

solar advanced
systems

PSECC Ltd

SOLAR PV PROPOSAL

Highcross
1000 Lakeside

250kw Proposal



www.solaradvancedsystems.co.uk – sales@solaradvancedsystems.co.uk

Quotation 250kw

SOLDOM07241c



Unit 9, Edenbridge Trading Centre, Hever Road, Edenbridge, Kent, TN8 5EA
Company No: 7028136 Vat: 981 550505

QUOTATION



solar advanced systems

Part of the T.E.R.C GROUP

W: www.solaradvancedsystems.co.uk

To:

Install/Delivery Address:

Highcross
St Catherine's House
Oxford Square
Newbury
Berkshire
RG14 1JA

1000 Lakeside
Western Road
Portsmouth
Hampshire
PO6 3EZ

Solar Advanced Systems Ltd
Unit 9
Edenbridge Trading Centre
Edenbridge
Kent
TN8 5EA
01732 866731

A/C No: **HIGHCR**

Quotation date:	Job number:	System Size:	Quote Ref:	Page
26/02/2013	SOLDOM07241c	250kw	724103	1

Bank Ac Number:	53591387	Estimated annual yield based on SAP 2009 as stated in standards MIS3002	205400 kwh
Sort Code:	20-23-97		

Quantity	Details	Unit	Net	VAT	
1.00	SOLARPVINSTALL	Solar PV Installation	307,999.00	307,999.00	61,599.80
1,000.00	S1	Conergy 250w panels			
9.00	S1	Aurora Power One 27.6TL			
600.00	S1	Kazip Roof Mounts			
400.00	S1	K2 Flat Roof Mounts			
2.00	S1	Total Generation Meter			
48.00	S1	DC Isolators			
18.00	S1	32amp AC Isolators			
1.00	S1	Sub Main Upgrades			
2.00	S1	Distribution Board/MCB's			
2,500.00	S1	DC Cable			
100.00	S1	MC Connectors			
1.00	S1	Crane Hire			
32.00	S1	String Fuses			
1.00	S1	Foyer Display Screen			
2.00	S1	G59 Relay/Bespoke Board			
2.00	S1	Web Box			
1.00	S1	Design, Installation and Commissioning			
1.00	S1	Delivery			
1.00	S1	O&M Documentation			
1.00	S1	Roof Access			
1.00	S1	Structural Survey			

Quote valid for 14 days. Subject to DNO approval.
20% deposit due on commitment of contract, 40% payment due on delivery of materials, 40% final payment due on completion of works.
Please note, card payments are subject to 1.5% handling fee.

Disclaimer: 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. the estimate is based upon government's standard assessment procure for energy rating of buildings (SAP) and is given as guidance only. It should not be considered as a guidance of performance.
All planning requirements are the responsibility of the land/property owner.

Total Net Amount	307,999.00
Carriage	0.00
Total VAT @ 20%	61,599.80
Order Total	369,598.80



VAT Reg No: 981 5505 05

Company Reg No: 7028136 MCS No: 1393



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Finance Payback Model

SOLDOM07241c



Unit 9, Edenbridge Trading Centre, Hever Road, Edenbridge, Kent, TN8 5EA
Company No: 7028136 Vat: 981 550505



Quote Number:	SOLDOM07241c
Estimated yield (SAP)	205400 Kwh**
Actual Estimated Annual Yield:	275268 Kwh***
Cost of Install:	£376,992.00

Payback time	
5.3 yrs	
Profit	£2,525,881.30
20.9% ROI	
Cost of Electricity Saved	£0.120 *

