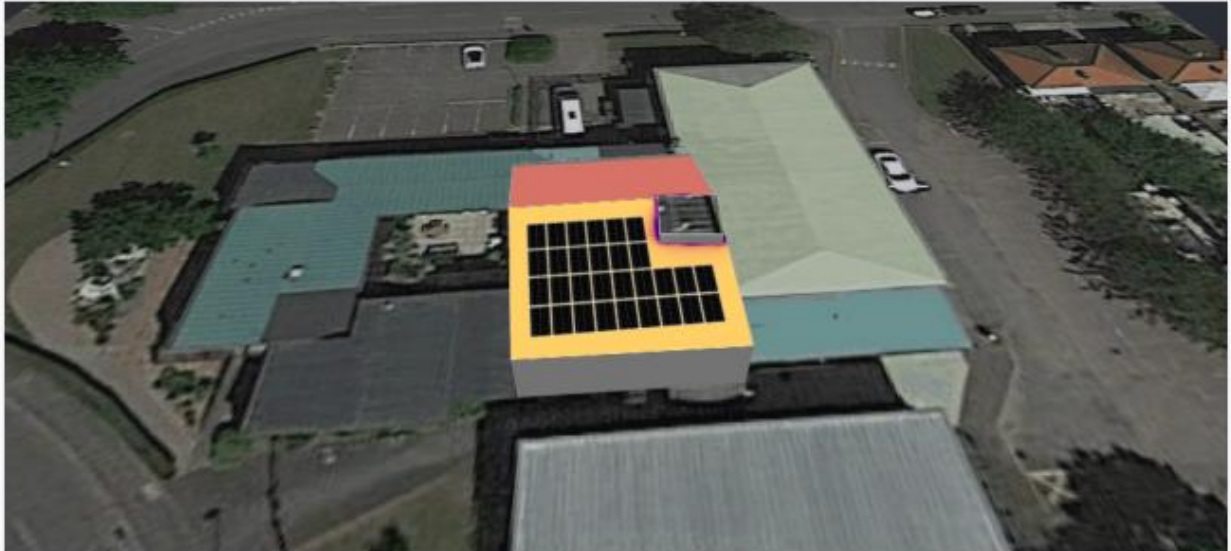


Appendix 1a: Solar PV installation at Braunstone Civic Centre

BRAUNSTONE CIVIC CENTRE

Kingsway, Braunstone Town, LE3 2PP, United Kingdom | Lydia Assi | 23 Nov 2021



SYSTEM OVERVIEW

 30 PV modules

 1 Inverters

 30 Optimizers

SIMULATION RESULTS


Installed DC Power
11.10 kWp


Max Achieved AC Power
10.00 kW


Annual Energy Production
9.96 MWh


CO2 Emission Saved
2.32 t


Equivalent Trees Planted
107

SYSTEM PRODUCTION

Total Production - 100 %
9.96 MWh

Self-consumption - 99 %
9.90 MWh

Export - 1 %
67.73 kWh

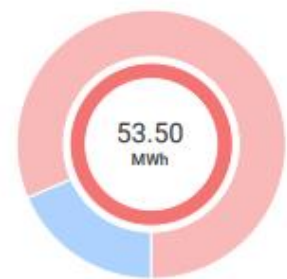


CONSUMPTION

Total Consumption - 100 %
53.50 MWh

Self-consumption - 18 %
9.90 MWh

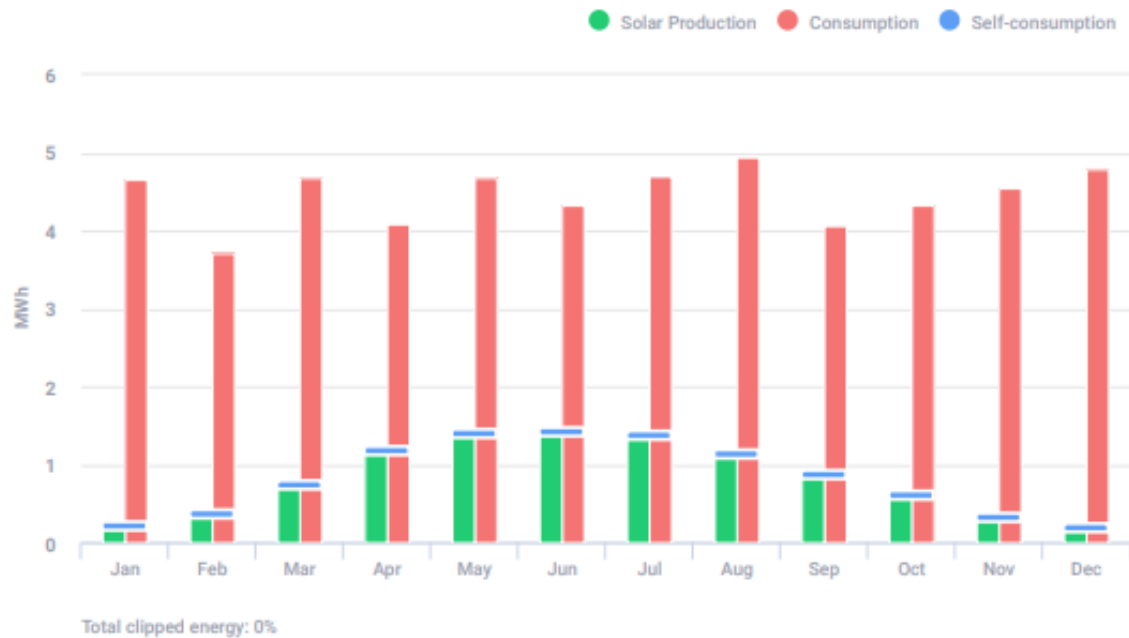
Import - 82 %
43.60 MWh





BRAUNSTONE CIVIC CENTRE

Kingsway, Braunstone Town, LE3 2PP, United Kingdom | Lydia Assi | 23 Nov 2021

ESTIMATED MONTHLY ENERGY



PV MODULES

# Module	Model	Peak power	Racking type	Orientation	Azimuth	Tilt
30	REC Solar AS, REC 370 TP4 (TwinPeak 4 Blackframe)	11.1 kWp			174°	10°
Total:	30	11.1 kWp				

ESTIMATED BILL SAVINGS YEAR 1




Avg. Monthly			
Current Monthly Bill	Monthly Bill with SolarEdge	Net Bill Monthly Savings	Bill Offset
£ 615.78	£ 498.24	£ 117.54	19.09 %
