



HKD Energy

Annual Report 2016-17

HKD Energy Limited

A Community Benefit Society registered with the Financial Conduct Authority no. 7021

Registered office: 15 East Gardens, Ditchling, Hassocks BN6 8ST

www.hkdenergy.org.uk

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HKD Energy is a Community Benefit Society, formed in 2014 to develop renewable energy projects, promote energy efficiency, and create awareness of environmental and energy issues in our villages of Hassocks, Hurstpierpoint, Keymer and Ditchling.

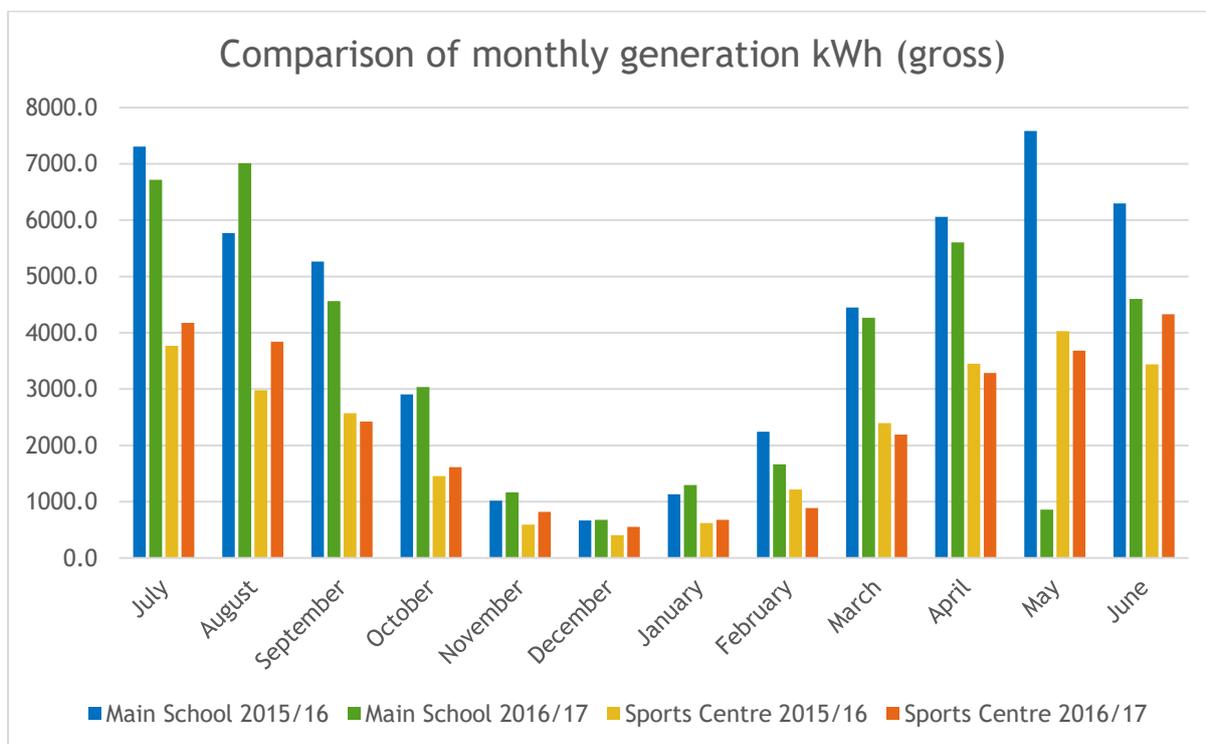
Our vision is to create low-carbon communities, by making buildings more energy efficient and generating the electricity we need from renewable sources.

Downlands School solar project

In February 2015 we installed 307 solar panels on the roofs of Downlands School and Sports Centre in Hassocks and began generating energy in March 2015.

Over the last financial year the panels have performed well compared to last year and reasonably close to our projections, allowing for the variability in the weather. In the 12 months to 30 June 2017, the main school generated 50,182 kWh (compared with 49,350 kWh in the previous year) and the sports centre 27,819 kWh (compared with 26,185 kWh). These totals are 97.6% of what we had projected.

The chart below compares the monthly generation figures for the current year (2016/17) with the figures for the previous year (2015/16).



The chart is primarily intended to illustrate the monthly and yearly variability of the generation from the panels.

However the figures for this (2016/17) year also illustrate some of the problems that have occurred during the building work associated with the new block of class-rooms that are now completed and in use. The contractors were successful in minimising the loss of generation from the panels in this reporting period, however there was a more substantial impact on the internet connection to the TiGo monitoring system. The result of this that the TiGo data for May and June 2017 was unreliable, with lower generation being reported by the system than was actually achieved.

Feasibility study

During 2016-17 we were successful in getting a grant from the Rural Communities Energy Fund for a feasibility study of a ground source heat system to supply renewable heat to Windmills and Downlands Schools and sports centre. Ground source heat systems have three key benefits:

- ✓ It's a very efficient form of energy: for every unit of electricity used to operate the ground source heat pump, 3-4 units of heat are generated.
- ✓ It saves substantial amounts of carbon every year by switching from fossil fuels to electricity, particularly as the proportion of electricity from renewable sources increases.
- ✓ It's a very reliable technology with few moving parts to wear out.

The system on this scale would be technically complex, requiring mechanical, electrical and controls modifications to the existing gas boiler systems to allow the heat pump to work in tandem with them. Following the lengthy and detailed feasibility study conducted for us by OST Energy, the conclusion was that although the some of the options reviewed would be technically feasible none are financially viable at this time. The combination of historically low gas prices (the alternative fuel) and substantial capital costs (including modifications needed to existing heat systems in the two schools) means the project cannot go ahead in the short term.

Impacts

While we have not yet been able to develop further renewable energy projects, in a UK policy climate that is much less favourable to community energy, we nevertheless continue to have some impacts.

Carbon saving

Over the 20 year span of the Downlands School project we expect to save the equivalent of some 843 tonnes of carbon dioxide through generating electricity directly from the sun. In this financial year we saved the equivalent of 42 tonnes of carbon, so we are firmly on track to meet our target.

Saving money for the school

Over the 20 year project we expect to save Downlands School around £150,000 in electricity costs. In the past year we saved the school around £4,500 in electricity costs.

Educational impacts

The panels and the information generated by the monitoring system are used by teachers at Downlands. Over the 20 year project we estimate that nearly 7,000 pupils will come into close contact with the panels, seeing first-hand how a system like this can cut carbon.

Future plans

New projects

We're disappointed that the feasibility study for the ground source heat system did not indicate a viable project while gas prices remain at a historic low. However, this may change: we will certainly keep a close eye on the gas market over the next 2-3 years and can quite easily update the projections to see if the project might become financially viable.

We also continue to explore the possibility of new solar projects.

Repaying investors

Based on our income to date, we expect to continue to pay interest of 4% to our investors. From March 2018 we will also begin to repay capital to investors.

We are holding a contingency fund to cover the costs of inverter replacements and the possibility of removing panels to allow roof repairs at the school.

Downlands School bonus payments

As the Downlands School solar project develops it will generate a modest surplus (expected to be c. £23,000 in total), all of which will go to the school. The directors are proposing to make a modest School Bonus payment to Downlands in March 2018.