Inclusive of Finance interest

Year	Feed in @ £0.1100 *	Cost of Electricity Saved £0.120 *	Export	Rate *	Annual % return	Annual Total	Total
1	£30,279.48	£33,032.16	0.0000	£0.0450	16.8%	£63,311.64	£63,311.64
2	£31,187.86	£35,344.41	0.0000	£0.0466	17.6%	£66,532.28	£129,843.92
3	£32,123.50	£37,818.52	0.0000	£0.0482	18.6%	£69,942.02	£199,785.94
4	£33,087.21	£40,465.82	0.0000	£0.0499	19.5%	£73,553.02	£273,338.96
5	£34,079.82	£43,298.42	0.0000	£0.0516	20.5%	£77,378.25	£350,717.20
6	£35,102.22	£46,329.31	0.0000	£0.0534	21.6%	£81,431.53	£432,148.73
7	£36,155.28	£49,572.37	0.0000	£0.0553	22.7%	£85,727.65	£517,876.38
8	£37,239.94	£53,042.43	0.0000	£0.0573	23.9%	£90,282.37	£608,158.75
9	£38,357.14	£56,755.40	0.0000	£0.0593	25.2%	£95,112.54	£703,271.29
10	£39,507.85	£60,728.28	0.0000	£0.0613	26.6%	£100,236.13	£803,507.42
11	£40,693.09	£64,979.26	0.0000	£0.0635	28.0%	£105,672.35	£909,179.77
12	£41,913.88	£69,527.81	0.0000	£0.0657	29.6%	£111,441.69	£1,020,621.46
13	£43,171.30	£74,394.75	0.0000	£0.0680	31.2%	£117,566.05	£1,138,187.51
14	£44,466.44	£79,602.39	0.0000	£0.0704	32.9%	£124,068.82	£1,262,256.33
15	£45,800.43	£85,174.55	0.0000	£0.0728	34.7%	£130,974.98	£1,393,231.32
16	£47,174.44	£91,136.77	0.0000	£0.0754	36.7%	£138,311.21	£1,531,542.53
17	£48,589.68	£97,516.35	0.0000	£0.0780	38.8%	£146,106.02	£1,677,648.55
18	£50,047.37	£104,342.49	0.0000	£0.0808	41.0%	£154,389.86	£1,832,038.41
19	£51,548.79	£111,646.46	0.0000	£0.0836	43.3%	£163,195.25	£1,995,233.66
20	£53,095.25	£119,461.72	0.0000	£0.0865	45.8%	£172,556.97	£2,167,790.63
21	£0.00	£127,824.04	0.0000	£0.0895	33.9%	£127,824.04	£2,295,614.66
22	£0.00	£136,771.72	0.0000	£0.0927	36.3%	£136,771.72	£2,432,386.38
23	£0.00	£146,345.74	0.0000	£0.0959	38.8%	£146,345.74	£2,578,732.12
24	£0.00	£156,589.94	0.0000	£0.0993	41.5%	£156,589.94	£2,735,322.06
25	£0.00	£167,551.24	0.0000	£0.1027	44.4%	£167,551.24	£2,902,873.30