Estimated Net Lifetime Bill Savings £ 34,030			

Utility Provider: **Generic Commercial** | Utility Rate: **Day and Night Rate**




BRAUNSTONE CIVIC CENTRE

Kingsway, Braunstone Town, LE3 2PP, United Kingdom | Lydia Assi | 23 Nov 2021

BILL OF MATERIALS (BOM)

Items	Quantity
 SE10K	1
 P401	30
 REC 370 TP4 (TwinPeak 4 Blackframe)	30

ELECTRICAL DESIGN

Inverters & Storage	Strings per inverter	Optimizers per string	PV modules per string
 1 x SE10K 10.42kW 104%	∪ 1 x string	 30 x P401	 30

SYSTEM LOSS DIAGRAM



BRAUNSTONE CIVIC CENTRE

Kingsway, Braunstone Town, LE3 2PP, United Kingdom | Lydia Assi | 23 Nov 2021

SIMULATION PARAMETERS



LOCATION & GRID

Time zone	GMT (London)
Weather station	Leicester (6.97 km away)
Station altitude	86 m
Station data source	Meteonorm 7.1
Grid	400V L-L, 230V L-N



LOSS FACTORS

Near shading	Enabled
Albedo	0.20
Soiling/Snow	0%
Incidence angle modifier (IAM), ASHRAE b0 param.	0.05
Thermal loss factor U_c (const) Flush mount	20
Thermal loss factor U_c (const) Tilted	29
LID loss factor	0%
System unavailability	0%

Appendix 1b: Solar PV installation at Thorpe Astley Community Centre

THORPE ASTLEY COMMUNITY CENTRE

Marshall Close 33, Braunstone Town, LE3 3RQ, United Kingdom | Lydia Assi | 23 Nov 2021



