



Llanarthne, Carmarthenshire, SA32 8HG  
Tel: (01558) 667148 Fax: (01558) 668933  
Llanarthne, Sir Gaerfyrddin, SA32 8HG  
Ffôn: (01558) 667148 Ffacs: (01558) 668933  
[www.gardenofwales.org.uk](http://www.gardenofwales.org.uk)

## National Botanic Garden of Wales

### Written evidence in support of appearance at Invest-to-Save review by National Assembly Finance Committee November 2012

Dr Rosie Plummer, Director  
Clive Edwards, Head of Facilities

Attached by way of written evidence is this cover note together with a copy of our project case study in Investing-to-Save 3 publication.

#### Background

The Garden first came across Invest-to-Save in 2009. Informal discussion with UWIC in Cardiff concerning a KTP studentship to research the technologies on renewable energies for future cost saving and green energy initiatives had led to a search for funding. During the search Invest-to-Save was discovered and a bid for £25K to fund the initiative was made. This followed the usual application process. The then Acting Director of the Garden together with the current Head of Facilities made the presentation successfully. However, by happenstance an alternative arrangement to do the work arose so the Invest-to-Save funding offered was declined.

As result of that positive encounter with the Invest-to-Save funding prospects the Garden actively sought development opportunities to avail itself of the potential capital funds to support energy initiatives. The result was the current bid. It was felt that the whole arrangement was particularly well suited to the technological and financial imperatives and drivers both of the Garden (to reduce costs and invest in green technology) and of the Climate change agenda at national and international levels. We identified a PVsolar project as our highest priority.

#### Processes

Throughout we have found the guidance provided by the Welsh Government (WG) Invest-to-Save officers invaluable and positive. Their help and advice with the application and preparation of the presentation, as well as execution of the grant has been excellent. We were also both aware through our previous experience that whilst the process was largely straightforward we should expect thorough and robust scrutiny of the application by the officers and board before an award would be considered.

We found the forms were user friendly and helpful in format, and with good guidance provided within them. The two stage process (Expression of Interest, followed by full application

subsequently) is effective in minimising effort of everyone on bids that might not meet the criteria, and therefore efficient for all parties.

Our submission was successfully shortlisted for interview. We prepared carefully and found the experience of the interview was well-organised and courteous. It was also sufficiently rigorous to give us confidence we had made a sound business case and make us feel we had had a fair hearing.

### **Terms and Conditions**

In our particular business case the Invest-to-Save funding and payback period needed to be longer than usual (normally a 4 year period – we asked for a loan over 6 years). The committee again carefully scrutinised this request but, most importantly, had the flexibility and latitude to be able to agree the longer than usual pay-back period was within the spirit of the short-term ‘rolling’ nature and needs of the scheme funds.

We were required, as expected to go out to tender for the work which was a normal straightforward process. Draw-down of the funds was similarly straightforward, with pragmatic approach which was sensitive and responsive to the project’s (and Garden’s) need for some degree of flexibility on cash flow.

The ongoing administration of the fund seems to us currently to be very professionally managed, with follow up request for us to contribute a case study to share best practice with others and to report on the overall perspectives of our experience.

We have had an entirely positive experience and frankly we are keen fans of the scheme. We are therefore delighted to be able to speak in favour of it, and its administration, and feel it has enormous practical and measurable value-for-money benefits to Wales. It seems to us to be an exemplar model that would merit applying in other appropriate ways and spheres.

RMP/CE – November 2012

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# Investing-to-Save 3

Short-term investment for long-term benefit



An update report about public service efficiency and improvement projects that have received Welsh Government Invest-to-Save funding

October 2012

## Case Study 3: 'Greening the Garden' – PVSolar installation at the National Botanic Garden of Wales

### Project aim

The aim of the project was to reduce the National Botanic Garden of Wales' carbon footprint and operating costs, and to act as an exemplar to our visiting public, supporting and prompting steps towards conservation actions and sustainable behaviours.