% of consumed Electricity:	100%
DNO assumed export:	0%

* Based on predicted energy prices rises of 7% and RPI inflation of 3.0%

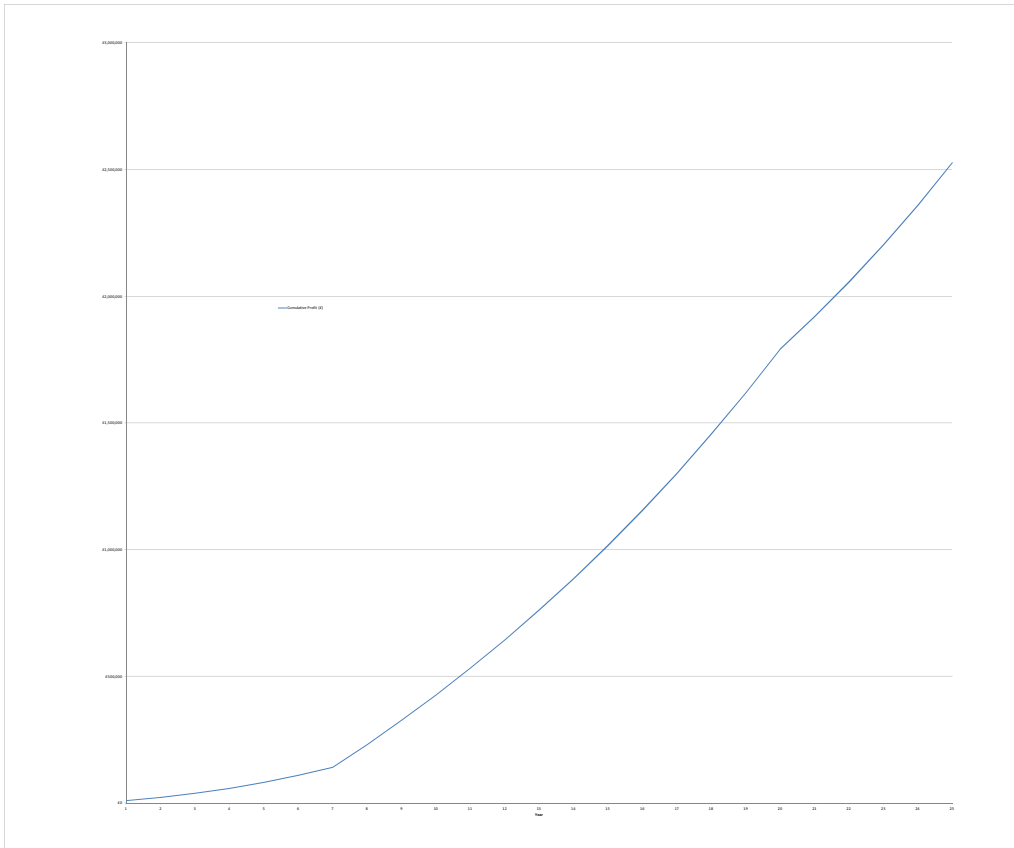
** Predicted yield outputs based on SAP 2009. Yields may be higher

*** Predicted yield outputs on PV sol data. Yields may be higher



250kwp Solar PV system Lease Purchase Model

Energy Price Rise 7%		RPI increase 3%	System Size 250kwp					
Yr	Electricity Saving	FITS Income	Yr Benefit Per Annum (£)	Annual Repayments (£)	SAS ongoing Rental	Gross Profit per Annum (£)	Cumulative Profit (£)	
1	£33,032.16	£30,279.48	1	63,311.64	53,856.00	0.00	9,455.64	9,455.64
2	£35,344.41	£31,187.86	2	66,532.28	53,856.00	0.00	12,676.28	22,131.92
3	£37,818.52	£32,123.50	3	69,942.02	53,856.00	0.00	16,086.02	38,217.94
4	£40,465.82	£33,087.21	4	73,553.02	53,856.00	0.00	19,697.02	57,914.96
5	£43,298.42	£34,079.82	5	77,378.25	53,856.00	0.00	23,522.25	81,437.20
6	£46,329.31	£35,102.22	6	81,431.53	53,856.00	0.00	27,575.53	109,012.73
7	£49,572.37	£36,155.28	7	85,727.65	53,856.00	0.00	31,871.65	140,884.38
8	£53,042.43	£37,239.94	8	90,282.37	0.00	0.00	90,282.37	231,166.75
9	£56,755.40	£38,357.14	9	95,112.54	0.00	0.00	95,112.54	326,279.29
10	£60,728.28	£39,507.85	10	100,236.13	0.00	0.00	100,236.13	426,515.42
11	£64,979.26	£40,693.09	11	105,672.35	0.00	0.00	105,672.35	532,187.77
12	£69,527.81	£41,913.88	12	111,441.69	0.00	0.00	111,441.69	643,629.46
13	£74,394.75	£43,171.30	13	117,566.05	0.00	0.00	117,566.05	761,195.51
14	£79,602.39	£44,466.44	14	124,068.82	0.00	0.00	124,068.82	885,264.33
15	£85,174.55	£45,800.43	15	130,974.98	0.00	0.00	130,974.98	1,016,239.32
16	£91,136.77	£47,174.44	16	138,311.21	0.00	0.00	138,311.21	1,154,550.53
17	£97,516.35	£48,589.68	17	146,106.02	0.00	0.00	146,106.02	1,300,656.55
18	£104,342.49	£50,047.37	18	154,389.86	0.00	0.00	154,389.86	1,455,046.41
19	£111,646.46	£51,548.79	19	163,195.25	0.00	0.00	163,195.25	1,618,241.66
20	£119,461.72	£53,095.25	20	172,556.97	0.00	0.00	172,556.97	1,790,798.63
21	£127,824.04	£0.00	21	127,824.04	0.00	0.00	127,824.04	1,918,622.66
22	£136,771.72	£0.00	22	136,771.72	0.00	0.00	136,771.72	2,055,394.38
23	£146,345.74	£0.00	23	146,345.74	0.00	0.00	146,345.74	2,201,740.12
24	£156,589.94	£0.00	24	156,589.94	0.00	0.00	156,589.94	2,358,330.06
25	£167,551.24	£0.00	25	167,551.24	0.00	0.00	167,551.24	2,525,881.30



