

Simulation Parameters

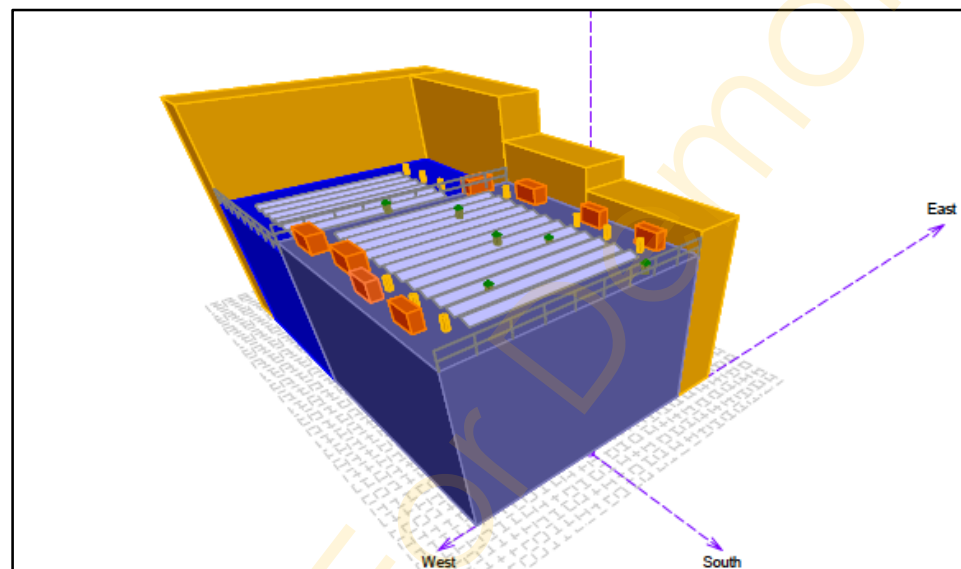
Date	28 November 2015	
Client	Private	
Site Location	Bournemouth	
Shading Simulation Required?	Yes	
Additional Information	None	
Sum of Yearly HH Site Annual Demand	52,560	kWh
DNO Connection Voltage	0.24	kV
Array Pitch	20	°
PVSyst Model Run Array Size (Core Data)	2.2	kWp
Demand Side Reduction Factor (-ve = reduction, +ve = increase)	100%	%
Modelled PV Array Size	45.0	kWp
On-site Generator Export Capacity	20.0	kW
Inverter kWp to KVA Ratio (Core Data)	1.00	
P50/P75/P90 Factor from P50	100%	SolarGIS
Hours in Year (365 days)	8,760	Hours
Hours of PV Operation (Generation > 0)	4,090	Hours
Percentage of Year Operational	46.69%	%
Max Non-constrained Annual Generation Output	45,311	kWh
Constrained Generation Output	43,134	kWh
Energy Generation Loss due to Export Constraint	2,176	kWh
Percentage Output as a Proportion of Maximum	95.20%	%
Average Yearly Output when Operating	11.078	kW
Average Output as a Percentage of Maximum Output	25	%
Average Daily (24/7) Output	5.172	kW
Annual Average Output (Non-constrained)	5.17	kW
Annual Average Output (Constrained)	5.17	kW
Annual Capacity Factor	11	%
Annual Constrained Capacity Factor	11	%

