required accessories needed to complete the installation in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. The Self-supporting steel pole shall carry two (2) circuits of 69kV sub-transmission lines, four (4) circuits of 13.8kV primary lines, and one (1) OHGW.
- 3.1 CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS
- 3.1.1 CONSTRUCT, FURNISH, SUPPLY, DELIVER, HAUL, PLACE, LAY, AND INSTALL INCLUDING FURNISHING OF PLANT, LABOR, EQUIPMENT, AND MATERIALS OF THE FOLLOWING ITEMS OF WORK AS INDICATED IN THE TENDER DOCUMENTS AND APPROVED PLANS AND DRAWINGS
- 3.1.1.1 **Permits and Licenses.** The Contractor shall be 1 Lot responsible in processing building, occupancy, and all required permits and licenses including all fees. The Owner to provide necessary documents.
- 3.1.1.2 Site Development of the Substation. The Contractor 1 Lot shall be responsible for the site development of the substation {Site clearing, site surveying, site investigation, site grading, excavation works, piling works (if required), backfilling works (+0.5 meter from original ground line), compaction works, etc.} in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.

- 3.1.1.3 **Supply and Construction of Control Building and** 1 Lot its Foundations. The Contractor shall supply and construct the New Control Building and its foundations in accordance with the approved plans and drawings including all other required civil/ structural / electrical/ mechanical/ sanitary works (comfort room septic tanks, sewage system, etc.), rain harvesting system, and components to complete the installation.
- 3.1.1.4 **Supply and Construction of the Substation** 1 Lot **Drainage System.** The Contractor shall supply, install, and construct the substation new drainage system including its connection to the existing main line of the DPWH drainage system and in accordance with the requirements of the Tender Documents and approved plans and drawings.
- 3.1.1.5 **Supply and Construction of the Substation** 1 Lot **Concrete Roadways and Pavements.** The Contractor shall supply, install, and construct the substation new concrete roadways and pavements (211 kg/cm2) including all ramps, slopes and slope protection herein required to complete the works and in accordance with the requirements of the Tender Documents and approved plans and drawings.
- 3.1.1.6 Supply and Construction of Equipment 1 Lot Foundations. The Contractor shall construct equipment foundations consisting of concrete (211 kg/cm2), non-shrink grout, Reinforcing Steel Bars (grade 275), Excavation and backfilling, Levelling concrete (141 kg/cm2), hot dipped galvanized anchor bolts and other incidentals required to complete the works in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. Foundations of the equipment (Breakers, station type surge arresters, station type post insulators. station service transformers and all other equipment that required a foundation) is included on the Contractor scope of works.

- 3.1.1.7 Supply Construction of Transformer 1 Lot and Foundation. The Contractor shall construct transformer foundation with oil pit, HDG steel grating and gravel bed, consisting of concrete (211 kg/cm2), non-shrink grout, Reinforcing Steel Bars (grade 275), Excavation and backfilling, Levelling concrete (141 kg/cm2), hot dipped galvanized anchor bolts and other incidentals required to complete the works in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.
- 3.1.1.8 **Supply, Deliver, Haul, and Install 69kV and 13.8kV** 1 Lot **Gantries.** The Contractor shall submit shop drawings for approval prior to fabrication. The Contractor shall, supply, fabricate, deliver, and install gantries consisting of hot dipped galvanized I-beams, steel plates, bolts and nuts including lightning rods, step bolts, equipment support, and other accessories required to complete the works in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.

The Contractor shall facilitate the factory visit of at least three (3) Owner's representative during the fabrication and manufacturing of the 69kV and 13.8kV gantries. All expenses shall be for the account of the contractor.

- 3.1.1.9 Supply and Construction of 69kV and 13.8kV 1 Lot Gantries Foundations. The Contractor shall construct Gantry foundations consisting of concrete (211 kg/cm2), non-shrink grout, Reinforcing Steel Bars (grade 275), Excavation and backfilling, Levelling concrete (141 kg/cm2), hot dipped galvanized anchor bolts and other incidentals required to complete the works in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.
- 3.1.1.10 Supply and Construction of 80 ft. Self-Support 1 Lot Steel Pole Foundations. The Contractor shall

construct 80 ft. self-support steel pole foundations consisting of concrete (211 kg/cm2), non-shrink grout, Reinforcing Steel Bars (grade 275), Excavation and backfilling, Levelling concrete (141 kg/cm2), hot dipped galvanized anchor bolts including template and other incidentals required to complete the works in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. The Contractor shall paint the foundation including a portion of the steel pole (two meters from the base) with yellow-black stripes.