Finance figures subject to formal Credit approval



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Payback Model (direct purchase)

SOLDOM07241c



Unit 9, Edenbridge Trading Centre, Hever Road, Edenbridge, Kent, TN8 5EA
Company No: 7028136 Vat: 981 550505



Quote Number:	SOLDOM07241c
Estimated yield (SAP)	205400 Kwh**
Actual Estimated Annual Yield:	275268 Kwh***
Cost of Install:	£307,999.00

Payback time	
4.4 yrs	
Profit	£2,594,874.30
24.4% ROI	
Cost of Electricity Saved	£0.120 *

100% consumed electricity from Solar PV system

Year	Feed in @ £0.1100 *	Cost of Electricity Saved £0.120 *	Export	Rate *	Annual % return	Annual Total	Total
1	£30,279.48	£33,032.16	0.0000	£0.0450	20.6%	£63,311.64	£63,311.64
2	£31,187.86	£35,344.41	0.0000	£0.0466	21.6%	£66,532.28	£129,843.92
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5	£34,079.82	£43,298.42	0.0000	£0.0516	25.1%	£77,378.25	£350,717.20
6	£35,102.22	£46,329.31	0.0000	£0.0534	26.4%	£81,431.53	£432,148.73
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15	£45,800.43	£85,174.55	0.0000	£0.0728	42.5%	£130,974.98	£1,393,231.32
16	£47,174.44	£91,136.77	0.0000	£0.0754	44.9%	£138,311.21	£1,531,542.53
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18	£50,047.37	£104,342.49	0.0000	£0.0808	50.1%	£154,389.86	£1,832,038.41
19	£51,548.79	£111,646.46	0.0000	£0.0836	53.0%	£163,195.25	£1,995,233.66
20	£53,095.25	£119,461.72	0.0000	£0.0865	56.0%	£172,556.97	£2,167,790.63
21	£0.00	£127,824.04	0.0000	£0.0895	41.5%	£127,824.04	£2,295,614.66
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24	£0.00	£156,589.94	0.0000	£0.0993	50.8%	£156,589.94	£2,735,322.06
25	£0.00	£167,551.24	0.0000	£0.1027	54.4%	£167,551.24	£2,902,873.30

% of consumed Electricity:	100%
DNO assumed export:	0%

* Based on predicted energy prices rises of 7% and RPI inflation of 3.0%

** Predicted yield outputs based on SAP 2009. Yields may be higher

*** Predicted yield outputs on PV sol data. Yields may be higher



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Proposed Design Layout

SOLDOM07241c



Unit 9, Edenbridge Trading Centre, Hever Road, Edenbridge, Kent, TN8 5EA
Company No: 7028136 Vat: 981 550505