SYSTEM OVERVIEW



102 PV modules



2 Inverters



51 Optimizers



1 Batteries

SIMULATION RESULTS



Installed DC Power

37.74 kWp



Max Achieved AC Power

27.60 kW



Annual Energy Production

29.29 MWh



CO2 Emission Saved

6.82t



Equivalent Trees Planted

313

SYSTEM PRODUCTION

Total Production - 100 %
29.29 MWh

Self-consumption - 60 %
17.66 MWh

Export - 40 %
11.63 MWh

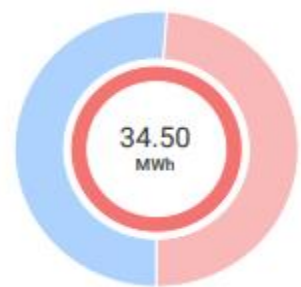


CONSUMPTION

Total Consumption - 100 %
34.50 MWh

Self-consumption - 51 %
17.66 MWh
3.55 MWh from batteries (20%)

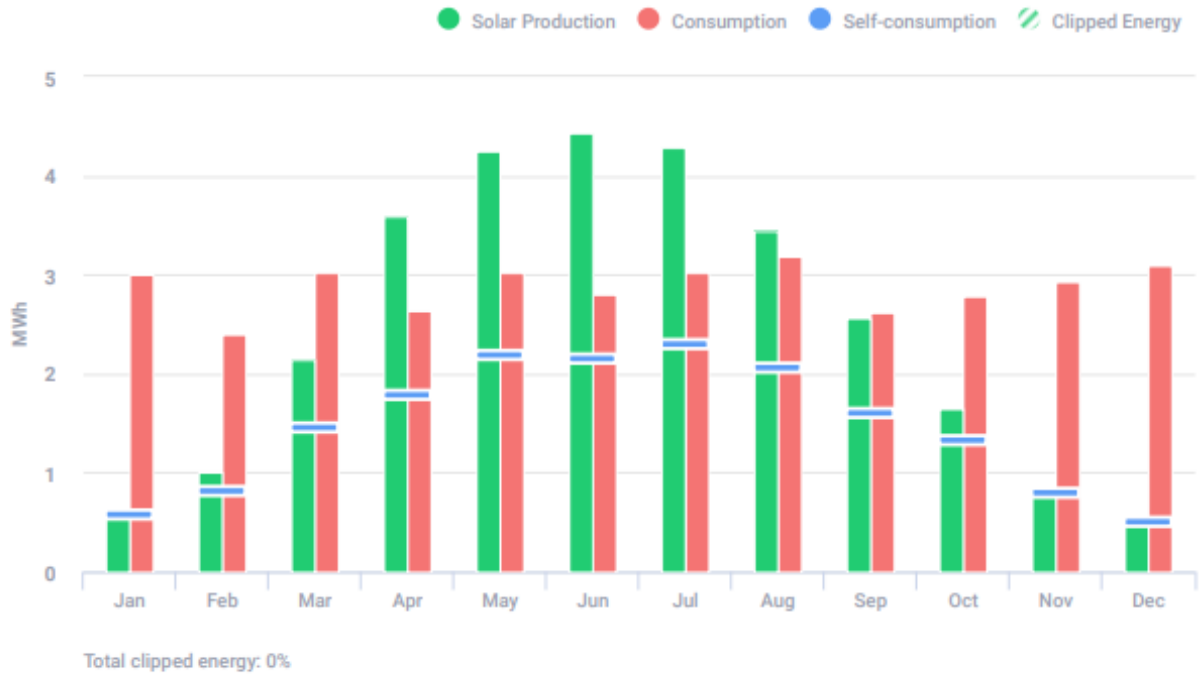
Import - 49 %
16.84 MWh



THORPE ASTLEY COMMUNITY CENTRE

Marshall Close 33, Braunstone Town, LE3 3RQ, United Kingdom | Lydia Assi | 23 Nov 2021

ESTIMATED MONTHLY ENERGY



PV MODULES

# Module	Model	Peak power	Racking type	Orientation	Azimuth	Tilt
102	REC Solar AS, REC 370 TP4 (TwinPeak 4 Blackframe)	37.7 kWp			158°	5°
Total:	102	37.7 kWp				

