Nottinghamshire County Council

Beacon Council Scheme: Sustainable Energy

Summary Sheet: Energy in Buildings

Energy Strategy for Buildings

The County Council has a proven track record of delivering energy conservation initiatives and reducing greenhouse gas emissions. In recognition of these achievements it was the first Local Authority to win the 'National Energy Award' in 1984 and repeated this success in 1996 by winning the 'National Public Sector Award'.

This success was due in part to the very successful spend-to-save energy conservation investment programme, which achieved significant carbon dioxide (CO2) and other greenhouse gas reductions up until the programme ceased in 1995. The Council has subsequently been successful in obtaining funding from a Capital Challenge / Private Finance Initiative for a £3.2 million boiler replacement and lighting refurbishment programme (completed in 2000). To make further progress a dedicated energy investment programme has now been re-established.

Public Service Agreement (PSA)

A unique PSA, the first in the UK for Carbon Management CO2 reduction, is a partnership led by the County Council, but including all 7 Nottinghamshire district/borough councils and the Nottinghamshire Police. It will invest £1.5 million and achieve annual emissions reductions of 5,000 tonnes CO2. The Council's share of this investment project is almost £1 million and will contribute by saving 3,500 tonnes of CO2. This will enable the Council's 25% CO2 reduction target to be stretched to 27% by 2006.

Local Authority Energy Finance (LAEF) scheme

A £1million 'Invest to save' scheme that is 50% financed by a Carbon Trust grant has been established to kick-start energy efficiency projects within the County Council's buildings. Approved projects receive a loan to implement energy efficiency measures, making repayments from the savings. This repaid money is then ploughed into further projects and over time the scheme becomes self-financing.

Building Energy Management System (BEMS)

The BEMS is a microprocessor based system that provides the facility to monitor and control any building service. It works by using the intelligent standalone controllers, or outstations installed on site, to accurately control plants such as boilers, pumps, fans, lights and security systems in response to changing conditions such as time, temperature and light levels. The County Council has 90 of its largest energy use sites connected to a central monitoring station located at our main council office. The system makes savings by ensuring that the plant is operating at peak efficiency whenever it is used and that it only operates when needed and has the flexibility to cope with continually changing needs of building users.

Environmental Reporting System

In addition to the BEMS which monitors our main energy use buildings we have a fully computerised monitoring and targeting (M&T) system in order to evaluate performance at all our 600 buildings. Data from all utility suppliers, which include electricity, gas, coal, oil and water, is obtained electronically and imported into a specialist M&T system. This allows the monitoring and performance at all our buildings to be compared against national best performance with the ability to instigate corrective action to improve performance.

Performance Indicator ES12 a & b

The aim of this indicator is to compare the energy performance of our buildings with national benchmarks. This PI is now not compulsory; there is an apparent 'typical' performance of the Council's figures, which is a recent improvement; the Council has an historic use of coal far higher than the national average, however boiler replacements and the introduction of wood fuel have improved performance. Previous investment had targeted our high energy use buildings, which are predominantly schools. There has been no dedicated energy investment for the last 10 years, but this has now been reinitiated via the LAEF scheme in order to improve performance.

Sustainable building design

The County Council has an active capital programme; this consists largely of school extension / refurbishment and new builds, along with offices and social services buildings. At the early design stages we discuss sustainability with clients, with lifecycle costing and to consider materials with respect to embodied energy, and energy in use. The announcement of BREEAM for Schools (part of Exemplar Designs) led to a review, and once more details are published it is almost certain we will use this national yardstick on all major new buildings. For the last decade we have been refining natural cross ventilation using mini atriums in the heart of Primary schools (high level windows

operated automatically, with users able to open lights to control each individual classroom). Nearly every new school has automatic lights that switch off when the classrooms are not occupied. Our future plans include wood heat boilers in a number of schools, small scale wind turbines at various sites and winter heat recovery on ventilation systems in schools.

Services to building users

A joint project between the Property Service Division and the Environmental Planning Division in the area of energy efficiency is currently in progress. With funding secured from the Carbon Trust LAEF scheme we are now carrying out energy surveys and examining options with our customers for providing an integrated energy efficiency package for schools to buy. As properties and in particular school buildings vary in age, size and design, the views and requirements of a cross section of our customer base will sought and considered so that a flexible cost effective service can be delivered. Customers will be able to select options from a menu of services to provide them with a tailor made service to meet their needs. This will include energy efficiency and energy saving advice, energy efficiency surveys of buildings, analysis of energy bills and an energy management service that can be controlled either locally or remotely as required.

Police Consultancy Service

The Council has provided a comprehensive energy management consultancy service to Nottinghamshire Police.
This includes an annual report presented to their senior management team relating to the performance of the entire force buildings, which contains recommendations to further improve performance. We have carried out energy surveys and provided training for local site managers to improve energy efficiency and reduce costs. They have also taken advantage of our utility procurement service, buying 100% green electricity which reduced their annual CO2 emissions by 3,800 tonnes.

Renewable Nottinghamshire Utilities Ltd (ReNU)

ReNU is a private company limited by guarantee and set up as a Social Enterprise i.e. it is non-profitdistributing. The company was established with the aid of the East Midlands Development Agency (EMDA) and arose directly out of the Nottinghamshire County Council Wood Heat Project. ReNU began trading in 2003, mainly acting as a fuel supply company to the wood burning school boilers in Nottinghamshire. Further sites are earmarked for pilot schemes to allow both existing large coal boilers and small scale Coalflow Pearl fed boilers to be converted to operate on wood pellet in the future. ReNU will manufacture wood pellet. ReNU is now in a position to offer clients a full Energy Service Company (ESCO) service.

Woodheat in Nottinghamshire Schools

Garibaldi School in Mansfield, is a large comprehensive school of 8,872m2 with 1100 pupils, including 170 sixth form students. The original oil boilers were old, inefficient and producing high CO2 emissions, and thus were in need of replacement. Through a joint initiative with Corporate Property's boiler replacement programme and an innovative Public Service Agreement funding obtained by the Environment Department, Garibaldi was given the opportunity to have a wood fuelled boiler installed to replace the old system.
The environmental impact of the new wood fuel boilers is clear any CO2 that is produced during the process of heating the school is equivalent to the amount of CO2 absorbed by growing trees. Therefore, the emissions from heating the school are reduced from the equivalent of 350 tonnes CO2 to virtually zero every year.

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