



For the Attention of David Edwards and Marcus Lawler

From Alan Asbury

Sites:

Maidstone Market, Barker Road, Maidstone. ME16 8LW

Vinters Park Crematorium, Bearsted Road, Maidstone, Kent ME14 5LG

Magnolia House, Springwood Close, Maidstone, ME16 9PB

Maidstone

17 June 2015

v1.2

best

consultancy services to the business & public sectors



Business Sustainability Services

- Energy management audit/assessment
- Carbon management/reduction/training
- Energy efficiency - cost savings and conservation
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'We now have enough information to make operational and strategic decisions on priorities for the future; to improve our bottom line and to reduce our carbon footprint.'

General Manager Micha Design Company Ltd

'At long last we have a full and workable document from which to base policy and hopefully spend and changes. I've really appreciated what you have done'

South Bucks District Council

Alan Asbury

Sustainability and Energy Advisor

MBE, MSc, Cenv, CMVP, MCIWM, AEMA, BSc (Hons)
Chartered Energy Manager, ESOS Lead Assessor,
Chartered Environmentalist, Chartered Waste Manager
Awarded National Sustainability Manager of the Year 2012



Robert Smart

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Higher National Diploma - Environmental Monitoring and Analysis
BS (Hons) Environmental Science
MPhil in Development of Local Authority Recycling
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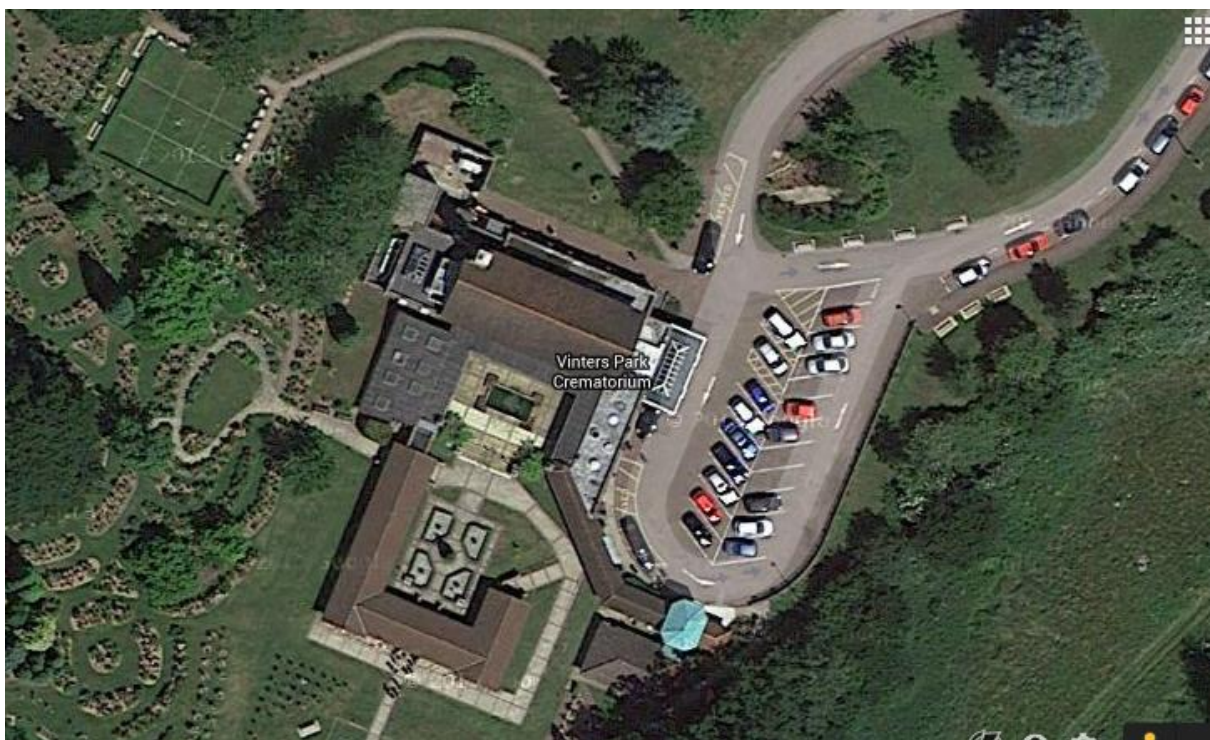


