UNIVERSITY of STIRLING

Supporting Sustainability

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BE THE DIFFERENCE

Baseline and Targets

- 2007/08 Carbon Management Plan: baseline figure 16652t Co^2/annum
- Reduction on baseline figure of 20% by 2012/13
- Reduction on baseline figure of 38% by 2020
- Investing/Salix

The Project

- New residences design: BREEAM excellence required ‘low carbon solutions’ Solar water heater, Photovoltaic (investment circa £250k) not a step change in reducing Co^2 emissions, CHP

- Feasibility study funded partially by The Carbon Trust: Biomass boiler vs gas fired CHP identified potential 2882t Co^2 per annum (18% of baseline data) reduction

- Installation of a gas fired combined heating and power plant including conversion from MTHW to LTHW and upgrade of control systems

The Enablers

- New residences project requiring circa £250k on renewables
- Existing infrastructure i.e. DHN delivering heat to academic teaching buildings/ residences and 11kV Network
- Swimming pool
- University commitment from the outset
- 2013 Funding: £2M from SFC

The Challenges

- Timescales: Set by Scottish Government and Public Sector Procurement
- Desire for complete project to be undertaken by SFC
- Conversion from 3-port to 2-port control
- Working on a live campus with centralised boiler plant

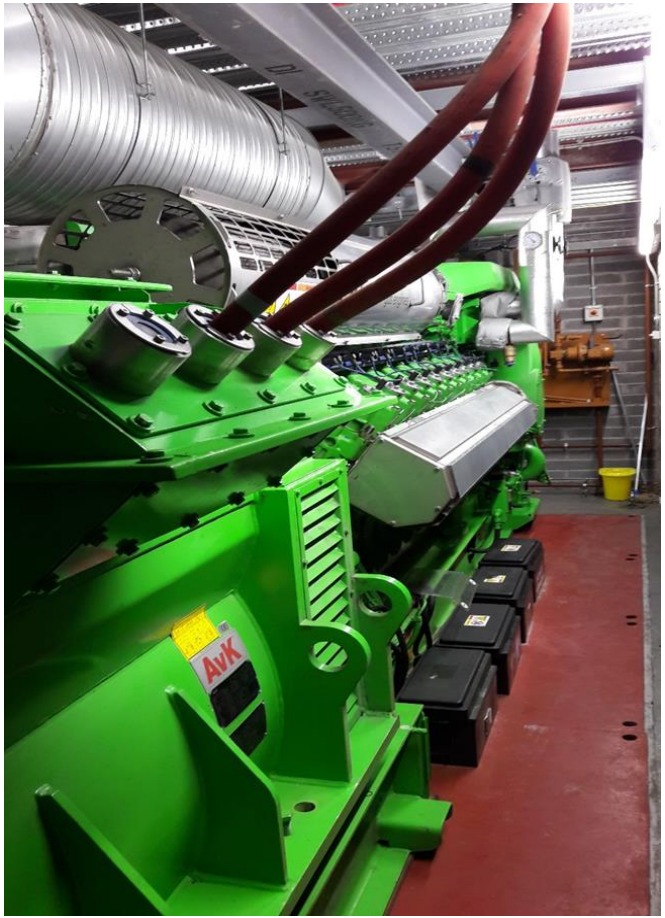
Challenges

- Ascertain heat load profiles for buildings theoretical vs actual
- Sizing of the engine and lead time
- Generate at LV or HV
- Consideration of using low grade heat from lubricating oil circuit
- Suitability and condition of existing concrete chimney

Benefits

- Reduction in University's carbon footprint by 2882t co^2 per annum and associated financial saving circa £550k per annum
- Knowledge sharing with other Universities
- Working with University of Stirling students on MSc course in Environmental Sciences
- Working with local schools promoting low carbon technologies


Jenbacher


AvK


COCHRAN BOILERS
Thermax

The Future

- Current emissions footprint 15/16; 11990t Co^2 (28% reduction on 2007/08 baseline)
- Photovoltaic
- Embracing green travel/electric car facilities
- Improving resilience of main water network and elimination of leaks
- Further installation of LED fittings

The Future

- 6MW burner upgrades to include 0^2 trim
- Further optimisation of BEMS control systems
- Further collaboration with staff & students: interhall competitions, energy reduction campaigns

END