

# ConCom in Practice

## Imperial College Healthcare NHS Trust

**Winner- Low Carbon Consultant: Innovation of the Year Award 2008**

*An example of what ConCom has delivered*

Case study Imperial College Healthcare   
NHS Trust



Imperial College Healthcare NHS Trust has recently been formed by the merger of St Mary's and Hammersmith Hospitals NHS Trusts in partnership with Imperial College for Science and Technology to become the UK's first Academic Health Services Centre.



LOW CARBON  
PERFORMANCE  
AWARDS

### **Winner- Low Carbon Consultant: Innovation of the Year Award 2008**

For the ConCom project at Imperial College Healthcare NHS Trust, ABS consulting won the CIBSE - Low Carbon Consultant: Innovation of the Year Award 2008.

*The Chartered Institution of Building Services Engineers (CIBSE) has launched the Low Carbon Performance Awards to recognise and celebrate actual, proven achievements in delivering carbon savings in buildings.*

*The 'Innovation of the Year' category seeks to identify design or technical solutions, new technologies, new processes or other innovations that have significantly reduced or assisted the reduction of carbon emissions in buildings and which are capable of wider application.*

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### PROJECT

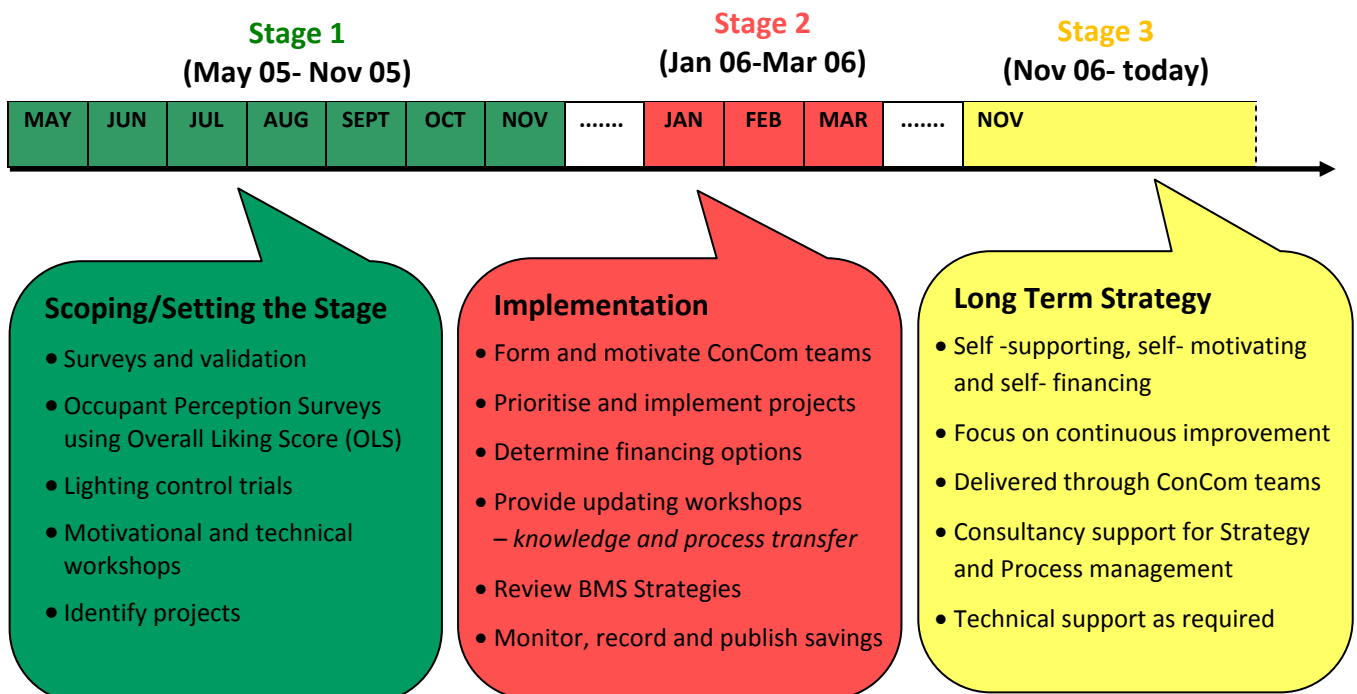
The national NHS target is for a 15% reduction in the use of primary energy from 2000 to 2010. To help achieve this order of savings Imperial College Healthcare, supported by funding from the Carbon Trust, appointed ABS consulting to implement a Continuous Commissioning (ConCom) programme.

