

# Case Study 10 - Carport , UK

Case Study 10 - Carport, UK, 53.483083, -2.197778

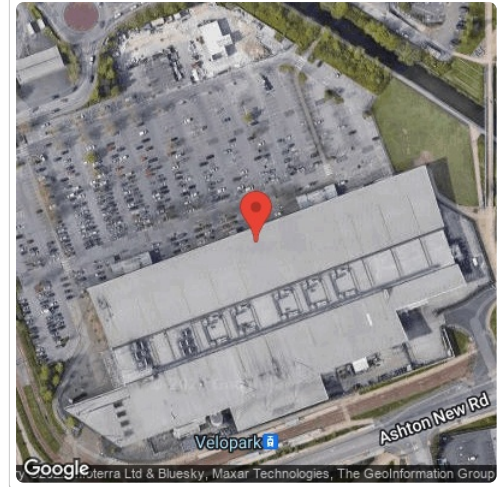
## Report

Project Name	Case Study 10 - Carport, UK
Project Address	53.483083, -2.197778
Prepared By	Bhanu Swaroop Gaddam gaddambhanu9@gmail.com

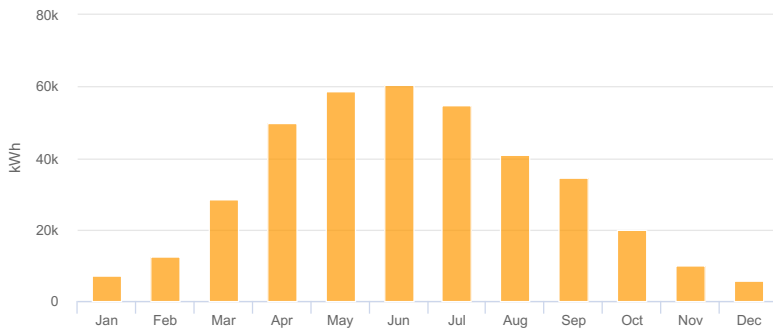
## System Metrics

Design	Case Study 10 - Carport , UK
Module DC Nameplate	518.4 kW
Inverter AC Nameplate	450.0 kW Load Ratio: 1.15
Annual Production	382.5 MWh
Performance Ratio	85.8%
kWh/kWp	737.8
Weather Dataset	TMY, 10km Grid, meteonorm (meteonorm)
Simulator Version	77eaf2cdb5-02f2a7f506-20068b956b-d70d5f9ff0

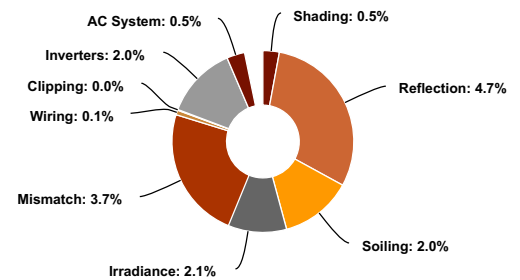
## Project Location



## Monthly Production



## Sources of System Loss



## Annual Production

	Description	Output	% Delta
Irradiance (kWh/m <sup>2</sup> )	Annual Global Horizontal Irradiance	846.7	
	POA Irradiance	860.1	1.6%
	Shaded Irradiance	856.2	-0.5%
	Irradiance after Reflection	816.0	-4.7%
	Irradiance after Soiling	799.7	-2.0%
	<b>Total Collector Irradiance</b>	<b>799.7</b>	<b>0.0%</b>
Energy (kWh)	Nameplate	414,636.4	
	Output at Irradiance Levels	405,812.7	-2.1%
	Output at Cell Temperature Derate	407,861.7	0.5%
	Output After Mismatch	392,851.3	-3.7%
	Optimal DC Output	392,340.3	-0.1%
	Constrained DC Output	392,262.1	0.0%
	Inverter Output	384,416.9	-2.0%
	<b>Energy to Grid</b>	<b>382,494.8</b>	<b>-0.5%</b>
Temperature Metrics			
	Avg. Operating Ambient Temp		12.3 °C
	Avg. Operating Cell Temp		16.5 °C
Simulation Metrics			
	Operating Hours	4584	
	Solved Hours	4584	

## Condition Set

Description	Condition Set 1											
Weather Dataset	TMY, 10km Grid, meteonorm (meteonorm)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a	b	Temperature Delta								
	Fixed Tilt	-3.56	-0.075	3°C								
	Flush Mount	-2.81	-0.0455	0°C								
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	2	2	2	2	2	2	2	2	2	2	2	2
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	-2.5% to 2.5%											
AC System Derate	0.50%											
Module Characterizations	Module						Uploaded By		Characterization			
	TSM-DE14H (II) 360 (Trina Solar)						Folsom Labs		Spec Sheet Characterization, PAN			
Component Characterizations	Device						Uploaded By		Characterization			
	Eco 25.0-3-s (Oct15) (Fronius)						Folsom Labs		Spec Sheet Efficiency			

Components		
Component	Name	Count
Inverters	Eco 25.0-3-s (Oct15) (Fronius)	18 (450.0 kW)
Strings	10 AWG (Copper)	90 (6,454.8 ft)
Module	Trina Solar, TSM-DE14H (II) 360 (360W)	1,440 (518.4 kW)

Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	16-19	Along Racking
Wiring Zone 2	-	16-19	Along Racking
Wiring Zone 3	-	16-19	Along Racking
Wiring Zone 4	-	16-19	Along Racking
Wiring Zone 5	-	16-19	Along Racking
Wiring Zone 6	-	16-19	Along Racking
Wiring Zone 7	-	16-19	Along Racking
Wiring Zone 8	-	16-19	Along Racking
Wiring Zone 9	-	16-19	Along Racking

Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Carport	Landscape (Horizontal)	5°	249.51298580666923°	0.0 ft	4x20	2	160	57.6 kW
Field Segment 1 (copy)	Carport	Landscape (Horizontal)	5°	249.51299°	0.0 ft	4x20	2	160	57.6 kW
Field Segment 1 (copy 1)	Carport	Landscape (Horizontal)	5°	249.51299°	0.0 ft	4x20	2	160	57.6 kW
Field Segment 1 (copy 2)	Carport	Landscape (Horizontal)	5°	249.51299°	0.0 ft	4x20	2	160	57.6 kW
Field Segment 1 (copy 3)	Carport	Landscape (Horizontal)	5°	249.51299°	0.0 ft	4x20	2	160	57.6 kW
Field Segment 1 (copy 4)	Carport	Landscape (Horizontal)	5°	249.51299°	0.0 ft	4x20	2	160	57.6 kW
Field Segment 1 (copy 5)	Carport	Landscape (Horizontal)	5°	249.51299°	0.0 ft	4x20	2	160	57.6 kW
Field Segment 1 (copy 6)	Carport	Landscape (Horizontal)	5°	249.51299°	0.0 ft	4x20	2	160	57.6 kW
Field Segment 1 (copy 7)	Carport	Landscape (Horizontal)	5°	249.51299°	0.0 ft	4x20	2	160	57.6 kW

Detailed Layout