ESTIMATED BILL SAVINGS YEAR 1

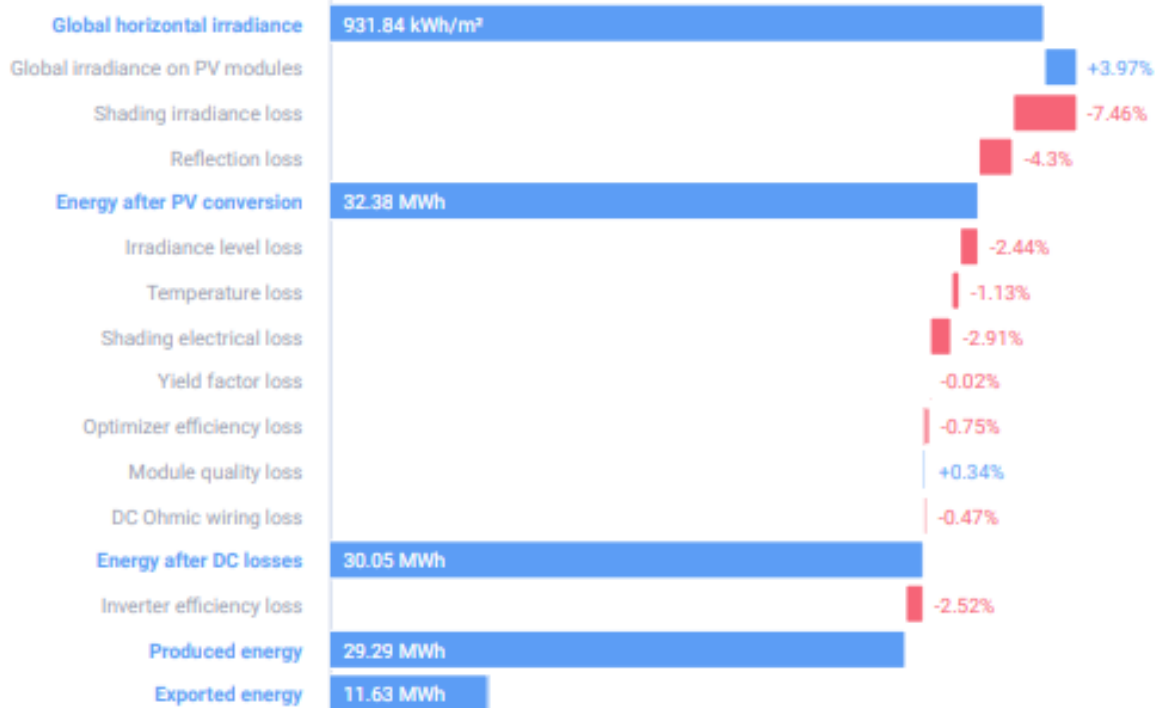
Avg. Monthly			
Current Monthly Bill	Monthly Bill with SolarEdge	Net Bill Monthly Savings	Bill Offset
£ 385.59	£ 129.45	£ 256.14	66.43 %
Estimated Net Lifetime Bill Savings £ 64,758			

Utility Provider: **Generic Commercial** | Utility Rate: **Day and Night Rate**

THORPE ASTLEY COMMUNITY CENTRE

Marshall Close 33, Braunstone Town, LE3 3RQ, United Kingdom | Lydia Assi | 23 Nov 2021

SYSTEM LOSS DIAGRAM



SIMULATION PARAMETERS



LOCATION & GRID

Time zone	GMT (London)
Weather station	Leicester (8.17 km away)
Station altitude	86 m
Station data source	Meteonorm 7.1
Grid	400V L-L, 230V L-N



LOSS FACTORS

Near shading	Enabled
Albedo	0.20
Soiling/Snow	0%
Incidence angle modifier (IAM), ASHRAE b0 param.	0.05
Thermal loss factor U _c (const) Flush mount	20
Thermal loss factor U _c (const) Tilted	29
LID loss factor	0%
System unavailability	0%

THORPE ASTLEY COMMUNITY CENTRE

Marshall Close 33, Braunstone Town, LE3 3RQ, United Kingdom | Lydia Assi | 23 Nov 2021

