CBRM LV SWITCHBOARD AND GENERATOR REPLACEMENT PROJECT SPECIFICATION

Introduction

The Medicines and Healthcare products Regulatory Agency is an Executive Agency of the Department of Health established on 1 April 2003. We have around 1,000 staff, with a total budget of approximately £150 million. We protect and improve the health of millions of people every day through the effective regulation of medicines and medical devices, underpinned by science and research.

Scope

MHRA – South Mimms Site, Potters Bar

The institute is a world leader in assuring the quality of biological medicines through product testing, developing standards and reference materials, and carrying out applied research. The Centre for Biological Reference Materials supports the agency in ensuring reference materials are produced, stored, sold and shipped to all requesting companies. This project aims to replace the existing LV switchboard housed within the CBRM substation plantroom and replace the existing power generator with a higher rated size to make the building fully essential in keeping with the site standards.

Specification

- Manufacturing preference for the LV switchboard is with Underwood's Engineering products ltd (UEP, Ltd.). This is to enable uniformity and keep with the site current standards regarding LV Switchboards.
- Generator manufacturer preference is nonspecific but must be of equal quality to Volvo or Perkins the new generator will come under an existing service contract after an expired warranty. The new generator be rated at 1000KvA minimum, and either be able to run on HVO fuel or be able to run on Hydrogen or similar fuel ready for net zero plans.
- The contractor must provide as an option the cost to supply and install an Uninterrupted Power Supply rated at 1.5MVa with lithium-ion polymer batteries and 30-minute autonomy.

Access to the CBRM substation plantroom will be via the perimeter road and pathway. This project requires high level of detailed planning for execution. The contractor should be aware that the project execution and installation will be carried out over several weeks as allowed by the building owners. The contractor may be allowed on site this week and asked to vacate for other works to be carried out prior to continuing with the installation.

Method of build (In Scope)

- The design, manufacture and build of the switchboard will be approved and a drawing reference will be available for all to tender with. This is provided by UEP.Ltd and made available to potential principal contractors by UEP ltd for their tender response, the project therefore is for a principal contractor to oversee the manufacture, accept delivery and install to a pre agreed programme of works. The new switchboard will house sufficient outgoing ways with populated spare ways protected by Schneider Micro logic circuit breakers to ensure a fully essential status covered by a new generator. Critical spares for the ACB's will be agreed and procured by the principal contractor.
- All works to be completed during the usual agreed SLA period generally the month of January. We are currently targeting January 2023 for completion.
- Switchboard panel to be form 4 and all containment to be at least IPx4
- The contractor must allow for a new standalone power factor correction panel will need to be manufactured or procured directly. The PF panel to allow for heat dissipation and ease of future maintenance requirements
- HV switching will be required for the connection of a fully rated supply cable to the new mains LV switchboard (HV isolation maybe contained locally for the building but could require a site wide agreement dependent on the main LV section final positioning)
- The contractor must allow for Schneider Micro Logix circuit breakers which will allow for consumption metering and have the facility to connect to a centralised management system of either Schneider or other manufacture.
- Mains phase failure monitoring, control and changeover to be of Deep-sea manufacture
- The contractor must ensure standards are met in jointing of existing cables to new cables to facilitate final connections would be deemed necessary and can be within a preformed jointing panel, new cables may not be armoured as long as sufficient protection is afforded.
- Generator, approval, acceptance, install and commissioning to be overseen by the principal contractor, civil works are likely to be required for the new generator footprint and fuel bulk tank footprint. Civil works may be required for new feed cables to be installed, the existing ductwork may not suite. The generator to be sized accordingly but likely to be circa 1000Kva. If going the hydrogen route, fuel tank will have to include relevant consents & permissions. Will require external expertise. Looking at https://www.shlegal.com/docs/default-source/news-insights-documents/2021/hydrogen-projects-regulation-and-consents.pdf?sfvrsn=15c6eb5b_2. There is currently no dedicated planning regime for hydrogen projects. The UK hydrogen strategy states that the government aims to have planning and permitting regimes in place before 2024. In the meantime, the regimes applicable to the

chemical and gas processing industries, as well as power generation and carbon capture and storage (CCS), may all be relevant. Depending on the size, location and type of the intended development, a hydrogen project may require:

  - Development consent under the Planning Act 2008 (PA 2008) (see Nationally significant infrastructure projects). • Express planning permission under the Town and Country Planning Act 1990 (TCPA 1990) (see Planning permission under TCPA 1990). • Section 36 consent under the Electricity Act 1989 (see Consent under section 36, Electricity Act 1989).

