SOLAR PV & BATTERY INSTALLATION PERFORMANCE MODEL

Customer Name:	Mr Steve Widdison
Address:	CALSA
Quote Ref:	01/23-Q7
SRM Surveyor:	Matt Ferguson
Date:	3/2/23

Introduction & Summary

CALSA wish to explore the opportunity of investing in a solar PV system as a means to reduce electricity costs and protect against future price increases. They would prefer to fund the installation rather than consider an alternative funding arrangement, and ostensibly have a suitable property. SRM have considered the available usage data and characteristics (provided by CALSA), the physical setting, the technology available and developed a solution which delivers projected savings and pay-back performance, based on a stated calculation model (MCS) and assumptions regarding, for example, future grid electricity pricing.

SRM have restricted the designed solution to the roof area as discussed at our recent site visit, that being the metal decking area above the squash courts. All of the following calculations are predicated on a design with little or no shading to the southern aspect, removal of the redundant flues will be beneficial to the overall design performance.

The current design is well balanced in terms of the generation being well matched to the 'theoretical' day time usage (defined as the hours of sunshine), however this calculation methodology isn't sufficiently detailed to take account of the vagaries of the generation nor usage throughout the day. Clearly generation is not uniform for all hours of daylight, it will vary depending on the position of the sun and intensity. Similarly usage is also not uniform, as such it is advisable to include a reasonable level of storage, to help 'balance' the generation and load.

As a consequence, we have included 20 KWh of storage, and 2 invertors, the first is a standard inverter with the second being a hybrid inverter capable of either pushing all generation to either the DC battery storage or the AC electrical load within the building, or export surplus generation (which will only occur when the battery is full and there is no load from within the building).

More savings could potentially be achieved by using a larger solar array and battery, but capital cost will also increase with a larger system. The system has been designed to be incrementally increased as an when required.

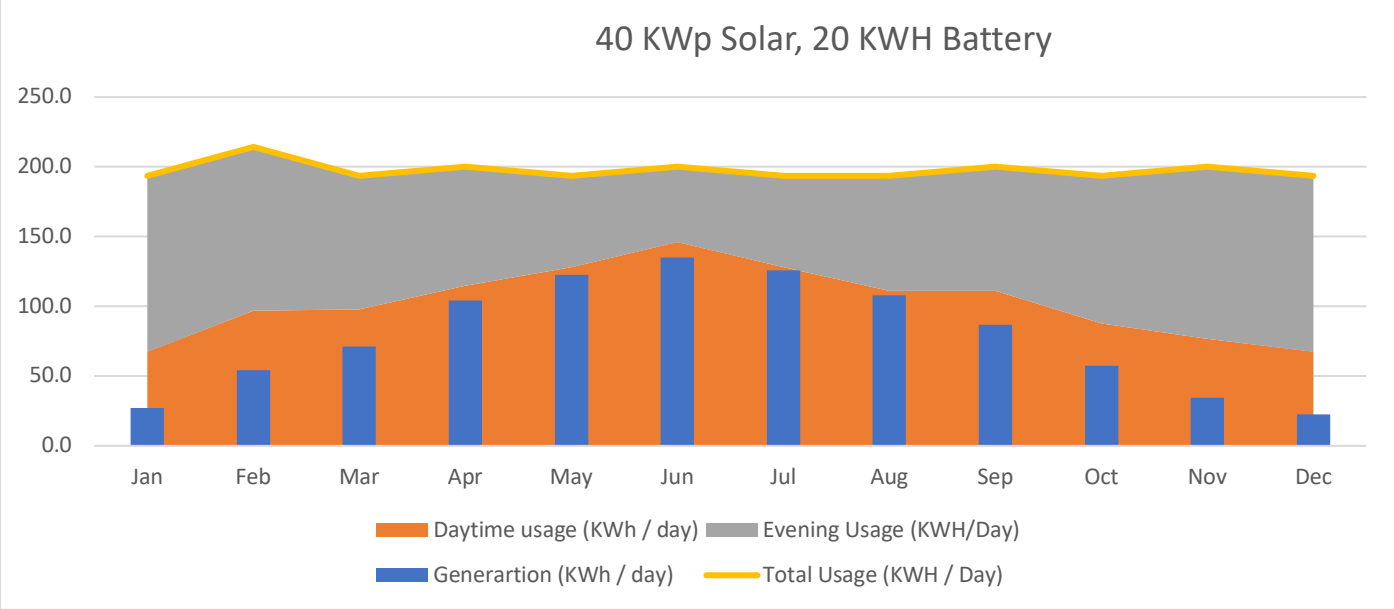
40 KWh Solar Array with 20 KWh Battery

Cost Parameters

Annual Consumption	72,000 kwh per annum (Distribution provided as 6,000 per month)	Grid Energy Cost Inflation	7% (as anticipated by Govt)
Cost / KWH	25p (estimated cost)	Model used	MCS
Export rate	5p	Design parameters	Metal deck roof above the squash courts only.

Budget Price for Design, Supply and installation 40 KWH Solar PV array, with a 20 KWH battery	£35,626 + vat

System Design Considerations



1) The usage split, is estimated, and arbitrary, based on information advised by the client. It is for illustration only.
2) The output calculation is based on the Government approved methodology, MCS.
3) SRM surveyor to undertake a full design and site survey prior to acceptance of quotation, including Structural assessment of the roof, sun path calculation and DNO application. SRM anticipate that DNO approval will be granted minimal cost and no fee for witness testing, as this system is below the threshold of 100 KWP, however if any fess are chargeable, these will be passed on at cost.

Monthly Output	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
KWh total	842	1516	2214	3128	3802	4043	3898	3345	2599	1781	1035	698	28899
No Days	31.0	28.0	31.0	30.0	31.0	30.0	31.0	31.0	30.0	31.0	30.0	31.0	
Generation (KWh / day)	27.2	54.1	71.4	104.3	122.6	134.8	125.7	107.9	86.6	57.4	34.5	22.5	
Daytime usage (KWh / day)	67.3	96.9	97.6	114.8	127.9	146.1	127.9	111.1	111.3	87.5	76.5	67.3	1232.3
Evening Usage (KWH/ day)	126.2	117.4	95.9	85.2	65.6	53.9	65.6	82.5	88.7	106.0	123.5	126.2	1136.9
Total Usage	194	214	194	200	194	200	194	194	200	194	200	194	

The following is a pay back analyisis based on the year 1 savings and cost, at the expected price of 25p / KWH and with a best and worst case (15p and 35p / kwh respectively).

CALSA	Expected case 25p/ kwh	Worst 35P / kwh	Best 15 p / kwh
Solar Array Size (KWp)	40	40	40
Energy Storage System	20 KWH	20 KWH	20 KWH
Cost	£35,625.89	£35,625.89	£35,625.89
Price / KWp	£890.64	£890.64	£890.64
Savings Generated	£8,210	£11,494	£4,926
Payback (Years)	4.3	3.1	7.2
Payback (%)	23.05%	32.26%	13.83%

Notes

1. Terms & Conditions See separate document which should be read in conjunction with this proposal.
2. Quote Validity: 30 days from above date (from 3rd February 2023).
3. Lead Time from receipt of Order: To be confirmed. Please make us aware of any financial or operational issues that could influence timing of the installation.
4. VAT: Charged at the prevailing standard UK rate.
5. DNO approval will be required prior to installing this system.