- 3.1.1.11 Supply, Installation, and Construction of Gen Set 1 Lot Elevated Concrete Pad with Fuel Pit. The Contractor shall supply, install, and construct new gen set elevated concrete pad with fuel pit in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.
- 3.1.1.12 **Gravel Surfacing.** The Contractor shall supply gravel 1 Lot surfacing of G1 ½ crushed size gravel extending around the switchyard of at least 150 mm thick. Prior to laying of gravel surfacing the subsoil shall be compacted to 150 mm thick and accordance in the drawings and specifications.
- 3.1.1.13 **Supply and Construction of Oil & Water Separation** 1 Lot **System.** The Contractor shall construct oil and water separator tank consisting of concrete (211 kg/cm2), Reinforcing Steel Bars (grade 275), Excavation and backfilling, Levelling concrete (141 kg/cm2). The Contractor shall connect the oil-water separation tank to the transformer bund wall by installation of 100mm diameter black iron pipe, connected to the drainage system (100mm uPVC S1000), and in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.
- 3.1.1.14 **Supply, Construction, and Installation of Cable** 1 Lot **Trays, Trenches, and Ducts.** The Contractor shall construct cable trenches/cable ducts including manholes. Supply materials, (cable trays) and other

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required accessories to complete the installation are included in the Contractor's scope of works in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. Consisting of concrete (211 kg/cm2), Reinforcing steel bars (grade 275), Excavation and Backfill, Levelling concrete (141 kg/cm2), uPVC cable ducts, spacers, accessories, and other incidentals required to complete the works described herein.

- 3.1.1.15 Supply, Construction, and Installation of Seclusion 1 Lot **Fence.** The Contractor shall supply and construct the detachable seclusion fence of 1.2-meter height including its foundations and seclusion gates, consisting of sched.40 GI pipes, galvanized 4mm thick angle bars, painting, steel matting, grounding connections, anchor bolts complete with safety signages in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.
- 3.1.1.16 **Hauling, Installation of Owner-Supplied Antenna** 1 Lot **Steel Structure.** The Contractor shall haul and install the Owner supplied Direct Burial 80-footer Steel Pole in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.
- 3.1.1.17 Supply and Construction of Substation Lot 1 Guardhouse and its Foundations. The Contractor shall supply, install and construct the new substation guardhouse and its foundations in accordance with the approved plans and drawings including all other required civil/ structural / electrical/ mechanical/ sanitary works (comfort room septic tanks, sewage system, etc.) and components to complete the installation.
- 3.1.1.18 **Supply and Construction of Perimeter Wall and its foundation.** The Contractor shall supply and construct a perimeter wall, with 5-meter height from the finished ground line, surrounding the area of the substation.

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Painted finish in accordance with the approved drawings and specifications.

- 3.1.1.19 Supply and Installation of Perimeter Wall Extension 1 Lot **Louvers.** The Contractor shall supply, construct, install and furnish 3-meter-high steel louvers composed of welded galvanized tubular bars painted in accordance with the approved drawings and specifications.
- 3.1.1.20 Construction, and Installation 1 Lot Supply, of Substation Gates. The Contractor shall, supply, construct, and install four (4) units of gate including support column with foundations and all other appurtenances in accordance with the approve drawings and specifications.

4.1 MECHANICAL WORKS

- 4.2 COMPLETE FURNISH. MANUFACTURE. SUPPLY. DELIVERY, INSTALLATION, FIELD TESTING AND COMMISSIONING OF EQUIPMENT AND MATERIALS FOR THE FOLLOWING WORKS AS INDICATED IN THE TENDER DOCUMENTS AND APPROVED PLANS AND DRAWINGS
- 4.2.1 Supply, Installation, Testing and Commissioning of 1 Fire Hydrant Piping System (Fire Hydrant Line) for the whole substation area. The Contractor shall supply and install fire hydrant piping system that includes all BI pipes, valves, fittings, anti-corrosion protection petrolatum tapes with PVC wraps and all necessary appurtenances needed to complete the whole system in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.

Supply and installation of two (2) sets of outdoor hydrants with cabinet complete of the following accessories:

1 unit - 40 mm dia. brass adjustable fog fire nozzle. 2 units - 40 mm dia. Fire Hose, double jacketed 15 meter long.