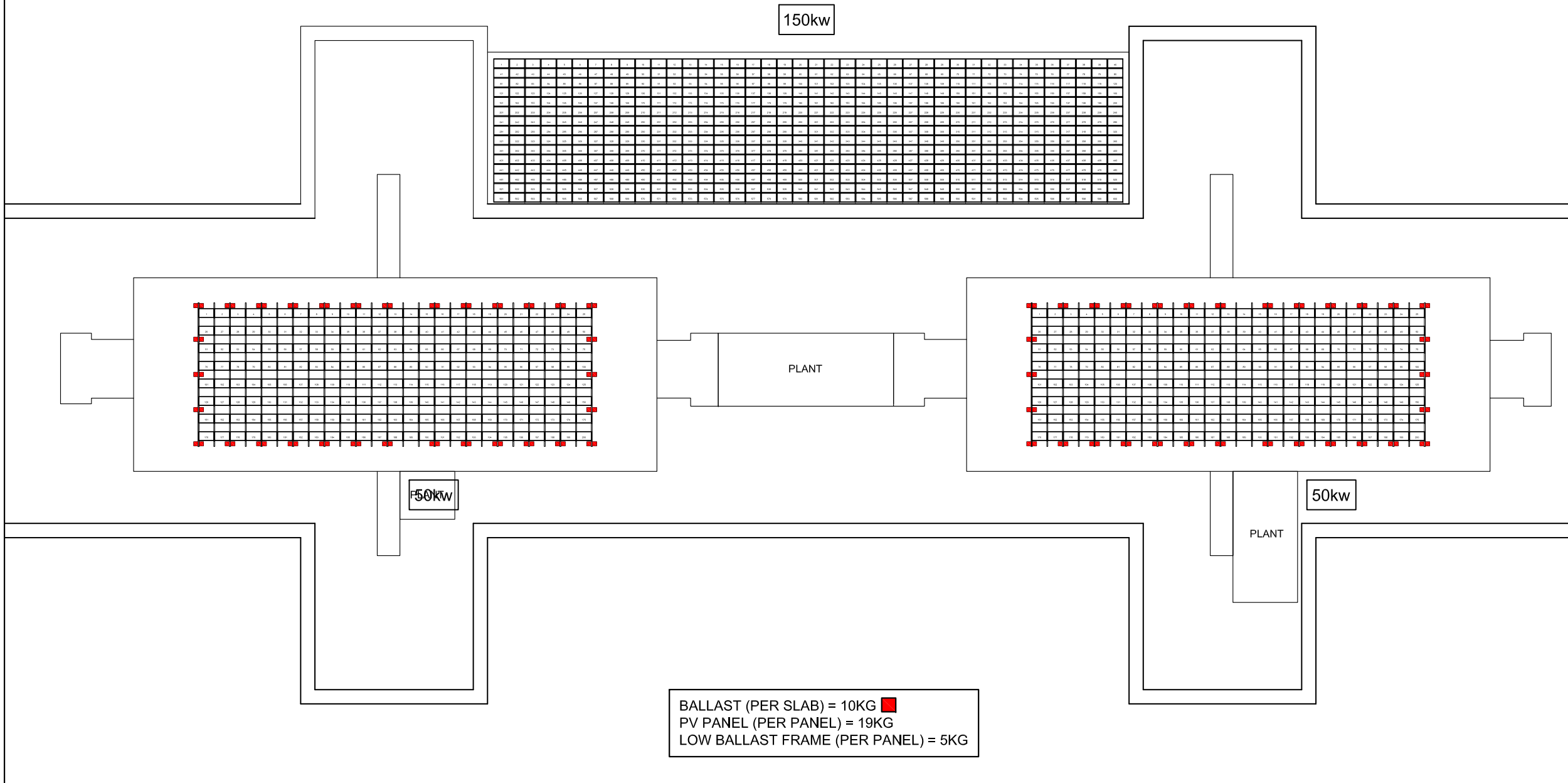
Lakeside Solar PV Project Proposal



Lakeside Solar PV Project Proposal



PLAN - AS PROPOSED



This drawing is property of Solar Advanced Systems Ltd. No attempt should be made to copy or re-sell the drawing without prior written authorisation by the Managing Director. This drawing is not be scaled - written dimensions only to be used. Plan drawings indicative for reference only.