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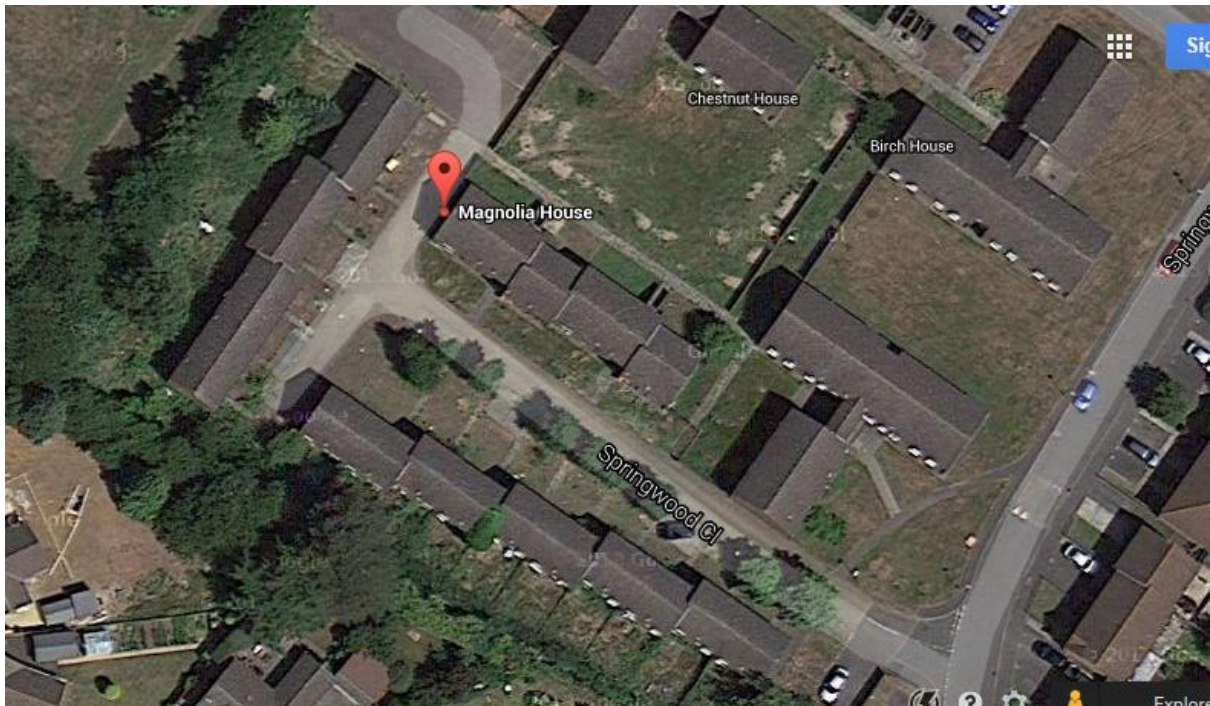
Market:



Crematorium:



Magnolia House:



Report remit:

This report has been commissioned at the request of Mr David Edwards (Director) and Mr Marcus Lawler (Commercial Projects Manager) of Maidstone Borough Council to provide advice upon:

Quality Assessment of the Council Report dated 24th June 2015.

This report is based on documents provided. Specifically:

- The report itself
- LASER provided financial costs for energy

Not seen:

- 12 months of energy bills or spreadsheet data for each site

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Point 1:

Magnolia House

Given the relevant FIT thresholds sit between 10kWp and 50kWp, it might make sense on an this install to optimise this array up to a maximum 50kWp. Is this not possible due to roof space area available, then perhaps consider higher wattage panels?

Point 2:

How is the electricity generated at Magnolia House to be sold? At what rates and on what review frequency?

Point 3:

The figure of £125,000 is clarified in the breakdown set out in Point 2.7. The figure of £100,000 (jn point 2.7) if only for the 4 arrays at Market, Crematorium (2) and Magnolia looks both credible and reasonable based on current UK supply and installation rates for Tier 1 panels.

Point 5:

Establishing a G59/3 connection takes significantly longer than it ever did with certain Distribution Network Operators (DNOs) and the application process (no cost from the DNO) should be commenced at the Council's earliest convenience with the relevant DNO (in this case UK Power Networks) if this has not already been carried out.

