**University of Plymouth – Building Energy Management Systems**

**16th February 2021**

The University of Plymouth is considering the upgrade of the remaining obsolete elements of its Building Energy Management System (BEMS). There are currently a range of systems installed from different manufacturers, the majority of which are obsolete. The aim is to replace the obsolete elements with modern equipment that integrates the existing upgraded elements into a single BEMS. Suppliers who are able to comply with the requirements set out below are invited to respond by **9th March 2021**

Description of the procurement:

The current BEMS is comprised of three obsolete, or soon to be obsolete systems and two current systems. The obsolete systems are:

* Andover Continuum
* Satchwell Sigma
* Trend 963

The systems above are listed in relative size, with the majority of the building estate is covered by the Andover Continuum, with the Trend 963 covering one building.

The current systems are:

* Schneider Electric Ecostruxure Building Operation
* Trend IQ Vision

Again the systems above are listed in relative size, with Trend IQ Vision covering just one building.

The University of Plymouth is seeking to modernise the BEMS in order to assist with its sustainability ambitions (namely net zero carbon in scope 1 and 2 emissions by 2025) and further its aim to move towards a ’smart campus’.

With regard to the above, it is anticipated that a modernised BEMS will have the following attributes:

Capable of efficient control of HVAC equipment, lighting, blinds and other Internet of Things (IoT) devices forming part of a smart campus system and utilising advanced energy saving strategies.

There is a requirement that the communication protocols available in the current BEMS - LON, BACnet, Modbus and Infinet via MSTP and IP networks, should all be available natively, without the use of additional or third party interface devices, in any future system. The provision of Infinet capability will be required to provide the flexibility to complete the BEMS upgrade, while maintaining communications to existing equipment and is therefore particularly important. The BEMS controllers should be from the Schneider Electric Ecostruxure range of Automation Servers, Multipurpose Controllers and Room Purpose Controllers or equivalent, but must be compatible with the wider BEMS solution.

The BEMS software should provide centralised management via a Client/Server architecture and multiple operator workstations so that users can configure, control and monitor the system. This should include high quality vector based graphics with animation and photo real capability. The software should provide full user programming capability natively, with text and graphics based software programming tools. Systems that employ separate engineering and programming software to that used by an operator, shall not be acceptable. The software should also provide centralised alarm and logging data management. Logged data is to be exportable automatically, to external open source databases. The data stored in external databases should be available to servers and users, via the BEMS software natively and without the use of third party software.

The BEMS should be capable of providing user configurable web based graphic dashboards which can be utilised in a slideshow to provide information to building users via graphics, graphs and charts. Any live or logged data (including external database data) should be available to display in a dashboard.

The capability to share operational data, including alarms and historical information, between different software applications, utilising a web service is required. The BEMS should be capable of operating as a web service client or server.

There is a requirement to export logged data to an off-site energy monitoring and targeting software service provider. The BEMS supplier shall also be capable of providing a compatible data sharing application from an open, extensible and configurable application framework, to accommodate this and future data sharing requirements but must be compatible with the wider BEMS solution.

In addition to the BEMS software, the supplier should also be capable of providing additional and compatible Building Analytics software or software as a service (SaaS). This should be capable of advanced analytics, using algorithms to determine underperforming plant operation and energy waste. It should also be capable of aiding maintenance priorities, by attributing financial consequence for each non-conformance identified. The analytic software could be Schneider Electric Building Analytics, or equivalent but must be compatible with the wider BEMS solution.

The BEMS will also be required to contribute to the efficient use of space and improve occupant experience within buildings. There is a requirement for the BEMS supplier to be able to provide a system integrated with the BEMS to optimize space utilisation. It is envisaged that this will take the form of a system capable of utilising multiple sensing technologies in IoT devices to collect occupancy data, which is then analysed. The data should be collected and available in real time, through dashboards and mobile wayfinding apps, to enhance occupant and space management decision making. The space utilisation system could be Schneider Electric Workplace Advisor or equivalent but must be compatible with the wider BEMS solution. ­

­­­­­­­­­­­­­­

The adopted BEMS solution will need to be supported for a minimum period of 10 years with pre-agreed Maintenance packages.

The University expects all hardware provided to have a substantial period of parts and labour warranty, please indicate how the solution meets this requirement.