chp QA

CHP case study

Queen's University Belfast

The Site:
Queen's University Belfast Main Site and Ashby Site

Over 23,000 FTE students and 3,700 staff

The university has carbon reduction targets set within a Carbon Management Plan

Location:
Belfast

Date Operational:
March 2014

CHP Installed Capacity:
2.0 MWe

Investment Cost:
£2.105 million

Annual Cost Saving:
£456,823 million

Project Objective:
Provide heat and power to two sites at Queen's University Belfast in a way that would reduce energy bills and decrease carbon emissions.

The Need:

- The university is aiming to reduce its carbon emissions by 10,000 tonnes by 2020
- The CHP schemes were installed to help reduce the university's energy bills

Implemented Solution:

- 1.2MW CHP engine was installed at the Main Site and connected to existing on-site infrastructure
- 0.8MW CHP engine was installed at the Ashby Site
- The smaller CHP unit was installed in an existing plant room but had to be built in modular on-site due to space restrictions

The Benefits:

- The scheme is projected to create annual cost savings of £456,823 with 4.6 years of payback period and carbon emissions are to be reduced by 1,269 tonnes CO_2 per year.
- Excess heat from the CHP is exported to the neighbouring Botanic Gardens that leads to reduced heating costs
- A viewing gallery was also included to allow students to see the CHP plant in operation to help raise awareness of the application of CHP and its long term environmental benefits
- Two additional engines sized 150kWe and 250kWe will be installed at the Centre for Experimental Medicine and the Elms Village student accommodation site

'The Combined Heat and Power initiative is central to the University's Carbon Management Programme and contributes substantially in reducing our emissions. We and neighbouring organizations benefit both environmentally and financially from the scheme.'

John Nugent

Head of Estates Development