Server room cooling
by University of Northampton

BEFORE:

- 4 x 30 kWh Denco air conditioning units (fixed speed fans) cooling 110m² server room (25 cabinets)
- 40% populated
- 250,000 kWh (2010-11)
- 8,760 x 28 kWh = ~245,000 kWh
- PUE (Power Usage Efficiency) 2.3
- £21,750 / year running costs

AFTER:

- 4 Variable Speed Fans at £4,000/unit installed, cold aisle containment £15,000
- Project cost £32,500
- Load reduced by 50% to 14 kW (average)
- PUE improvement to 1.75
- Integrated into BMS (duty rotation of AC units)
- £10,000 saving / 100,000 kWh year projected
- 3.25 yrs payback
- 68 tCO$_2$ saved / year

Project completion – March/April 2012

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Supporting Comments:

- Air conditioning inefficiencies identified through analysis of half hourly data from AC units (grade 2 listed building refurbished in 2009 (£9m project)

- Energy savings calculated on current price of 10p/kWh (likely to increase)

- Denco are the manufacturers of the AC units, VSFs to be installed by Denco and Nubis for hot/cold aisle containment (many companies offer hot/cold aisle containment as retrofit/new build)

- Understanding the function of AC units in server room (temperature + humidity control) – Mobile data loggers to monitor environmental conditions

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SOLVING ENERGY EFFICIENCY FINANCE IN THE PUBLIC SECTOR