



HASLEMERE TOWN COUNCIL

High Street Carpark Toilets Solar Panel Project

Background:

In 2020 Council agreed to put solar panels on the public toilets with the aim of generating enough electricity to cover the electricity used at the toilets and hopefully generate surplus to put back into the national grid to help reduce the Council's Carbon Footprint.

In October 2020 two options were initially considered and energy firms asked to quote. Three quotes were obtained: ENERGY my way, The Little Green Energy Company, and Sphere Energy.

Option 1 – Generating enough solar energy to just cover power consumption of the toilets, small amount of surplus to go back on to the grid.

These panels need sunlight on all panels for optimum generating. Cost effective to install.

Option 2 – Solar energy to cover toilet consumption with a greater surplus back to the grid, this also offsetting Town Hall CO2 to become carbon neutral.

These panels are all on individual inverters, which means these can be put on 4 faces of the roof and work even with minimum amount of light and even work with shadows on a proportion of the panels. Much more expensive to install.

The project was not taken forward for some time due to the pandemic and resignation of the officer dealing.

In November 2021 all the companies who initially quoted were contacted with an invite to quote again. In addition to this one other company, GGRS, was contacted.

The new quote from **ENERGY my way** has increased from £8,611.00 (2020 price) for 17 panels over 4 roof sides to £13,687.43 for 18 panels over 4 roof sides.

The quote from **GGRS** is £4495.00 for 8 panels on 1 roof side facing S.W.

The Little Green Energy Company and **Sphere Energy** have both declined two opportunities to give new quotes.

In liaison with Cllr Gary Lloyd who has studied all the facts and data for both companies the preferred company is now **GGRS** giving us the best overall value for money. Data sheets for Energy My Way and GGRS are attached.

RECOMMENDED: That the quote from GGRS for £4495.00 is accepted.

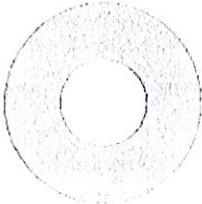
G.G.R.S. DATA SHEET.

Haselmere Public Toilets

Simulation Results

Results Total System

PV System

PV Generator Output	3 kWp	PV Generator Energy (AC grid): 
Spec. Annual Yield	876.89 kWh/kWp	
Performance Ratio (PR)	87.6 %	
Yield Reduction due to Shading	0.0 %/Year	
PV Generator Energy (AC grid)	2,666 kWh/Year	 Own Consumption Down-regulation at Feed-in Point Grid Feed-in
Own Consumption	0 kWh/Year	
Down-regulation at Feed-in Point	0 kWh/Year	
Grid Feed-in	2,666 kWh/Year	
Own Power Consumption	0.0 %	
CO ₂ Emissions avoided	1,253 kg / year	

Appliances

Appliances	0 kWh/Year	Total Consumption
Standby Consumption (Inverter)	0 kWh/Year	
Total Consumption	0 kWh/Year	
covered by PV power	0 kWh/Year	
covered by grid	0 kWh/Year	
Solar Fraction	1.2 %	

covered by PV power covered by grid

Level of Self-sufficiency

Total Consumption	0 kWh/Year
covered by grid	0 kWh/Year
Level of Self-sufficiency	1.2 %



Haselmere Public Toilets

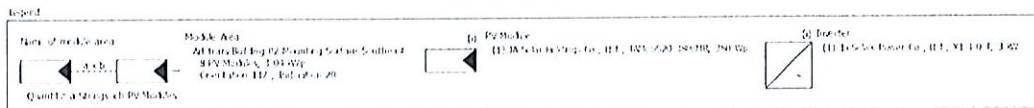
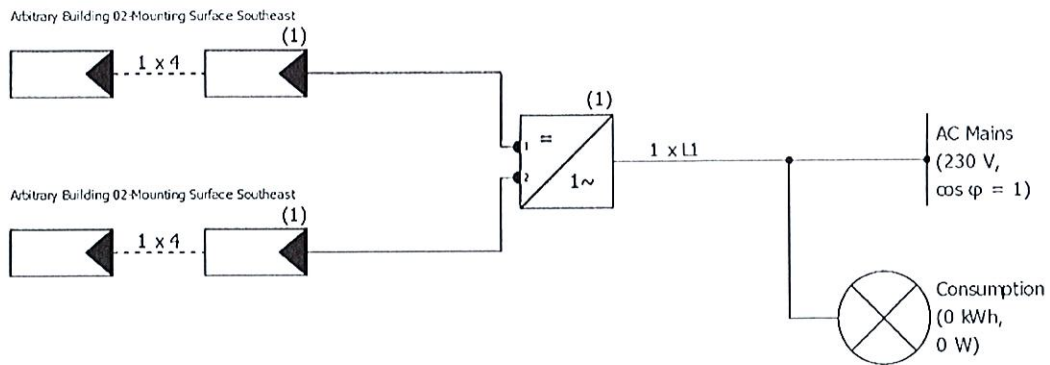


Figure: Schematic diagram

The yield

The yield

PV Generator Energy (AC grid)	2,666 kWh
Direct Own Use	0 kWh
Grid Feed-in	2,666 kWh
Down-regulation at Feed-in Point	0 kWh
Own Power Consumption	0.0 %
Solar Fraction	1.2 %
Spec. Annual Yield	876.89 kWh/kWp
Performance Ratio (PR)	87.6 %
Yield Reduction due to Shading	0.0 %/Year
CO ₂ Emissions avoided	1,253 kg / year





Company Reg. **12635574**
MCS NAP 27554
HIES Insurance: GGR/A/0438
VAT Number: 362 5105 22

Solar Quotation

Mr Wellen – Public Toilets GU27 2AD

As per our conversation, the price to install a 3040kw system with will be £4495.00 inclusive.

