

Solar PV - Design Calculations
Project Reference: Chris-NW-PV

A. Solar PV Installation data		Calculations
Installed capacity of PV system – kWp (stc)	3.8 kWp	
Orientation of the PV system – degrees from South	5°	
Inclination of system – degrees from horizontal	30°	
Postcode region	1	
B. Performance calculations		
kWh/kWp (Kk) from table	976 kWh/kWp	
Shade Factor (SF)	0.93	
Estimated annual output (kWp x Kk x SF)	3449 kWh	3.8 x 976 x 0.93
C. Estimated PV self-consumption - PV Only		
Assumed occupancy archetype	Home half day	
Assumed annual domestic electricity consumption	3500 kWh	
Expected solar PV self-consumption (PV Only)	862 kWh	3449 x 25%
Grid electricity independence / Self-sufficiency (PV Only)	25%	862/3500 x 100

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Solar PV Panel Details	
Panel manufacturer	JA Solar
Panel model	380kw
Panel type	Monocrystalline

Calculation Inputs	
Building use	Domestic
Building type	New Build
EPC Band	C

CO ₂ Savings		
CO ₂ savings from PV system	kg/yr	1594.18

Financial Benefits		
Installation costs	£	5795.00
Annual income generated from smart export tariff	£/yr	129.34
Total income from smart export tariff	£	129.34
PV Only		
Annual savings from electricity generated	£/yr	243.95
Total annual cost saving (for 1 year)	£/yr	373.29
Total annual cost saving (afterwards)	£/yr	243.95
Payback period (years)	yr	23.22

Disclaimer	
<p>The 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, given as guidance only for the first year of generation. It should not be considered as a guarantee of performance.</p> <p>The solar PV self-consumption has been calculated in accordance with the most relevant methodology for your system. There are a number of external factors that can have a significant effect on the amount of energy that is self-consumed so this figure should not be considered as a guarantee of the amount of energy that will be self-consumed.</p> <p>This system performance calculation has been undertaken using estimated values for array orientation, inclination or shading. Actual performance may be significantly lower or higher if the characteristics of the installed system vary from the estimated values.</p> <p>Shading will be present on your system that will reduce its output to the factor stated. This factor was calculated using the MCS shading methodology and we believe that this will yield results within 10% of the actual energy estimate for most systems.</p>	