The aim of the project was to reduce carbon emissions and reinvest financial savings to realise further cost and carbon savings while maintaining or improving the working environment

ConCom, developed by ABS consulting, provides a strategic approach to the operation of buildings that delivers the optimum of cost and value to the occupier. It enables a building's energy consumptions, carbon emissions and operating costs to be limited to those required to meet the occupier's business needs and to provide a safe, productive and comfortable environment for the occupants. This logical, but innovative approach included:

- Occupancy feedback using the Overall Liking Score (OLS) method to understand potential delivery problems and to demonstrate an inclusive approach to improvement
- Management of a staff awareness campaign followed by training workshops
- Review of Building Energy Management Systems followed by operational improvement implementation
- Review of Air Handling Units followed by operational improvement implementation
- Roll out programme of lighting replacement and installation of lighting controls
- Retro-fitting variable speed drives to fans and pumps.

Below is the TIMELINE OF ACTIONS taken, broken down in the 3 ConCom stages:



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### The Overall Liking Score Fingerprint for the Imperial College Healthcare Estate

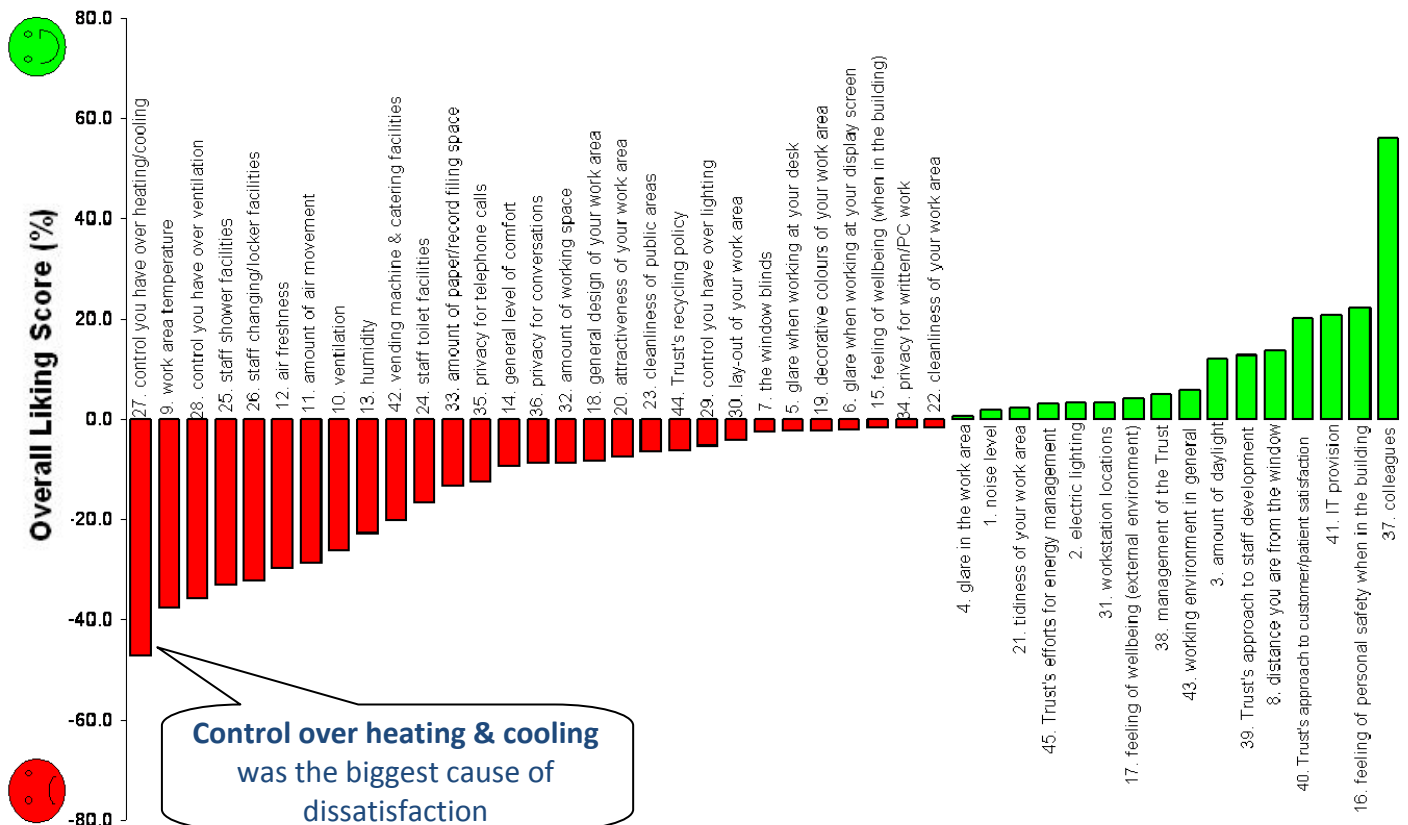
To help the Trust appraise the current performance of its buildings, identify opportunities and prioritise its efforts, we used the Overall Liking Score (OLS) technique during the first stage of ConCom to obtain staff perception on their working environment.