This includes:

8 x 380 JA Solar Panels

1 x Inverter

Mounting system

Hies registration

MCS certification

Napit registration

2 year warranty on workmanship

25 year warranty on solar panels

Your Solar PV System



ENERGY
my way

DATA SHEET

5.8 kWp Solar PV System

FAO Martin Wellen,
Haslemere Town Council,
Haslemere Town Car Park toilets,
Haslemere,
GU27 2NX

We recommend a system size with a peak power of 5.8 kW mounted on multiple roof areas for your property. This is based on the information below, taken from the recent preliminary survey. We always conduct a secondary survey where we check measurements and carry out a structural appraisal of your roof. This is at no extra cost, once you have decided to proceed with your installation.

Key Information & Assumptions

Useable roof width	See plan	Current Electricity Supplier	Unknown
Useable roof height	See plan	Location of fuse board	a location to be confirmed
Pitch of roof (degs)	40°	Type of mains power supply	Single Phase
Aspect	SE, SW, NE, NW	Current EPC Rating Status	EPC Required
Shading Reduction	None	Carbon reduction per year	2476 kGs
UK Irradiation Area	1	Wi-Fi Solar Monitoring Available	Yes
Est % of Solar Used	50%	Export %	50%

Recommended System

Solar Panels

We recommend 18 x JA Solar 320w all black panels. These will be rail mounted using the reusol variosole mounting system. The array will deliver an installed capacity of 5.8 kWp – this is the peak output before any losses in the inverter and cables. These modules have a product warranty of 10 years and a performance warranty of 25 years.

Power Inverter

We recommend a SolarEdge 4kW inverter to be installed in the loft and connected to your existing single phase electricity supply. This inverter enables each panel to output power independently of the other panels in the circuit or 'string'. This means we can use one inverter for the whole system, and also each panel can generate at its This inverter is 98% efficient and has exceptionally good reliability. It has a manufacturers warranty of 12 years, which can be optionally extended. Wifi monitoring is also available with this inverter which means you can see how much your PV system is generating and we can detect any problems before you notice any drop in generation.

Our quotation is subject to a final survey and, should any changes be required, we will discuss and agree this with you first. If the final survey results in a lower performance estimate than in this quote, then we will issue you with a new quotation.

Your Solar PV System

JA Solar 320w all blackPanels

SolarEdge 4kW Inverter

18 Panel / 5.8 kW Peak Array

Full insurance-backed guarantees

**Our quotation to supply and
install the recommended
system is £13,687.43**

(price includes VAT @ 20%)

Performance Information

Estimated annual output of the proposed array is 4,551 kWh.
2,476 kGs of carbon savings per year

To calculate the estimated annual output we take the installed capacity of your system (in kWh) and multiply this by the irradiance for your area (Kk), based on official tables to estimate this solar irradiance which take into account your postcode region, the inclination and orientatio of your panels. We also take account of any shading factors (SF), such as from surrounding trees, chimneys, shadow from nearby buildings. All estimations are in accordance with MCS procedures. The calculation we do is: kWp x Kk x SF.

It is important to note that performance of solar PV systems is impossible to predict with certainty due to the variability in the amount of solar radiation (sunlight) from location to location and from year to year. This estimate is based upon the standard MCS procedure and is given as guidance only. It should not be considered as a guarantee of performance.

Your annual return on investment is estimated at £296

Your annual savings and income for Year 1 is expected to be £296, which is 2.5% return. To calculate your return, we have made the following assumptions:

- you currently pay £0.13p per unit for electricity
- electricity prices will increase by 6% each year
- annual inflation is assumed at 2%
- you will use 50% of the electricity from your panels
- panel efficiency reduces by 1.0% each year

We calculate your return using the following sums:

Export tariff

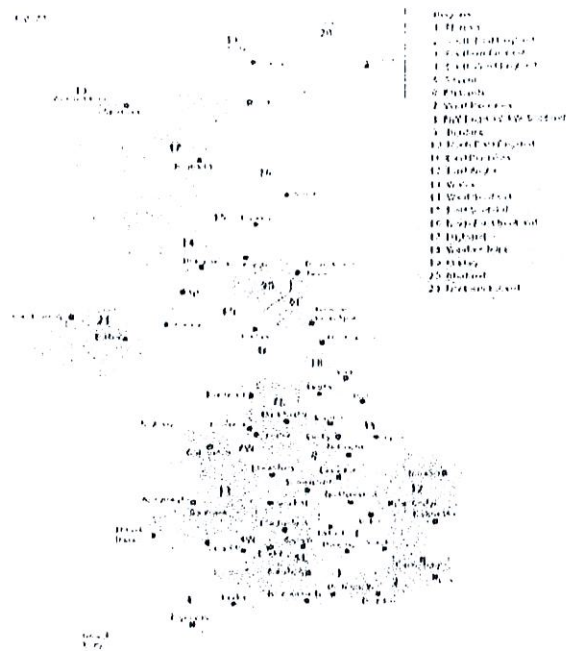
Assumes 50% export (unless export meter is fitted)

Calculation: 4,551 kWh x 50% x £? = £?

Bill savings from using free electricity from your panels

Calculation: 2,275 kWh x £13 per unit x = £429

[Plus more savings on hot water from divert device, if fitted].



Your Irradiance Zone: Area 1

Estimated Returns

Export Tariff
£?

+

Bill Savings

Using free electricity from your panels
£296

=

Total Annual Return

Your total annual benefits and savings
£296