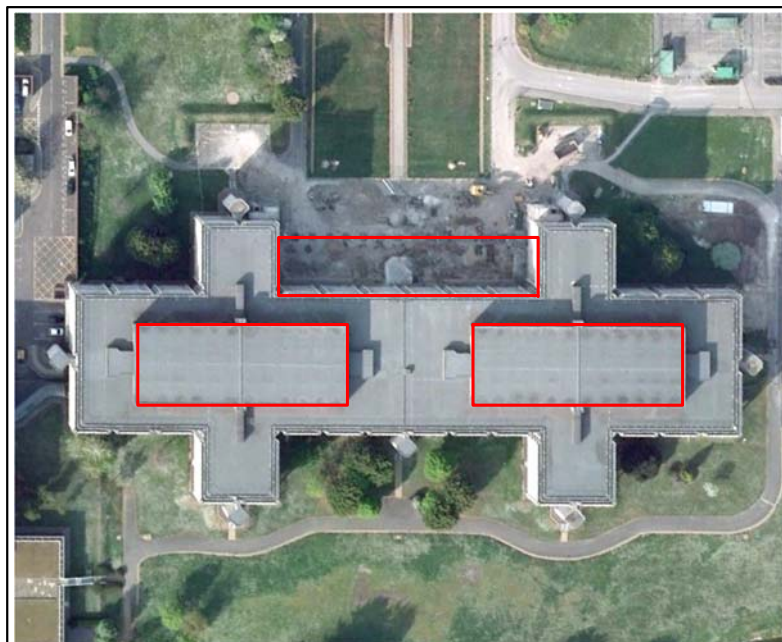
PROJECT NOTES/SPECS

Cable requirement/calculations based on SOLAR ADVANCED SYSTEMS document CBLDOC1 in accordance with the following:

- 17th edition wiring regulations
- DTI "photovoltaics in buildings" 2nd edition
- MIS-3002

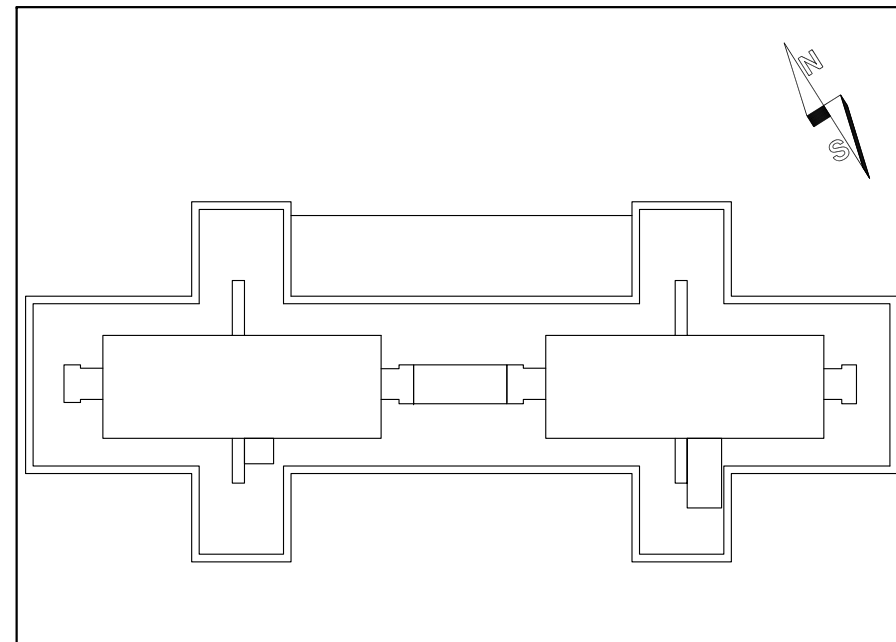


REV	REVISION DETAIL	BY	APV	DATE
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SITE IMAGE

GRID REFERENCE - SU 646 049



SITE PLAN



1:1500

INSTALLATION AND DESIGN MUST COMPLY WITH THE FOLLOWING STANDARDS.

- MCS-001 / MCS 002
- MIS-3002
- DTI "photovoltaics in buildings" 2nd edition



PRODUCT DESCRIPTION AND CONFORMANCE WITH MICROGENERATION SCHEME.

