# Alba Innovation Centre Works with EnergyFusion™ to Deliver Energy Savings of More Than 60%

**Organisation**

**Alba Innovation Centre (AIC)** managed by Innovation Centres Scotland Ltd (ICS) on behalf of Scottish Enterprise; is a leading technology accelerator for early stage firms spread across Scotland helping them to commercialise their products, software or solutions.

**Location**

Alba Campus, Livingston nr. Edinburgh EH54 7GA

**Sector**

Multi-tenanted modern office centre (currently occupied to 95%) on 2 levels, providing disruptive technology business incubation facilities.

**Challenge**

Given that energy prices are doubling every six years[1] and 40% of the UK's energy is used in buildings, managers with large properties or multiple sites often face situations where there is an urgent need to reduce their energy costs and bear down on other operational expenditures such as management and maintenance. For instance, in a commercial building **lighting can consume 40% of the energy bill and typically 70% of this is wasted[2]!** Reduction of the $CO^2$ levels and producing energy statistics is also a key requirement. All organisations will be faced with a huge challenge in meeting the government's 2020 $CO^2$ legislative requirements.

With rising year-on-year energy costs, the AIC challenges were similar;

- Operating in a 24x7 environment
- Tenants and staff can arrive and go from the building at all times of day and night; with no special controls and lighting in public areas
- Lighting was left on for extended periods
- Lighting in corridors, stairs or reception area was rarely switched off (a Health & Safety requirement to maintain visibility was in place).
- Lighting could be left switched on for extended periods resulting in the shelf life of the fluorescent ballasts being greatly reduced
- Potentially creating a fire risk since the ballasts are generally rated on the basis of a 12 hour on/off duty cycle and this was being regularly exceeded.

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[1] Building Research Establishment, BRE 2011; [2] International Energy Authority, IEA, 2006

## Solution

To overcome these issues, the AIC begun an extensive trial of the EnergyFusion™ system from Tantallon Systems Ltd in June 2011; a **powerful and innovative energy management system** specifically designed to manage lighting and other utilities automatically in such a way as to reduce and optimise the energy usage in the building. Moreover, EnergyFusion™ was also able to capture the energy usage associated with lighting on the lower ground floor at AIC, breaking down this information conveniently for AIC in terms of individual building areas such as client offices, meeting rooms, stairways and reception. AIC was also provided with data on the out-of-hour's usage of the centre by tenants, which was previously unknown.

**EnergyFusion™ measures its own energy performance**; providing detailed statistics which includes real-time data which shows the energy used, and the energy savings made (in terms of KWh, Kg of $CO_2$, and £), making it easy to quantify the benefits and determine the payback for the Facilities Manager. The system also provided detailed historical and trend data. Independent baseline measurements were used in the AIC to verify and check these figures to confirm 'before- and-after' trial performance.

## EnergyFusion™ Enables Remote Monitoring & Control via Tablet or, Smartphone

EnergyFusion™ employs a database to collect information about the entire operation of the system. This information is date and time-stamped and stored; giving the full opportunity to produce reports. An integral asset management system **allows information to be held on every element of the installed system.** EnergyFusion™ is based on digital technology and is easy to install and use and can be controlled using a graphical application. It allows, for example, a **Facilities Manager to remotely monitor and control offices/meeting rooms/receptions across multiple building locations**. A graphical screen visually shows the building lighting zones in their active On/Off/ dimmed state. Data on any of the components of the lighting system is available on demand from the screen.

## Results

EnergyFusion™ using features such as: **occupancy**, '**daylighting' and scheduling**; **reduced the lighting load at the AIC by ensuring that lighting is on only when needed**

- Natural levels of light are used where this is possible to reduce the use of electric lighting
- Managed automatically there is no longer any need for staff or management to worry about switching lights on or off
- Data enables Facility teams to accurately negotiate much better contracts with utility providers
- EnergyFusion™ was **installed in a non-disruptive manner** with little impact on normal business at the AIC and also during normal working hours
- EnergyFusion™ is connected to the building communications network; managed locally or remotely over the Internet, resulting in more productive and cost effective management and maintenance
- Easy to use, and provided very flexible control options
- Simple to set-up and allowing complex lighting scenarios to be rapidly deployed or changed
- Trouble free operation over a 2 year intensive period of use



[1] Building Research Establishment, BRE 2011; [2] International Energy Authority, IEA, 2006