BILL OF MATERIALS (BOM)

Items	Quantity
 SE5K-RWS	1
 SE27.6K	1
 P701	51
 BYD Premium LVS 16	1
 REC 370 TP4 (TwinPeak 4 Blackframe)	102

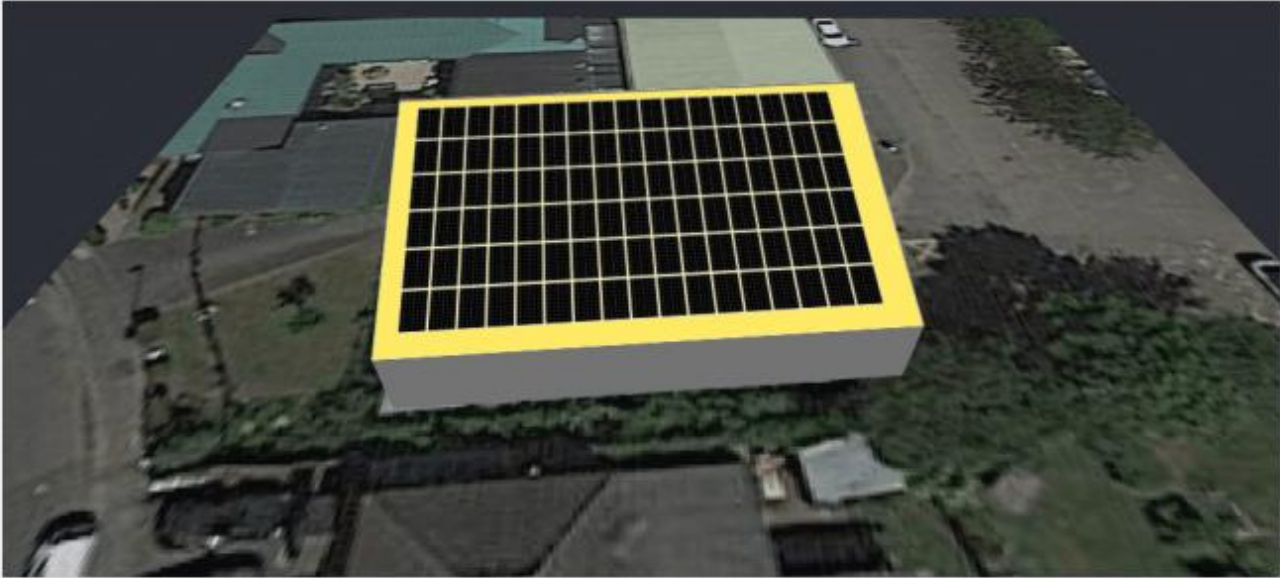
ELECTRICAL DESIGN

Inverters & Storage	Strings per inverter	Optimizers per string	PV modules per string
 1 x SE5K-RWS 0kW 0%  1 x BYD Premium LVS 16			
 1 x SE27.6K 34.33kW 124%	3 x strings	 17 x P701 (2:1)	 34

Appendix 1c: Solar PV Installation at the Library

BRAUNSTONE LIBRARY

Kingsway 209, Braunstone Town, LE3 2PP, United Kingdom | Lydia Assi | 5 Dec 2021



SYSTEM OVERVIEW



102 PV modules



2 Inverters



51 Optimizers



1 Batteries

SIMULATION RESULTS



Installed DC Power

37.74 kWp



Max Achieved AC Power

27.60 kW



Annual Energy Production

35.73 MWh



CO2 Emission Saved

8.33 t



Equivalent Trees Planted

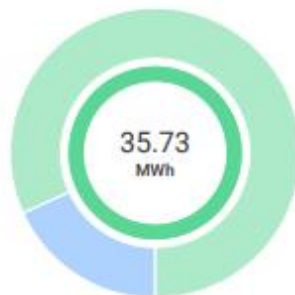
382

SYSTEM PRODUCTION

Total Production - 100 %
35.73 MWh

Self-consumption - 18 %
6.51 MWh

Export - 82 %
29.22 MWh

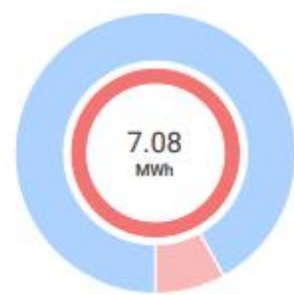


CONSUMPTION

Total Consumption - 100 %
7.08 MWh

Self-consumption - 92 %
6.51 MWh
2.33 MWh from batteries (33%)