TYPE	MANUFACTURER	MODEL	CONFORMANCE CODE
INVERTER	T.B.C	T.B.C	N/A
PV PANEL	CONERGY	250	T.B.C

REFER TO WWW.MICROGENERATIONCERTIFICATION.ORG FOR CONFORMATION CODES



CLIENT	SOLAR SELECTIONS		
JOB	1000 LAKESIDE WESTERN ROAD PORTSMOUTH PO6 3EZ		
TITLE	SOLAR PANEL ARRAY PROPOSED 250kw PLAN		
STATUS	PROPOSED		
DRAWN	CHKD	DATE	SCALE
SG	NP	14/02/13	1:500@A3
DRAWING No.	REVISION		
SOLDOM07241A -QS	--		



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Module Specification

SOLDOM07241c



Unit 9, Edenbridge Trading Centre, Hever Road, Edenbridge, Kent, TN8 5EA
Company No: 7028136 Vat: 981 550505



Conergy PowerPlus 230P–250P

Conergy PowerPlus solar modules offer premium quality that pays for itself. They guarantee high system yields and reliable operation over the entire term, and under the most demanding environmental and weather conditions. They are manufactured to the highest quality standards and are characterised by many well thought through details and characteristics that set standards in this combination. For this why we offer our unique PremiumPlus warranty.



Now with
PremiumPlus
warranty

High yields in practice

- | High-performance modules with polycrystalline, triple busbar cell technology
- | High efficiency, even in poor light conditions
- | Up to 3 % more module output through positive performance tolerance
- | High yield security thanks to linear performance guarantee for 25 years ¹

Premium quality for long service life

- | 12 years product warranty ¹
- | High-quality and quality-tested materials and TÜV-certified production
- | Secure junction box and cavity-free frame
- | High stability, for example in snow, wind and hail, and now with a module load of up to 6,000 Pascal
- | Resistant to all weather conditions and to salt spray and ammonia vapours
- | Free module take-back programme through PV CYCLE ²

Planning flexibility

- | Recommended for solar energy systems of any size and in any environment
- | Optimum area utilisation with optional portrait or landscape installation

Easy to install

- | Clamping areas now tested right into the corners for even more flexible installation
- | Simple transport – one of the lightest modules of the performance class, with a load capacity of 6,000 Pascal
- | Secure installation thanks to reverse polarity protected plugs with twist lock

1 | More output

High level of performance, with up to 250Wp rated capacity and an additional 3% positive performance tolerance, increase the yield still further, even in small areas.

3 | High-quality materials

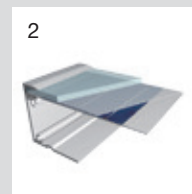
Premium quality through the use of high-quality materials. The waterproof, soldered and sealed junction box, for example, is particularly secure, and with its passively cooled 3-bypass diodes, it ensures the highest yields, even in unfavourable ambient conditions.

2 | Very high loading capacity

The high-quality design withstands loads of up to 6,000 Pascal or the impact of golf ball-sized hailstones falling at a speed of 120 km/h with ease.

4 | Conergy premium quality

The entire module development, production, quality assurance and module production is TÜV-certified to ISO 9001 and 14001, and meets or exceeds all relevant standards.



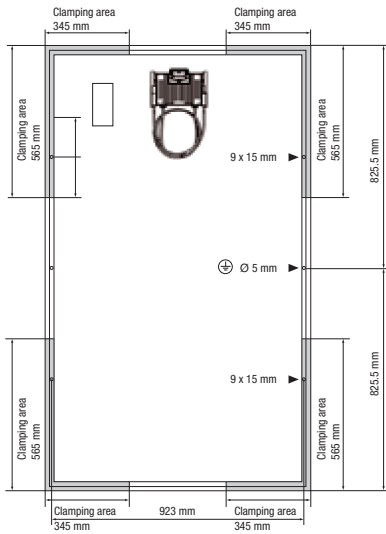
¹ Valid for registered modules of the PowerPlus series. Otherwise, standard warranty conditions apply.