Colour Key

Given
Variables
Outputs
Statistical Data

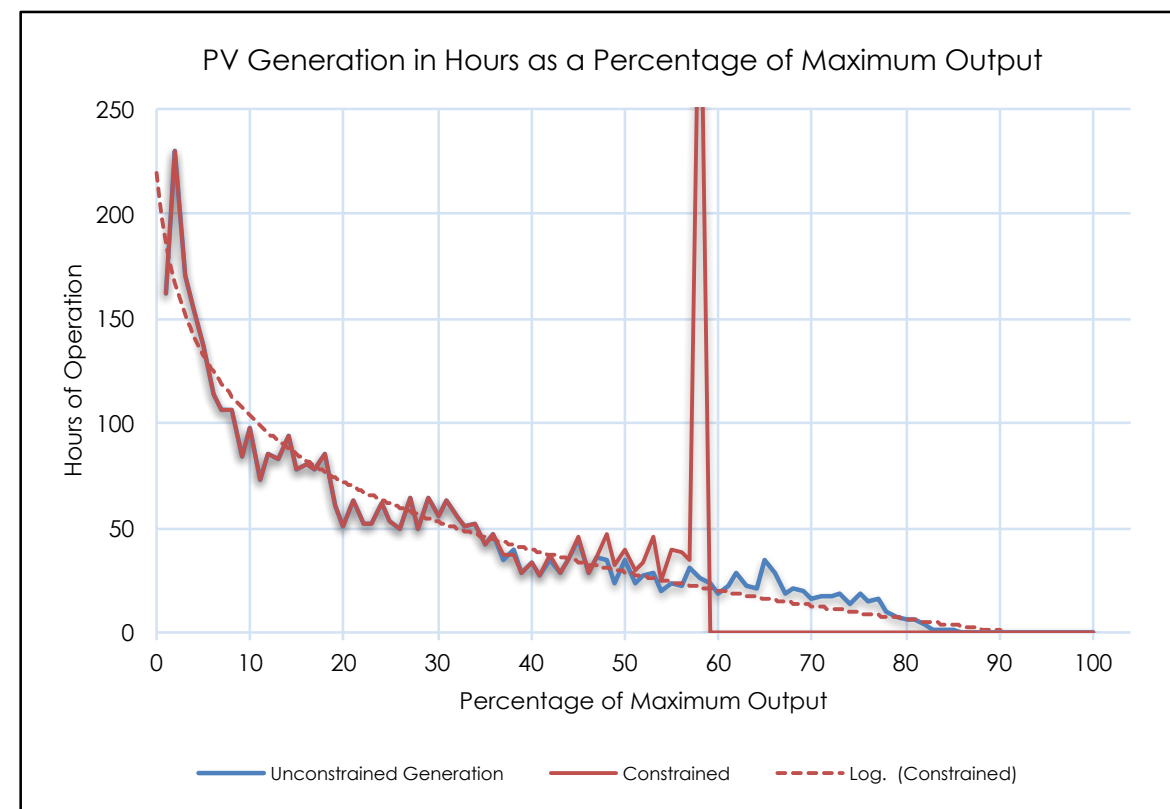
PVSyst - 3D Shading Scene

Perspective of the PV-field and surrounding shading scene



Simulation Results

Simulated PV Size in (kWp)	Demand Reduction factor -10%		Demand Reduction factor -5%		Demand Reduction factor 0%	
	Annual yield as a % of non constrained	Level of constraint in %	Annual yield as a % of non constrained	Level of constraint in %	Annual yield as a % of non constrained	Level of constraint in %
25	100.0	0.0	100.0	0.0	100.0	0.0
30	100.0	0.0	100.0	0.0	100.0	0.0
35	99.4	0.6	99.4	0.6	99.6	0.4
40	97.4	2.6	97.7	2.3	97.9	2.1
45	94.6	5.5	94.9	5.1	95.2	4.8
50	91.4	8.6	91.7	8.3	92.1	7.9
55	88.2	11.8	88.6	11.4	88.8	11.2
60	85.0	15.0	85.5	14.6	85.9	14.1
65.0	82.0	18.0	82.4	17.6	82.9	17.1
70	79.0	21.0	79.5	20.5	80.0	20.0
75	76.2	23.8	76.7	23.3	77.2	22.8



Summary Report

With the HH profile provided, a 5% constraint was acceptable as part of the appraisal process, based on solar data of average yield (50% exceedance). If the site energy demand drops by 10% over the period, the level of constraint increases by 0.4%. A 45kWp system with DNO approved export constraint technology will achieve this. For no constraint a 30kWp system is recommended.