

INNOVATION GATEWAY

Round 2 2017 Challenge Brief

Reducing building energy consumption



Challenge Brief:

Improving local comfort cooling in buildings

The challenge

A number of Innovation Gateway partner buildings suffer from overheating in meeting rooms and offices for a significant proportion of the year, and this can affect the wellbeing of the occupants. In these instances, the current practice is to install traditional split unit air conditioning with localised controls. These units are associated with an undesirable level of emissions and energy use.

The solutions we are seeking

Innovative cooling technologies and approaches that reduce the internal air temperature (relative to the external air temperature) and provide an alternative to traditional heat pump technologies. The solution should consume fewer resources (energy, water, fossil fuels) than an equivalent split unit.

Selection criteria

- Ability to operate across a number of building types and uses (although most likely installed in cellular office spaces).
- Can integrate with existing BMS.
- Consumption of resources can be actively monitored.
- Compliant with all relevant legislation such as legionella etc.

Challenge Brief:

Reduce energy used by signage and screens

The challenge

Innovation Gateway Partners have large amounts of external signage and digital information screens. At present, these remain switched on at times when they are not required. External signage is sometimes illuminated in full daylight, and digital information screens are operating out of hours.

The solutions we are seeking

Innovative technology, solutions, and approaches which can help reduce the energy consumption of external signage and digital information screens within publicly accessible buildings.

Further information and criteria

LED retrofit has already been performed for much of the external signage

In some cases, network access to the digital information screens is not available.

Criteria

- Easy to retrofit to existing installations.
- Payback period of 5 years.

Challenge Brief:

Rethinking ultra-low temperature storage

The challenge

Some of the Innovation Gateway partners use a large number of Ultra Low Temperature freezers for archiving samples in their university buildings. These units take up a significant amount of floor space, use significant amounts of energy, and eject heat into the building space that subsequently needs to be dispersed.

The solutions we are seeking

An alternative solution is sought to remove the need for these units in the working space to a more appropriate storage space off-site or in other under-used space.

The innovative solution should not look to alter existing ULT freezer units (either through control change, additives to the refrigerant or changing the electrical supply) but should rather be a rethinking of the whole process of archiving samples.

Further information and criteria

The current provision is through the industry standard ULT units of which there are limited global suppliers.

Criteria

- Removal of archived samples from day to day working space to save energy, release office space and reduce heat inputs into the working space.
- Genuine new solutions not retrospectively altering existing equipment.
- Reduced energy consumption.
- Easy maintenance.
- Very reliable control of sample conditions and alarming if conditions change.

Challenge Brief:

Improve BEMS functionality & efficiency

The challenge

The Innovation Gateway partners have multiple properties with BEMS and associated central plant. Fully functional BEMS and associated plant have the ability to ensure that electricity, gas and, in some cases water, are used at optimum efficiency. However, some of BEMS that the Partners use are not operating to their full potential and efficiency. Each property has a different set-up and different issues, so planning and putting forward a business case to rectify all issues can be problematic. Current suppliers tend to specialise in functionality, efficiency or finance rather than all three.

The solutions we are seeking

Partners who can help us formulate an approach/strategy to build a business case to resolve those issues. More specifically, assistance in quantifying the financial benefit of each BEMS being operational and understanding the costs of getting these systems back to full functionality in a prioritised manner.

Selection criteria

- Ability to operate and have knowledge and experience across functionality, efficiency and finance.
- An end-to-end BEMS partner to provide a service to ensure full operability & efficiency of our BEMS
- Able to identify functional problems, repair, identify efficiencies and controls strategies, and implement them. Help with the business case & the M&V implementations.
- On-going support to ensure systems are maintained at full functionality to ensure optimum efficiency.
- No minimum payback is expected. Payback could be <1 year. Where the plant requires replacing, payback would be higher.