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1 unit - 40 mm dia. brass angle valve. 1 unit – axe

- 4.2.2 **Supply of Wheeled Type ABC dry Chemical Fire** 1 Unit/s **Extinguishers**, The Contractor shall supply the Fifty (50) lbs. capacity of wheeled type ABC dry chemical Fire extinguisher. Unit shall be UL listed, and FM approved and in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.
- 4.2.3 **Supply CO2 Portable Fire Extinguishers**, The 6 Unit/s Contractor shall supply the Twenty (20) lbs capacity of HCFC portable fire extinguisher including holders. Unit shall be UL listed, and FM approved and in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.
- 4.2.4 Supply, Installation, Testing and Commissioning of 1 Lot Addressable Fire Detection and Alarm System (FDAS). The Contractor shall submit shop design and drawings, furnish, supply, install, construct and test and commission the addressable fire detection and alarm system, complete with cable system, conduits, supports, control panels, detectors, alarm bells, manual pull stations and other accessories in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.
- 4.2.5 Supply, Installation, Testing and Commissioning of 1 Lot FM200 Fire Suppression System. The Contractor shall submit shop design and drawings, furnish, supply, install, construct and test and commission the FM200 fire suppression system with complete materials (Fire suppression panel, detectors, alarm bells, horn strobe, supervision safety system, battery and back up, extinguishant abort & disablement switch, nozzle, gas discharge & evacuate area indicator, nozzle, valves, conduits, cable system, supports, cylinder)complete with accessories, clean agent and other accessories in accordance with the requirements and specifications

indicated in the Tender Documents and approved plans and drawings. Abort switch should have the capabilities of aborting or resetting the fire suppression system during the alarm.

- 426 Supply and Installation of Fireproof Blockage. The 1 Contractor shall supply and install the fireproof blockage, materials consisting of organic/inorganic, fire resistant bags, multi-diameter seal and cable fire resistant paint materials for cable holes for switch gears, walls, floors, ceilings, and trenches in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings.
- 4.2.7 Supply and Construction of Water System. The 1 Lot Contractor shall supply and construct a water system from the water tank to the Control Building and to the Guard house in accordance with the requirements and specifications indicated in the Tender Documents and approved plans and drawings. Supply of new water tank, provision pipelines for water delivery, and water distribution utility is included in the Contractor scope of works.
- 4.2.8 Supply and Installation of Air Conditioning Units, 2 Set/s The Contractor shall supply and install five (5) hp wall mounted split type air conditioning unit complete with accessories including its control and power supply.
- 4.2.9 Supply and Installation of Exhaust Fans. The Lot 1 Contractor shall supply and install two (2) units industrial type 16" exhaust fan with automatic shutter louver for Battery room and one (1) unit each, 10" ceiling mounted exhaust fan for the comfort room.
- 5.1 OCCUPATIONAL SAFETY AND HEALTH. The 1 Lot contractor shall provide necessary Personal Protective Equipment, such as but not limited to safety harnesses, hard hats, safety goggles, face shields, earplugs, gloves, respiratory protection, safety shoes, vests, jackets, and other appropriate items, depending on the

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specific nature of the work activity. The contractor is also responsible for providing and installing construction and permanent safety operational signages. All aforementioned items shall be in strict compliance with DOLE Occupational Safety and Health Standards.

- 6.1 SUBMISSION OF AS-BUILT DRAWINGS. The 1 Contractor shall submit the as-built drawings (comprehensive) to the owner reflecting the overall General Hughes Substation (Electrical, Architectural, Civil & Mechanical) with the approval and signature of the owner and to be submitted in a hard bound copy (3 copies) and soft copy in 3 units USB stick (256gb, 3.2 Gen 2-10Gbps). The Contractor shall refer to the Owner's hard bound copy format. All details, changes, specifications. dimensions, diagrams, drawings, analysis, calculations, figures, materials, locations, shop drawings, etc. must be reflected on the as-built drawings.
- 7.1 **TESTING AND COMMISSIONING OF 30/36 MVA** 1 **GENERAL HUGHES SUBSTATION PROJECT**, the Contractor shall conduct testing and commissioning of General Hughes Substation Project (Substation Protection system, Grounding system, all Substation equipment, and other testing necessary to complete the construction of the substation) at least a month prior to scheduled energization. The testing the and commissioning shall be in accordance with the requirements and specifications indicated in the Tender Documents.