### Project overview

From its inception the National Botanic Garden of Wales has had sustainability as a key operating principle. Following a Carbon Trust Energy Review the installation of PVSolar was identified as an important part of an ongoing energy management programme. In practical terms the installation of 50 KWt PVSolar array was chosen as the most suitable and economically effective project to deliver. To provide a public engagement and exemplar resource, the installation comprises a 46 KWt field array and a 4 KWt roof-mounted array, which is in keeping with domestic-scale installations. The opportunity presented by the Welsh Government's Invest-to-Save Fund made the project possible through capital repayment of the investment over an agreed period.



PVSolar field array –  
National Botanic Garden of Wales

*photo Clive Edwards*

The Garden site extends to some 560 acres and includes areas of south-facing land close to its main buildings. This provided ideal opportunities for the installation of PVSolar energy generation.

It was anticipated that a well-delivered project would:

- provide an opportunity for an exemplar installation evidencing the Garden's sustainability credentials;
- make good use of available land resources;
- reduce reliance on fossil fuels;
- reduce business operating costs; and,
- create a perfect match of supply and demand in terms of energy generation and Garden consumption need.

### Delivering project objectives

The project concept was developed by the Garden in autumn 2010 and the Invest-to-Save application was made in April 2011. Approval for £90,000 was granted in May 2011 and the specification, tender processes and planning application were progressed. The project was delivered in its entirety and operating by 1 March 2012.

### Key achievements & benefits to date

This project has delivered:

- a successful installation that is in keeping with the ethos of the Garden and the visual amenity of the site;
- delivery, in its first 6 months, of in excess of 30,000 KWh of PV solar electricity of which the Garden has used 90%;
- income generation of £10,000 by way of Feed in Tariff (FIT);
- financial savings, during this period, of some £2,160 of electricity costs;
- future reliable cash-flow income stream with financial return projected at £481,250 over 25 years;
- an exemplar installation that provides evidence of the Garden's green credentials;
- a facility that is used for Science, Technology, Engineering and Mathematics (STEM) education by schools on 'Green Technology' courses;
- an integrated part of our general visitor engagement including our 'Sustainability Trail' and talks prompting positive actions towards addressing climate change;
- positive interest and feedback on the project from visitors, other organisations, and partners; and,
- long-term displacement, according to generally held calculations, of a significant amount of fossil fuel consumption.

### Learning

#### What worked well?

- Good project and financial management – on time, on budget, and producing effective return.
- Excellent working relationship between all key partners including quick turn-around of Invest-to-Save funding, to ensure delivery within a tight and cost-effective time-line.
- Enthusiasm and genuine interest in the project from all stakeholders – trustees, staff, Carbon Trust, and Welsh Government.
- Immediate delivery, on installation, of the project objectives.

#### What could have worked better?

- Requirements and details to meet planning permission were complex for this site.
- Turbulence in relation to UK Government FIT arrangements presented a challenge.

### Next steps

This has been an extremely successful project and was the first stage of several renewable energy schemes being taken forward by the Garden. A major biomass boiler installation project has subsequently been delivered, and air-source heating opportunities are also being investigated as means of further displacing fossil fuel usage and reducing our carbon footprint.

As a subsequent stage of development of the installation we plan to install real-time generation display and monitoring so that the extent of our solar electricity production can be better communicated to the Garden's visiting public. There are also plans to use the information on energy generation as a STEM teaching and learning resource. It is planned that this will enable schools and others to calculate the contribution that the PVsolar makes to the Garden's energy consumption, demonstrate the pattern of generation, and map the overall efficiency and effectiveness of harnessing PVsolar power.

### Contact for further information

For any queries or further information about the project please visit the website at <http://www.gardenofwales.org.uk/> or contact Clive Edwards on telephone 01558 667109 or email – [clive.edwards@gardenofwales.org.uk](mailto:clive.edwards@gardenofwales.org.uk)