



CASE STUDIES



Case Study

The University of Glasgow

Glasgow University CHP system | The BMS system used was Trend

Value	£925,000
Duration	2 years (2014-2016)

Introduction
<p>In 2014 the relationship between Laplace Solutions and The University of Glasgow developed further when Laplace Solutions was chosen to embark on the 16 million pound project of developing the combined heat and power engine.</p> <p>The University of Glasgow estate covers about 200 properties from modern to historic buildings. Furthermore, it includes a wide variety of challenges because of the architecture and uses of the buildings. The campus is a very busy place to work due its large geographical area and numbers of users physically on the campus.</p>

Aim
<p>Glasgow University was running with an out of date system which was over 50 years old. The steam boilers themselves were over 30 years old. The University needed to enhance the controls of the system in order to become more energy efficient, reduce carbon and ultimately adhere to the image of being a green establishment.</p>

Team Members + Roles	
Iain Henderson	Project Overseer
Stephen Brown	Project Manager
Sid Manchanda	Manage, Review and Improvement of QHSE
Glen Johnstone	Manager of Finance
Tony McDermott	Reactive Works
Brian Simpson	Works Arising
Chris McLean	Projects
Billy Campbell	Controls Engineer

Objective
<p>The CHP project was to upgrade the University's steam plant into a modern CHP System. This involved the main new Energy center plus the upgrade of 55 satellite plant rooms. The energy center had the main control panel and the plant rooms all had a new control panel installed.</p>

Outputs
<p>We wrote the software for all the upgrades including enhance graphics for the energy center. We meticulously planned the project and were involved in the design of the system to a tight timescale. As we do not subcontract any control panel build or installation we were able to manage the contract to a successful conclusion. All of the work was undertaken from our in house team and we have a pool of 75 employees over multi disciplines who we can schedule to undertake the work. Part of the requirement was to produce a monthly report on how the system was performing for a year after the handover of the system.</p>

Outcomes
<p>This installation will provide a flexible and sustainable energy supply which is fit for the future and will ultimately reduce the University's carbon footprint. Furthermore, it will:</p> <ol style="list-style-type: none">1. Reduce annual operating costs and carbon emissions;2. Provide a flexible and sustainable future energy supply;3. Support long term growth of the campus4. Offer the potential to generate income. <p>The results have seen significant reductions in the carbon footprint of the university, as well as smaller energy bills, due to the greater efficiency of the boilers and decreased use of grid electricity. On 15th April 2016, The University of Glasgow released a statement outlining the completion of the multi-million pound project. The system has reportedly cut the Universities carbon emission by 5000 tonnes annually. In addition to the clear environmental and financial benefits, the CHP unit is also providing an excellent teaching resource. A teaching and research area has been constructed beside the plant room, enabling students to view the CHP engine and other features in operation though a large window and view realtime data on a screen.</p>

Lessons Learned
<ul style="list-style-type: none">■ Laplace has the capability to contribute significantly to the wider site team's strategy development. Publicising this fact to a greater extent would have allowed Glasgow University to extract even greater value out of their assets using our wider SMART techniques.■ Combined Heat & Power can have a significant contribution in the medium term to developing a low carbon economy. How to optimize the parameters to minimize risk and maximize opportunities is key to a successful installation. Laplace has gained these experiences through similar jobs and can bring its unique industrial problem solving capability to the Clients team to jointly achieve the longer term aspirations.