Section IV: COMMERCIAL REQUIREMENTS

- 1. Currency must be in **Philippine Peso (PhP)**.
- 2. Bid prices in the Bid Price Schedule must be inclusive of Value-Added Tax (VAT)
- 3. Project Completion (Delivery):
 - a) Delivery within **Three Hundred (300) calendar days** from receipt of Notice to Proceed.

Delivery Location: General Hughes corner Duran St. City Proper, Iloilo City 5000.

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- 4. Price Validity: Ninety (90) calendar days from date of closing of the bidding event.
- 5. Payment Schedule
 - a) Down Payment <u>Twenty percent (20%) of the contract Sum</u> payable within thirty (30) days from the issuance of Notice to Proceed and upon receipt of corresponding billing invoice, provided that, the Contractor submits an Irrevocable Standby Letter of Credit by a Commercial Bank or Down Payment Bond issued by a bonding company acceptable to MORE Power.
 - b) Progress Billing monthly progress payment payable within thirty (30) days upon submission and receipt of billing invoice from the Contractor and issuance of Work Accomplishment Certificate (WAC) and signed by MORE Power's authorized representative less recoupment of the twenty percent (20%) advance payment and the ten percent (10%) retention.
 - c) Retention The Owner shall be entitled to withhold the amount equivalent to ten percent (10%) of the Contract Sum and shall retain the same pending complete fulfillment by the Contractor of all its obligations under the Agreement ("Retention Money"). The Retention Money shall be released upon issuance of Project Final Acceptance, or, in the alternative, upon posting by the Contractor of a Surety Bond in an amount equivalent to the Retention Money, issued by a Bonding Company acceptable to MORE Power.

Section V: BIDDER REQUIREMENTS

The following documents must be submitted by the **Contractor** during the bidding proper:

- 1. Valid joint venture agreement, if any
- 2. List of at least three (3) existing major clients for the last five (5) years;
- 3. DTI/SEC/CDA Registration Certificate;
- 4. Updated Mayor's/Business Permit;
- 5. BIR Form 2303;
- 6. Valid Tax Clearance or Sworn Application for Tax Clearance with previously issued Tax Clearance;
- 7. Philippines Contractor Accreditation Board (PCAB) License category "B" or higher, with SP-EE (Electrical Works) specialization category "B" or higher;

- 8. Latest Income Tax Return;
- 9. Latest Business Tax Return (VAT or percentage tax);
- 10. Statement of all ongoing and completed government and private contracts, including contracts awarded but not yet started of projects similar to the contract to be bid.
- 11. Statement of the bidder's Single Largest Completed Contract (SLCC) within the past ten (10) years, which shall have a contract cost of *at least* fifty percent (50%) of the Approved Budget for the Contract (ABC) and similar to the contract to be bid. The SLCC shall be inclusive of VAT and taken at face value (*e.g.* not subject to price adjustments or escalation for projects completed in the past years);

For purposes of Item 9 and 10, "similar" shall mean Contracts which have <u>the same major</u> <u>categories</u> of the scope of works, which shall be the following:

- a) Direct (hands-on) experience in the construction and development of a high voltage substation. For this purpose, "high voltage" shall mean a voltage level of at least 69 kV or higher.
- b) Experience in testing & commissioning of a power transformer (mobile substations included) of *at least* 10 MVA and 69 kV at the high side.
- c) Experience in the supply, fabrication, erection, and installation of steel structure gantries (I-beam type)
- d) Experience in the installation, wiring, and termination of main control and protection panels / switchboards.
- 12.2023 Audited Financial Statements stamped "received" by the BIR or electronic submission with receipt duly acknowledge by the BIR;
- 13.2024 Audited Financial Statements stamped "received" by the BIR, *if available, or* unaudited 2024 Financial Statements duly certified by the Company's President, CEO, or highest-ranking officer;
- 14. Cash flow forecast for the next twelve (12) months;
- 15. Computation of Net Financial Contracting Capacity (NFCC). However, a bidder may submit a committed Line of Credit from a Universal or Commercial Bank, in lieu of its NFCC computation.

The computation of a bidder's NFCC must be at least equal to the ABC to be bid, calculated as follows: NFCC = [(Current assets minus current liabilities) (15)] minus the value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started, coinciding with the contract to be bid.

The NFCC computation shall be determined for both the 2023 Audited Financial Statement and the Audited/Unaudited 2024 Financial Statements.