- The contractor must allow for a Fuel bulk tank to allow for 48hrs reserve or greater and must comply with current standards. The standard Fuel type is HVO unless the supplied generator runs on an alternative fuel like Hydrogen.
- The contractor must allow for Earthing arrangements to account for the localised HV substation and to account for HV standards.
- The contractor must ensure all Electrical containment methods to comply with BS7671 current edition.
- The contractor must allow for the relocation of the existing CBRM Ring mains unit and the Transformer to allow the installation of the new Switchboard.
- The contractor must ensure all works are to be certified to BS7671 18th edition Including the current amendments (overvoltage protection required, surge class to be determined) and commissioning reports provided within an O&M.
- The contractor must allow for training on the new generator for our monthly routines and any manual intervention to be provided by the principal.
- The contractor must allow for 800KvA mobile backup generator that will be stationed on the site for the duration of the project.
- The contractor must allow to recover the existing 500KvA generator and fuel tank from site and safely recycle with available credits coming back to NIBSC.
- There will be a mandatory site visit organised for all the prospecting contractors for these works during the tendering period. The lead time for the design and manufacturing of the new LV Switchboards must be included within the contractor's tender return.
- The proposed site visit is scheduled for the 14th of June 2022. All contractors who attend the site will be issued the drawing of the area including services. This is mandatory for all prospecting contractors.

Trend Controls

- Trend (BMS) Digital inputs to the site BMS are to be agreed but must at least incorporate main and generator ACB (air circuit breaker) status and voltage failure.

Test and commissioning

The final settings of the electronic protection relays and cable sizes are to be provided for a Trimble protect software grading survey, this software suite is licensed to NIBSC and can be made available to the principal contractors commissioning engineer if and when required for this purpose of this testing. It is the contractor's responsibility to test and commission the new Moulded Case Circuit Breaker as required.

Compliance

The circuit breaker unit must comply with but not limited to the following standards, regulations and guidance.

- BS 7671 – 18th Edition + current amendments of the IET Wiring Regulations
- HSG230 – Keeping Electrical switchgear Safe
- The following standards have been attached so that compliance can be enforced for the installation. BS 6423-2014. BS 6626-2010, BS 7430-2011, and BS EN 50522-2010.

Method of Installation

All works to be tabled and agreed to allow for parts of the building that doesn't shut down for servicing requirements, prescheduled slots for final connection to be agreed, the principal contractor however must be flexible along with business requirements.

Additional Requirements

In addition to the requirements stated above, the contractor must allow for the fabrication of the 20,000 Litres HVO bunded tank on a gantry to allow possible decant into IBC's when needed around site. Any holes drilled through the slab between the plantroom and any room must have a fireproof sealant, sealing the hole where a cable pass through.

- All redundant services are to be removed and the area left clean after the completion of the project. All plant and its subsidiary components must be easily accessible for routine servicing and maintenance. The new Installation should allow for a clear access route to and for maintaining the new plant. All spares must be easily obtainable with minimal lead times.

O & M Manual

Electronic O and M manuals will be provided at the end of the works, showing as installed drawings, routine service parts and the frequency of maintenance. Electrical certificates along with information etc. any manufacturer's literature must also be included. Control panel drawings will include SET drawings for the Trend controllers.

Site Pictures

Below are some of the pictures taken to the contractors the first glimpse of the site.

Earth Bar to Be relocated by the contractor.

CBRM Ring Main

CBRM Transformer Name Plate

Existing LV Switchboard

Another view of LV Switchboard