Business Case Name	**Carbon Management Programme: Report on Progress and Request for Funding for Small Works in 2016/7**
Submission date	21st June 2017
Date of relevant CIPB Meeting	5th July 2017
	Not previously submitted.
Submitted By	Martin Wiles & John Brenton (Sustainability)
Type of Submission	Capital funding
Brief Outline of Project With Strategic Objectives	This paper comprises a report on progress on carbon management works and a request to drawn down £300k for small works
Benefits expected	Substantial savings in utility costs and carbon emissions.
Dependency Projects? (if any)	
Constraints (if any)	The key constraint is the narrowness of the time windows in which to install interventions if building users are not to be inconvenienced but generally barriers to implementation are low for this portfolio of work
Change Management impact	None
Anticipated start date	1st Aug 2017
Anticipated end date	31st July 2018

Authorisation

Appropriate authoriser (DVC, Dean, Registrar, Finance Director)	Patrick Finch, Director of Estates
Name, contact details and signature of contact in Estates Office	Martin Wiles, John Brenton, Chris Jones, Sustainability: m.r.wiles@bristol.ac.uk, john.brenton@bristol.ac.uk, chris.jones@bristol.ac.uk
PVC Education approval	Not applicable

Carbon Management Programme:
Report on Progress and Request for Funding for Small Works
Report for CIPB 5th July 2017 Deadline 21st June 2017

Executive summary

UPARC passed the University of Bristol's Carbon Management Plan in 2010, earmarking £20m of spend on reducing energy costs and carbon over the next 10 years with a mean payback of 7 years.

In September 2015, we presented a proposal for a number of works of the following three years that was subsequently agreed. These were:

- A Small Works programme of local low-cost, short-payback measures. - Electrically heated halls - Lighting works - Fume Cupboards	- Renewable Energy, particularly solar energy & air source heat pumps - New burners on older boilers - Combined heat and power - A new tank for liquid nitrogen

Here we report on progress against the small works element of this programme and request a drawdown of a further £300k for this work

We will give CIPB a full report on the other elements of 16/17 activity in the Autumn, after Summer works have been completed, as we have in previous years.

Small works

We were granted £300k in July 2016 for 2015/16 for the "Small Works" group of carbon management plan actions. Investments were proposed in a number of areas. This funding allows us to do several things:

- Top up other works, whether maintenance, procurement of equipment or refurbishment to get to a most energy efficient standard from business as usual, as long as it is cost-effective to do so.
- Providing solutions where an energy saving is identified as early as possible
- Provide networked metering allowing us to learn more about where our energy goes

For individual projects, we aim for anywhere up to a 5 year payback, and for a 3 year payback for the package on aggregate.

The type of works we have funded since our last bid last July have been:

- Generator upgrades to allow Medical generators to run during expensive periods (Triads), costing £85k and saving £30k in 16/17 and projected to save £95k in 17/18
- Contributions to more efficient ultra low temperature freezers, at a level consistent with a 4 year payback
- A piece of additional work on TM44 Air Conditioning inspections to identify savings from reprogramming and system optimisation
- Metering to enable the identification of energy waste
- A water saving survey for Physics, leading to the identification of savings with a sub 3 year payback from better management and the optimization of direct-to-drain

- Optimisation of performance of both CHP and other building systems performance at Richmond building, at a cost of £30k, currently in progress, using innovative data analysis, with a projected two-year payback
- A feasibility study for the optimization of Langford CHP performance using better control strategies.
- A trial of high efficiency pipework for areas in which domestic hot water is electrically heated
- A number of small works such as a change from three electricity supplies at Richmond to two supplies at a cost of £4k saving £2k a year. This is a good example of several projects in which we have paid from this fund to reduce the number of supplier meters at different locations to reduce standing charges

The works we want to take forward include

- Extending the use of generators during expensive periods by converting Langford and Computer Centre generators to avoid triads, at a cost of £60k and a payback of 3 years maximum
- Further laboratory energy saving measures and activities
- Additional metering
- Installation and commissioning of new controls identified by air conditioning inspections.

Financial Viability

Paybacks will be assessed using gas and electricity prices at current levels. Electricity prices are currently expected to increase strongly over the next few years, even though wholesale prices are falling, due to steep expected rises in "non-commodity costs" incurred to refresh British energy infrastructure and to disincentivise electricity consumption at peaks. These increases for mid size users like ourselves are likely to be implemented no matter what plans the new Government has for controlling price for domestic and large industrial users.

Small works will be delivered in order to deliver a whole package payback of 3 years.

Risks

This budget allows us to pick up on cost-saving opportunities as and when they occur. We see no barriers to committing the cash requested in the time frame we suggest.

The programme assumes an ongoing commitment to energy management and performance analysis.

Equality, Diversity and Health and Safety Issues

- Projects involving hot water production will adhere to regulations for control of legionella.
- The proposal has no effect on the University of Bristol's equality and diversity programme.

Recommendation:

We request that CIPB release £300k for small works in 16/17, to be committed by 31st July 2018

Prepared by the Carbon Management Plan Implementation Team: John Brenton, Jeni Cummins, Chris Jones, Martin Wiles.

Project Sponsor: Patrick Finch