² Only for PV-CYCLE member countries, more information at www.pvcycle.com



CONERGY

Conergy PowerPlus 230P–250P



Module dimensions (L × W × H): ¹ 1,651 × 986 × 46 mm
 Cell dimensions: 156 × 156 mm
 No. of cells: 60
 Cell type: Polycrystalline cell incorporating 3-busbar technology
 NOCT: ² 46° C ± 2° C
 Maximum permissible load: 6,000 Pa ³
 Front cover type: Micro-structured solar glass, 3.2 mm diameter
 Junction box: Huber + Suhner HA3, protection class IP 67, 201 × 141 × 19.7 mm
 Cable: 2 × 1,000 mm length, 4 mm² cross-section
 Plug type: Huber + Suhner: plug connector with integrated twist lock
 Frame material: Anodised aluminium
 Module weight: ⁴ 19.6 kg
 Maximum permissible system voltage: 1,000 V
 Reverse current loadability (I_r): 20 A
 Reduction of efficiency from 1,000 W/m² to 200 W/m² in accordance with EN 60904-1: At 200 W/m², 97 % of STC efficiency is achieved
 Certification: IEC/EN 61215 Ed. 2, IEC/EN 61730, SK II, MCS
 Product warranty: ⁵ 12 years
 Performance guarantee: ⁵ >82% of nominal output in year 25

Conergy PowerPlus	230P	235P	240P	245P	250P
Electrical ratings under standard test conditions: ⁶					
Nominal output (P _{nom})	230 W	235 W	240 W	245 W	250 W
Performance tolerance	-0/+3 %	-0/+3 %	-0/+3 %	-0/+3 %	-0/+3 %
Module efficiency (P _{nom})	14.13 %	14.44 %	14.74 %	15.05 %	15.36 %
Voltage at maximum performance (U _{mpp}) ⁷	29.30 V	29.49 V	29.70 V	29.81 V	30.01 V
Current at maximum performance (I _{mpp}) ⁷	7.95 A	8.06 A	8.15 A	8.29 A	8.40 A
Off-load voltage (U _{oc}) ⁷	36.22 V	36.37 V	36.48 V	36.89 V	37.12 V
Short-circuit current (I _{sc}) ⁷	8.42 A	8.51 A	8.62 A	8.71 A	8.81 A
Temperature coefficient (P _{mpp})	-0.44 %/° C	-0.44 %/° C	-0.44 %/° C	-0.44 %/° C	-0.44 %/° C
Temperature coefficient (U _{oc}), absolute	-0.120 V/° C	-0.120 V/° C	-0.120 V/° C	-0.120 V/° C	-0.120 V/° C
Temperature coefficient (U _{oc}), in percent	-0.33 %/° C	-0.33 %/° C	-0.33 %/° C	-0.33 %/° C	-0.33 %/° C
Temperature coefficient (I _{sc}) absolute	4.90 mA/° C	4.97 mA/° C	5.02 mA/° C	5.08 mA/° C	5.47 mA/° C
Temperature coefficient (I _{sc}) as a percentage	0.059 %/° C	0.059 %/° C	0.059 %/° C	0.059 %/° C	0.059 %/° C
Electrical rating at 800 W/m², NOCT and AM 1.5					
Power (P _{mpp})	172.38 W	175.92 W	179.18 W	182.94 W	186.64 W
Off-load voltage (U _{oc})	33.21 V	33.35 V	33.45 V	33.84 V	34.05 V
Short-circuit current (I _{sc})	6.82 A	6.89 A	6.98 A	7.05 A	7.14 A
Voltage (U _{mpp})	26.77 V	26.95 V	27.14 V	27.25 V	27.43 V
Current (I _{mpp})	6.44 A	6.53 A	6.60 A	6.71 A	6.80 A

¹ Dimensional tolerance: +/-1 mm

² Nominal operating temperature of the cell at 800 W/m² irradiation, 20° C ambient temperature, wind speed of 1 m/s

³ In accordance with IEC 61215 Ed. 2

⁴ Weight tolerance: +/-0.5 kg

⁵ Valid for registered modules of the PowerPlus series. Otherwise, standard warranty conditions apply.

⁶ Standard test conditions defined as follows: 1,000 W/m² radiant power at a spectral density of AM 1.5 and a cell temperature of 25° C

⁷ Typical production values

This data sheet complies with the specifications of DIN EN 50380.

Available at: