

EndoGreen®

CASE STUDY: Bute Park Nurseries, Cardiff
Cardiff Council, UK

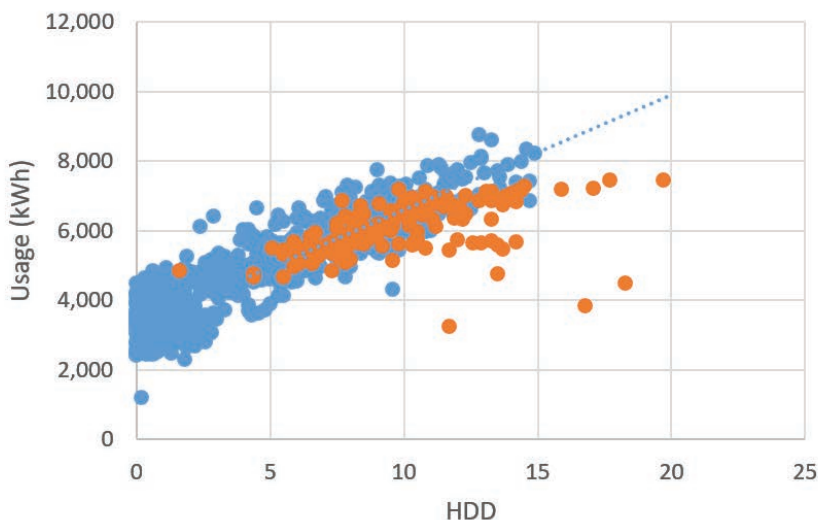


The performance of EndoGreen was trialled by Cardiff Council in three buildings including Bute Park Nursery which forms part of the Bute Park and Arboretum, an inner-city park in the centre of Cardiff, United Kingdom.

The nursery is a stand-alone glasshouse heated by 2 x 440kW Potterton boilers. The site was chosen because it has over three years of historic, half hourly monitoring and all of the gas consumption goes towards space heating. 29.1 Gallons of EndoGreen was installed in November 2017.

BASELINE

To run a successful trial on any energy saving technology a comparison period (or baseline) must be established. This follows the guidelines set by the International Performance Measurement & Verification Protocol (IPMVP). The half hourly data, stretching back to January 2016, is grouped to provide daily data sets which are compensated using Heating Degree Days (HDD) obtained from nearby Cardiff Airport (60°F baseline).



TOTAL SAVINGS

FINANCIAL SAVING



\$5,208

CO₂e SAVING

62,592 lbs

KEY INFORMATION

Installed: Nov 2017

Trial period: 5 Months

Boiler spec

2 x 440kW Potterton boilers

Volume EndoGreen installed

29.1 Gallons

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RESULTS

The graph on the previous page shows a significant scatter of the data set before EndoGreen was installed. In a greenhouse consumption is affected by external temperature, wind speed and irradiance. Temperature is compensated for using Heating Degree Days but the other two variables are not recorded, this lack of compensation would explain the variation. A direct comparison of the months in 2017/2018 with 2016/17 was chosen as the appropriate method of determining EndoGreen savings.

	HDD	Usage (kWh)	Usage/HDD	Saving
December				
2016	258	203584	789.0853	
2017	285	166224	583.2421	26.09%
January				
2017	310.9	220563	709.4339	
2018	319.2	202684	634.9749	10.50%
February				
2017	252.5	180578	715.1604	
2018	326.8	181020	553.9168	22.55%
March				
2017	212.8	155238	729.5019	
2018	321.9	197236	612.7244	16.00%
April				
2017	144.7	107776	744.8238	
2018	186.1	156895	843.0682	11.65%
Total				
2016/2017	1178.9	867739	736.0582	
2017/2018	1439	904059	628.2550	14.6%

During the five month trial period the predicted consumption was 1,059,188kWh. The actual consumption was 904,059kWh which is a reduction in kWh usage of 155,129kWh or 14.6%.

The total saving of the trial was \$5,208, the saving in kWh also reflects a saving of 62,592 lbs of CO₂e.