

AIT Data Centre Audit identifies savings of £37,000 per annum for Bedford Borough Council



BEDFORD BOROUGH COUNCIL

Bedford Borough Council is a unitary authority providing a range of services for over 161,000 residents and 65,000 homes in the Bedford area. In collaboration with the Carbon Trust through its “Local Authority Carbon Management Programme”, the Council has produced a Carbon Management Plan.

This Plan outlines how the Council will reduce its carbon emissions in order to reach its aspirational 40% carbon reduction target by March 2015. In achieving this target the Council will save a total of 39,867 tonnes of carbon dioxide (CO2) and £7,959,619.

The Challenge

As part of Bedford Borough Council’s Carbon Management Plan the council wanted to monitor and minimize power usage in its Data Centre. Housed within the authorities main building the Data Centre has 21 data cabinets housing a variety of networking and computing equipment but did not know the overall energy usage and efficiency of its Data Centre or how it could identify targets for energy reduction. AIT was invited to provide an independent audit of their Data Centre with an eye on identifying the strengths and weaknesses of their current infrastructure and identify targets for energy reduction.

The Solution

AIT provided a “Silver” [Data Centre High Availability and Efficiency Audit](#) consisting of:
EU Code of Conduct on Data Centres Best Practices Audit;

- Temperature and Humidity Control Assessment.
- The EU Code of Conduct audit establishes the effectiveness of the design, utilisation and management of the data centre. Investigation includes:
 - Power Utilisation Effectiveness (PUE) Calculations.
 - IT & Data Centre Services Utilisation, Management, Planning & Policies.
 - IT Equipment Specification, Selection Criteria & Management Services.
 - Cooling System Design, Capacity, Utilisation & Airflow Configuration.
 - Data Centre Power System Design, Capacity & Utilisation.
 - Other Data Centre Power Loads.
 - Specific Data Centre Building Properties.
 - Power & Temperature Monitoring Systems.
 - General Observations, Best Practice & Industry Standards.

“The (AIT Data Centre) audit showed that the Council would save over £37,000 per annum.” Tony Pompa, Data Centre Manager

In addition the silver audit provides a comprehensive assessment of Data Centre Temperature & Humidity Control to determine operational effectiveness. Additional areas covered include extended monitoring temperature and humidity variation over time and recommendations to improve the associated control systems to maximize efficiency and life of the equipment.

The Result

The AIT Data Centre Audit identified total Data Centre loads of 148kW which costs Bedford Borough Council £88,178 per annum. The [PUE](#) (the ratio of “Total Data Centre Power Consumption” divided by the “IT Equipment Power Consumption”) of the Data Centre was estimated to be 2.1, roughly the current industry average.

- Identified savings included:
- Adjusting humidifier settings to allow broader tolerances and reduce energy usage;
- Retrofitting variable speed drives to fans and compressors;
- Addressing poor air distribution issues to improve cooling and increase efficiency;
- Elimination of hot air recirculation paths;
- Use of a hot aisle separation system (HASS);
- Reduction in hot spots and raising of average temperature to ASHRAE standards.



Many other resilience measures were also identified to improve the robustness of power and cooling systems in the Data Centre.

“The independent AIT Data Centre audit provided an evidenced based report clearly breaking down data centre running costs and giving clear targets to improve the resilience and efficiency of our Data Centre”, said Tony Pompa, Data Centre Manager, Bedford Borough Council. “It has helped focus our spend to best reduce our carbon footprint as well as provide real cost savings for the borough’s residents.”

By increasing Data Centre efficiency to a PUE of 1.5 by the audit showed that the Council would save over £37,000 per annum. The Council continues to drive down costs and are currently looking to install a free-air cooling system to further improve efficiencies.