Overall Liking Score (OLS) is a process that collects and analyses occupant feedback on their perception of the quality of the working environment. This helps management to identify and prioritise improvements to locations and systems that are causing occupant concern. This will often lead to improved energy efficiency and greater occupant comfort.

The OLS Fingerprint below presents the results for the whole Trust. Overall, the Trust scored an OLS (aggregate of all aspects studied) of -5.5%.

The Trust's OLS score is slightly on the negative side of the median score of -3.8% for all working environments rated by ABS.\* This indicates that respondents are marginally dissatisfied with their overall working environment. The aspects of most concern are related to the heating, ventilation and air-conditioning (HVAC) systems within the buildings. Priority was therefore given to improving the HVAC services in the locations that received poor scores. Initially this included reviewing automated controls and adjusting operation times and temperature set-points. The next priorities included electric motors for fans and pumps, lighting and lighting controls, good practice housekeeping and an awareness campaign.

### Detailed OLS Fingerprint



Building Overall Liking Score (OLS): -5.5%\*

\*ABS has measured over 100 working environments with OLS scores ranging from -39% to +31%

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### SAVINGS' TARGETS:

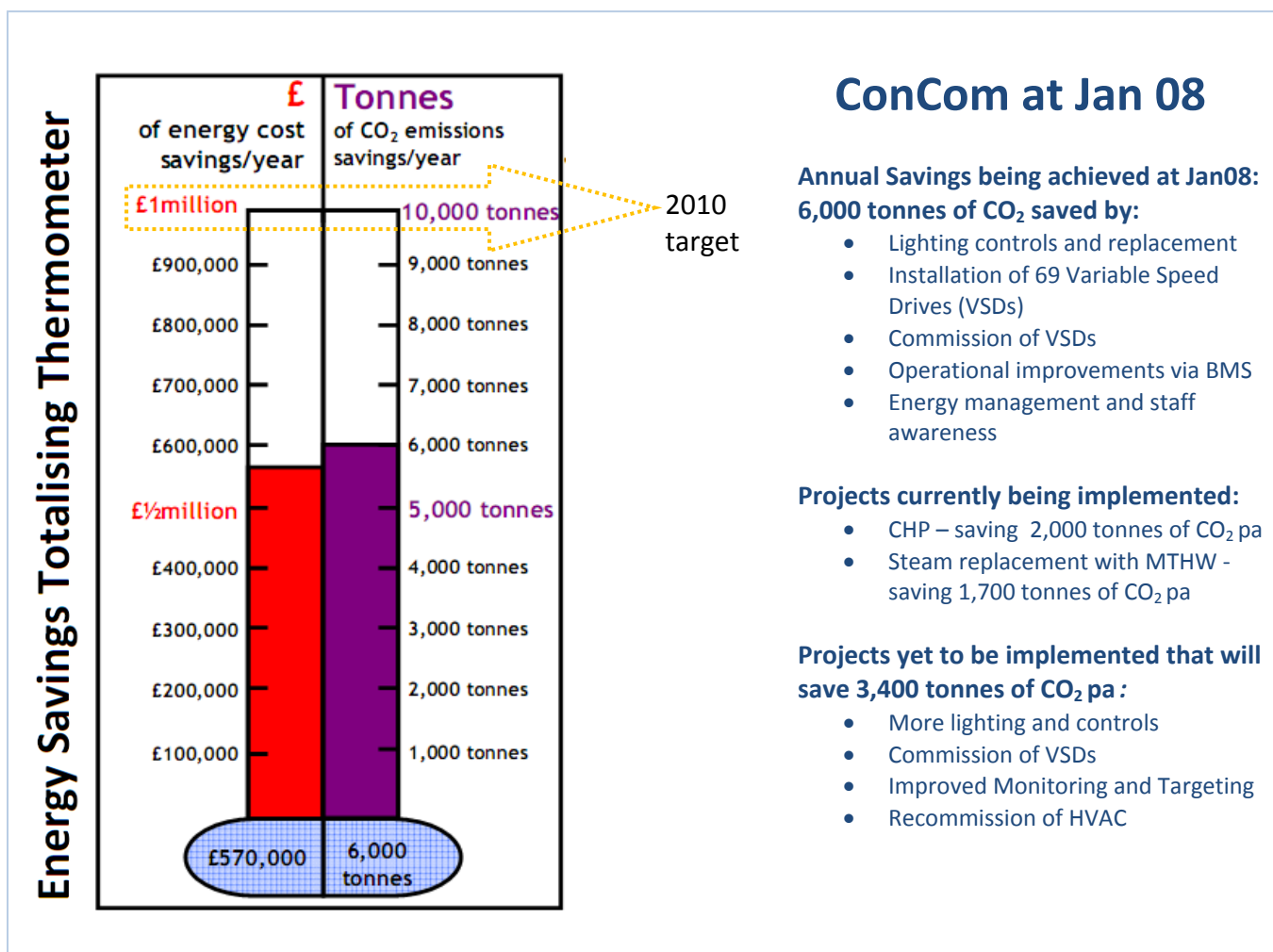
Measure	MWh savings	£/yr savings	CO2 savings t/yr
BMS & AHU operation improvements	9,600	£256,000	2,424 tonnes