Section VI: BID PRICES

The **Contractor** shall complete the appropriate Bid Price Schedule stating the unit prices, the total amount to be undertaken under the Contract, as well as the offered brand as maybe applicable.

Section VII: DELIVERY TIME

The **Contractor** shall complete the performance of the Scope of Works within **Three Hundred (300) calendar days** from the date indicated in the Notice to Proceed (NTP). Failure by the **Contractor** to meet the guaranteed completion date shall make the **Contractor** liable for liquidated damages.

For avoidance of doubt the following terms shall have the following meaning:

- Project Provisional Acceptance certificate issued upon completion of at least 95% of the Project provided that the substation is energized or is ready for energization.
- 2. **Project Completion** certificate issued upon 100% completion of the Project and all deficiencies are corrected.
- 3. **Project Final Acceptance** certificate issued after the three (3) year Defects Liability Period.
- 4. **Defects Liability Period** is the period from issuance of Project Completion to issuance of Project Final Acceptance.

Section VIII: LIQUIDATED DAMAGES

Contract shall contain a provision on liquidated damages which shall be payable by the **Contractor** in case of breach thereof. The amount of the liquidated damages shall be at least equal to **one-tenth (1/10) of one percent (1%) of the total contract cost for every day of delay.** Once the cumulative amount of liquidated damages reaches **ten percent (10%)** of the amount of the contract, **MORE Power** may rescind or terminate the contract, without prejudice to other courses of action and remedies available under the circumstances.

Section IX: DOCUMENTATION

Document to be submitted by the **Contractor**:

- 1. Shop Drawings
- 2. Design and Construction Drawings

- 3. As-Built Drawings
- 4. Test Results
- 5. Operation Manuals
- 6. Equipment Manuals
- 7. Maintenance Manuals
- 8. Certificate of Training Conducted

Section X: OTHER WARRANTIES

- The Parties intend that an independent contractor-employer relationship shall be created. **MORE Power** is interested in the result to be achieved. The Contractor shall have entire charge, control, and supervision over the works and services herein agreed upon and shall regularly monitor the performance of the employees to ensure quality of works.
- 2. It is agreed and understood that the **Contractor** shall have the exclusive authority to select, engage, and discharge its employees or otherwise direct and control their services. The determination of wages and salary or compensation of its employees shall be within its full control.
- 3. In the performance of the agreed services, the **Contractor** shall deploy and assign enough trained and experienced employees to carry out the works in accordance with the terms of the contract.
- 4. The **Contractor** shall provide its employees with appropriate identification cards, appropriate uniforms, safety equipment and tools, and personal protective equipment (PPE). The Contractor shall ensure that its employees have undergone the necessary environmental and health and safety trainings for the type of services they are to perform.
- 5. The **Contractor** shall hold **MORE Power** free and harmless from any and all damages, injuries, liabilities, suit, claims, losses, cost/and or expenses (including attorney's fees) arising from Contractor's non-compliance with the requirements stated herein and from negligent or deliberate acts of the Contractor's employees while in the performance of their duties.
- 6. The **Contractor** shall be answerable or accountable for the accident or any injuries or death which may occur to any of its employees during the performance of the works under the contract.
- 7. To the extent permitted by law, **MORE Power's** maximum aggregate liability to the Contractor for damages arising out of or relating to this Project whether based upon contract, tort, delict, strict liability, breach of statutory duty or any other basis

for liability, shall not exceed the total value of the contract to be paid under this Agreement.

8. The **Contractor** may not subcontract or assign any of its rights, responsibilities or obligations under the Contract, either in whole or in part, to any third party without the prior written consent of **MORE Power**.

Section XI: VALIDITY AND SAVING CLAUSE

If any provision of the **TOR** shall be void or unenforceable for any reasons, such provision shall be ineffective to the extent of that voidability or unenforceability without invalidating the remaining provisions thereof, provided however that the Parties shall replace any void or unenforceable provision by valid and enforceable language as come nearest to the original provision in economic impact and intent.

MORE Power may terminate the **Contract** in whole or in part at any time if it has determined the existence of conditions that make contract implementation economically, financially, or technically impractical and/or unnecessary.

Section XII: CONSTRUCTION PLAN, DESIGN AND DRAWINGS

MORE Electric and Power Corporation shall provide the **PLAN**, **DESIGN**, **& DRAWINGS** for the construction upon the issuance of the Notice to Proceed (NTP).