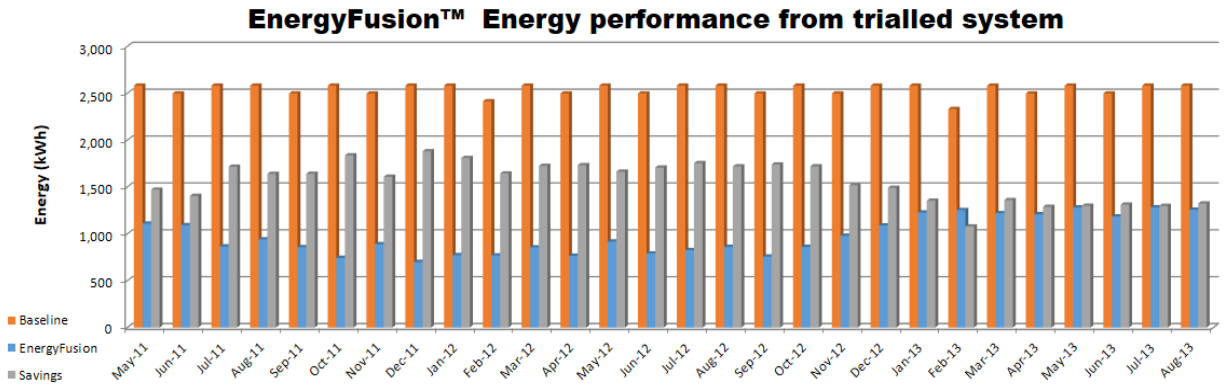
EnergyFusion™ **demonstrated average energy savings benefits of greater than 60% over the course of the 2 year trial for the lighting system.**

EnergyFusion™ has also resolved the H&S requirement to keep corridors illuminated for out-of-hour tenants. **Energy-efficient ballasts** were used and lighting turned off automatically when not needed.

## Testimonial

*"Retrofitting of the EnergyFusion™ system went smoothly and has worked reliably over the last 2 ½ years in the Alba Innovation Centre. On the basis of the demonstrated energy savings of more than 60%; AIC would recommend EnergyFusion™ to other similar & multiple offices where remote monitoring and control are key to driving productivity benefits across the business. AIC is also investigating the extended use of the technology throughout other common areas and individual offices."*

**Peter Andrew - Head of Business Incubation & Innovation at the Alba Innovation Centre**




| | May-11 | Jun-11 | Jul-11 | Aug-11 | Sep-11 | Oct-11 | Nov-11 | Dec-11 | Jan-12 | Feb-12 | Mar-12 | Apr-12 | May-12 | Jun-12 | Jul-12 | Aug-12 | Sep-12 | Oct-12 | Nov-12 | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | Jun-13 | Jul-13 | Aug-13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Energy Actual** (kWh) | 1,109 | 1,093 | 865 | 941 | 858 | 744 | 889 | 701 | 772 | 770 | 856 | 766 | 918 | 791 | 827 | 861 | 758 | 861 | 980 | 1,090 | 1,227 | 1,253 | 1,221 | 1,210 | 1,282 | 1,186 | 1,283 | 1,257 |
| **Energy baseline** (kWh) | 2,581 | 2,498 | 2,581 | 2,581 | 2,498 | 2,581 | 2,498 | 2,581 | 2,581 | 2,414 | 2,581 | 2,498 | 2,581 | 2,498 | 2,581 | 2,581 | 2,498 | 2,581 | 2,498 | 2,581 | 2,581 | 2,331 | 2,581 | 2,498 | 2,581 | 2,498 | 2,581 | 2,581 |
| **Energy Savings** (kWh) | 1,472 | 1,405 | 1,716 | 1,640 | 1,640 | 1,837 | 1,608 | 1,880 | 1,809 | 1,644 | 1,725 | 1,732 | 1,663 | 1,707 | 1,754 | 1,720 | 1,740 | 1,720 | 1,518 | 1,491 | 1,354 | 1,078 | 1,360 | 1,288 | 1,299 | 1,312 | 1,298 | 1,324 |
| **Energy Savings** (%) | **57%** | **56%** | **66%** | **64%** | **66%** | **71%** | **64%** | **73%** | **70%** | **68%** | **67%** | **69%** | **64%** | **68%** | **68%** | **67%** | **70%** | **67%** | **61%** | **58%** | **52%** | **46%** | **53%** | **52%** | **50%** | **53%** | **50%** | **51%** |

This chart shows the orange bars (baseline measurements before EnergyFusion™), blue bars (actual figures due to EnergyFusion™), and grey bars (energy savings delivered by the EnergyFusion™ system at the AIC over 28 months.

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