



Remote commissioning of a new BEMS using a virtual presence

The project was to install a BEMS control & monitoring system for a vaccine manufacturing facility in Europe owned by a major global pharmaceutical company during the Pandemic.

The BEMS needed to control and optimise a new AHU to enhance the company's level of redundancy and support existing plant assets by utilising an effective Duty-Standby arrangement. Without this arrangement, they were at an increased risk of system downtime and the corresponding negative consequences that would go with their assets being out of operation. Supporting and powering their critical plant assets is a Siemens Apogee system designed and installed by SSE Enterprise Energy Solutions.

The Challenge

The demands made upon this pharmaceutical company, and indeed the world, were immense at this time. Operating within the midst of the global coronavirus pandemic, these works were to be performed in very challenging times. The works were scheduled to take place within a very tight window that aligned with other works. This gave us only one week in October to commission and set the plant to operate.

Making the situation even harder was the very strict lock-down and travel restrictions correctly imposed by various nations governments in efforts to contain and reduce the spread of the potentially deadly coronavirus. The company were therefore looking to maintain maximum availability and uptime, improve utilization of assets, all whilst managing energy usage & costs. They were looking for a BEMS provider that could design, install and

maintain their system so that they could continue with their science-led biopharmaceutical business operations.

The Solution

Our solution was to provide the company with a BEMS system that controlled the Air Handling Units in a Duty/Standby arrangement but, importantly, our engineering and commissioning were all carried out remotely over a secure VPN connection by our engineers communicating directly from our offices in the UK to the site in The Netherlands.

Approach


















The sequence and methodology below relied on a real-time video/voice link between the site and SSE Enterprise Energy Solutions. The exact applications used were thoroughly tested well in advance of the commissioning phase, hence we were able to embark on the process

with a high degree of confidence that the link was resilient and would perform the functions required by us. Added to this, a backup plan had been considered and tested to give both us and the client additional comfort around deploying the solution. Using the link, we were remotely communicating from our SSE UK office location, directly into the new controller before it was connected to any existing active BMS network. This removed the possibility that any live functions would be interrupted and also removed the need for SSE engineers to travel to the site.

It also enabled point-to-point checks directly into the controller database and allowed calibration and signal orientations to be fully checked. Following this, the control and monitoring software was operationally checked using commissioning tools with on-site staff being available locally to trigger mechanical alarms and resets etc.

The use of a remote link from an office into an existing site system is well established and has been used in the past for diagnostic support and minor software changes. At the time it had not been used for the full end to end commissioning of the system due to various practicalities

around site interfaces, concurrent working with other trades etc. Having said this, it is more than possible to achieve, provided all parties know and understand their responsibilities and this is what made the difference and allowed us to remotely commission the system which included modifying the server database to incorporate the new controller, loading the new graphics and checking the new controller's interoperations.

Offsite work by SSE	Onsite work by others	SSE remotely connected
 Obtained a copy of the site database and loaded it into the software tool	 Mechanical installation of the new control panel	 SSE configured the new controller and loaded the controller database via s/w tool
 Examined existing control software to understand how the controller changes would enable new functionality	 New control panel was wired up	 I/O point-to-point checked from field device through to the controller database and s/w tool graphics
 Configured a virtual controller with pseudo points to test the new software using panel drawings	 I/O point-to-point checked from field device through I/O module terminals using drawings	 At this stage, the new controller was not connected to the site network
 Created pseudo points to test software operation and changeover failures	 At this stage, the new controller was not connected to the site network	 Connected via link to the database server, the new controller is configured & the new graphics loaded
 New graphics were created	 Once all dead and live testing was complete, power was applied to the panel	 The new controller was now connected to the BEMS network
 Wrote new control software and tested operation, changeover failures to the new graphics	 When powered up the new controller automatically loaded its operating system from RAM	 Using the remote link to the database server, SSE uploaded the new controller database
 Disabled as-tested software and saved the database to the software tool	 A link was then established to allow SSE to communicate directly to the controller in the panel	 Software was enabled & tested for interoperation between associated systems & controllers

Testimonial

"The value we found in using SSE was the quality focussed delivery which we felt set them apart from their competition. All of our employer requirements were understood right at the outset and SSE offered tailored solutions and technical expertise that both matched and in some instances exceeded our expectations. Given the importance of our operations, we value understanding and we found that SSE utilised smart design techniques, and meticulously planned the delivery of the project so all of our requirements were effectively weaved into a holistic interconnected system.

The outcome for us was that we had enhanced the resilience of our critical assets and this gives us the comfort we need to continue with our efforts in advancing science-led biopharmaceutical endeavours."