Low cost ConCom initiatives	2,500	£120,000	750 tonnes
Lighting and controls	3,960	£243,000	1,750 tonnes
Variable speed drives & EFF1 motors	2,420	£145,000	1,040 tonnes
			<b>5,964 tonnes</b>

The above targets were those set at project inception. Other projects being implemented include:

- Installation of a 2MWe CHP system
- Replacement of steam boilers and distribution with MTHW
- Further lighting and lighting controls projects

### BENEFITS as of Jan 2008

As the graph below illustrates the original CO<sub>2</sub> saving targets are being achieved, with 6,000 tonnes of CO<sub>2</sub> per year being saved at January 2008. Projects currently being implemented are estimated to save another 3,700 tonnes of CO<sub>2</sub> per year, with a further 3,400 tonnes from projects yet to be implemented. The process is continuous and it is expected that further opportunities will be identified, implemented and monitored.



## ConCom at Jan 08

Annual Savings being achieved at Jan08:  
6,000 tonnes of CO<sub>2</sub> saved by:

- Lighting controls and replacement
- Installation of 69 Variable Speed Drives (VSDs)
- Commission of VSDs
- Operational improvements via BMS
- Energy management and staff awareness

Projects currently being implemented:

- CHP – saving 2,000 tonnes of CO<sub>2</sub> pa
- Steam replacement with MTHW - saving 1,700 tonnes of CO<sub>2</sub> pa

Projects yet to be implemented that will save 3,400 tonnes of CO<sub>2</sub> pa :

- More lighting and controls
- Commission of VSDs
- Improved Monitoring and Targeting
- Recommission of HVAC