With so much distributed generation (DG) taking place across the South East of England, gaining access to capacity is no longer as straightforward as it once was.

We may be able to provide assistance with the process of completing the ENA forms if that is helpful.

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1. Purpose or Report and Executive Summary

Point 1.2

Expectation of 62.83 tonnes of carbon savings per annum looks to be appropriate. Given the tables provided in this report under 2.2, with array sizes of:

- Market 50kWp with stated irradiance levels of 1,081
- Crematorium 10kWp and 4kWp with stated irradiance levels of 1,111 and 1,023 respectively
- Magnolia 24kWp with stated irradiance levels of 1,026

We would agree the anticipated annual kWh generation figures of 54,050kWh, 11,110kWh, 3,928.32kWh and 27,024kWh based on the irradiance figures provided to us. Together totalling 96,112kWh. The discrepancy between the CO2 reduction in 1.2 (62.83tn) and in the

second table (41.33tn) on page 2 is answered by the CO2 saving from Maidstone House and Gateway (21.5tn) if this were to be implemented under (for example) a PPA.

Point 1.4

Whilst the predicted contribution to the Council is stated at £19,402/annum, (£16,402 from second table plus c £3,000 from Maidstone House and Gateway), this does not include the energy savings as also stated in table 2 amounting to a further £4,146 and arguably the £1,310 export for Magnolia House. Indeed this figure may be £8,812.93 (dependant on demand and generation... See table 2a below. Specifically, if the sites are consuming all of the electricity generated throughout the day, then the saving on energy that does not have to be purchased from the national grid is the cost of that energy now (£0.10859/kWh)

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Table 2

It would be useful to have detail of the site's energy use so as to establish the export likelihoods of the (3rd party owned) Magnolia House site as well as potential for export at the other sites.

Magnolia House is a block of flats that the Council purchased to move their emergency housed residents into, thereby providing something a little more permanent. The residents are responsible for the electricity bills in their properties and the Council is responsible for the common parts. It has apparently been assumed that a total export will take place at this site. As a consequence of this, an export meter will need to be installed.

The Council buys the rest of its electricity through LASER at 10.859p per kWh and so the Council have assumed a saving of 6.01p per kWh at the other sites (£0.10859-£0.0485). However, excepting Magnolia house which is wholly exported energy and for which presumably the Council makes no grid energy saving, the sites will arguably receive no export tariff income but a saving of the full kWh unit cost not bought from the national grid (see final column in table below).

The Export or saving column in table 2 sets out figures below:

Table 2a:

	kWh/Annum	Export/Saving	If no export then £0.10859/kWh saving from non purchase from grid
Market	54,050	£3,247.86	£5,869.29
Crematorium	11,110	£676.60	£1,206.44
Crematorium	3,928	£239.22	£426.54
Magnolia House	27,024	£1,310.66	£1,310.66 (E)
Total			£8,812.93

The above is dependant on the energy demand at these sites (unseen) coinciding with generation and times when export may be taking place.

Under "Note: 1", it might be worth mentioning that the current price of electricity at £0.10859 is likely to rise as energy prices increase globally. Whilst recent oil (and consequently

energy) prices have been unusually low, this trend is seen as a 'blip' in the industry largely considered to be as a result of Saudi Arabian activity. Prices are tending to return to previous levels and could reasonably be expected to increase by a factor of around 4% per annum in the foreseeable future. This adds further justification to the installation of such renewable energy projects.

Point 2.3

Re Crematorium: From the statement about 'far greater quantum of potential output'. Are we to understand that this site has more viable roof locations that Solar PV could be installed upon? This does appear to be the case from the roof pan seen at Google Earth. If this is the case and recognising the sensitivities, is it not worth pursuing these additional roofs at this time – given FIT incentive rates will continue to fall until a point where they largely disappear – likely around 2017?

By implementing renewable electricity generation on the crematorium site, the site becomes future proof. Installation of additional roof mounted solar PV arrays may well provide the site with its aggregate demand, connected to the electrical grid for peaks in demand and sale of energy to the national grid during hours of closure. Moreover, there may be potential to consider small urban wind turbines at this site if there was belief that they could move through the planning process and we would be happy to discuss such an option if that were of interest.

Crematoria are notoriously expensive to operate. As such, as a means to financial sustainability, early installation could be beneficial.

The UK Ministry of Justice (MoJ), have been aware of technologies such as Alkaline Hydrolysis (AH) and Resomation (AH based in Scotland operating on higher temperatures and pressures), since at least 2008. The technology is not yet regulated (because it is not burning and consequently falls outside the scope of burials and cremations). Therefore it is "neither legal nor illegal" in England and Wales.

As such, an electrically powered Alkaline Hydrolysis unit could be installed at a UK site today. However, if it could not satisfy the relevant regulatory departments as to disposals and effluents, then it could not be operated for the purposes of cremation.

These technologies have been in operation, licenced and proven in the US and Canada for human disposal in direct replacement for burial or cremation since before 2011.

The technology has been used for body part disposal in hospitals and universities for decades across the UK, Europe and beyond.

If electrical cremation technology were later introduced to the gas cremator, then with sufficient on-site renewable electricity generation, the site could become largely and immediately self financing, close to zero carbon, non polluting, requiring of no gas scrubbing and with no need for chimney stacks (and associated public disquiet).

Point 2.4

If the Council were to embark upon a PPA for the Maidstone House and Gateway site, why is it considered that it would be restricted to a lower rate than the current FIT export tariff? Is

this based on current wholesale energy rates which stand at around £45/MWh (£0.045/kWh).

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Point 2.6

It is most encouraging that the Council has had the foresight to consult with LASER and their response is similarly reassuring.

Point 4.2

Might be interesting to set out what these carbon savings mean in percentage terms in relation to the draft Low Emissions Strategy (although we would fully accept that this is unlikely to be a major driver for the Council's decision makers. However, it might well make a good reputational message for the press (who will pick this report up) and public along with the efforts the Council is going to in order to future-proof itself to some extent from energy rises and investing taxpayers money in what are largely accepted sustainable technologies.

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Point 7:

Whilst the table points out that the planning advice provided is that the sites are permitted development and consequently free from the need for planning applications, there is no mention of building regulations approval. It would be advantageous to speak with the Council's Building Control and or your structural engineer at your earliest convenience to ensure that this is in fact all in order at the sites. There is mention of an anticipated fee for Building Control in the table beneath 2.7 so this may well be already in-hand.

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Point 9 (5th bullet point)

The background paper described suggests FIT payment rates table for installations between 1 April 2015 and 30 September 2015 (the sub 10kWp FIT rates change during this period).

If report is agreed, it must therefore be anticipated that these installations are to take place between 1st July and 30th September 2015. As such the rates set out in the second table of the report look to be correct.

However, the FIT rate for Magnolia House is showing a FIT payment on 27,024kWh of £2,810. On the higher rate FIT price per kWh of £0.1171, this figure should be £3,164.51. Is there a reason for this lower figure? We would agree the FIT export figure of £1,310.66 based on an agreed £0.0485 FIT export rate.

	To 30 June 2015	1 July to 30 Sep 2015
Market 50kWp	£0.1171	£0.1171
Crematorium 10kWp	£0.1213	£0.1171
Crematorium 4kWp	£0.1339	£0.1292
Magnolia 24kWp	£0.1171	£0.1171
Maidstone House and Gateway 50kWp	£0.1171	£0.1171

It may be worthwhile carrying out a string test to the arrays on completion to ensure that they have been installed correctly and making your chosen contractor aware that you will do this before agreement is reached. We would recommend that you ask the following of your contractor to establish quality of install and likelihood of actual returns:

- Cable sizes
- Average cable/string lengths
- Number of strings
- Positive tolerance panels

Whilst every effort has been made to ensure that the information and comments made in this report are accurate; this report is based upon the information provided by Maidstone Borough Council. Whilst accurate estimations have been made relating to the energy yields, appropriateness to consumption and installation costs, it is necessary in some circumstances to carry out further work such as assessing billing and HH data, installation of meters, carrying out string tests on installation or improving signal strength. Therefore it is encouraging that a contingency is in place which could (if needed) be set aside for installing metering to these arrays.

We will not be liable to you in respect of any losses arising out of any event or events beyond our reasonable control. We will not be liable to you in respect of any business losses, including without limitation loss of or damage to profits, income, revenue, use, production, anticipated savings, business, contracts, commercial opportunities or goodwill. We will not be liable to you in respect of any special, indirect or consequential loss or damage.

Author

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