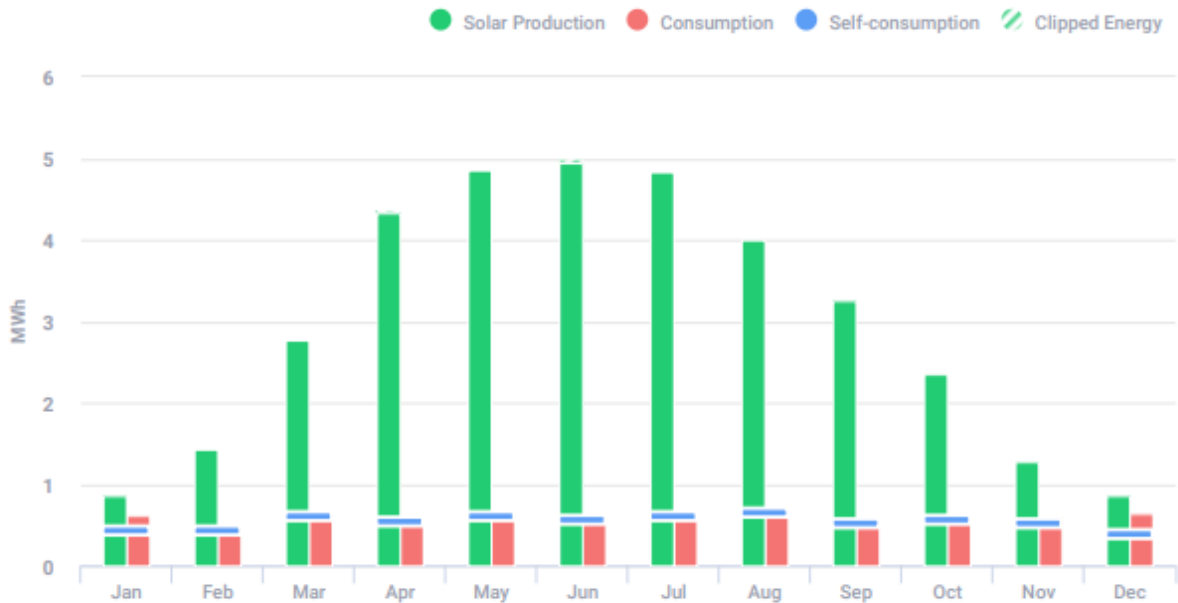
Import - 8 %
569.16 kWh



BRAUNSTONE LIBRARY

Kingsway 209, Braunstone Town, LE3 2PP, United Kingdom | Lydia Assi | 5 Dec 2021

ESTIMATED MONTHLY ENERGY



Total clipped energy: 0.16%

PV MODULES

# Module	Model	Peak power	Racking type	Orientation	Azimuth	Tilt
102	REC Solar AS, REC 370 TP4 (TwinPeak 4 Blackframe)	37.7 kWp			176°	18°
Total: 102		37.7 kWp				

ESTIMATED BILL SAVINGS YEAR 1

Annual			
Current Annual Bill	Annual Bill with SolarEdge	Net Bill Annual Savings	Bill Offset
£ 1,062.30	£ -1,667.88	£ 2,730.18	257.01 %

Estimated Net Lifetime Bill Savings **£ 52,013**

Utility Provider: **Commercial** | Utility Rate: **Commercial DAY only (0.15 £/kWh)**

BRAUNSTONE LIBRARY

Kingsway 209, Braunstone Town, LE3 2PP, United Kingdom | Lydia Assi | 5 Dec 2021

BILL OF MATERIALS (BOM)

Items	Quantity
 SE5K-RWS	1
 SE27.6K	1
 P701	51
 BYD Premium LVS 12	1
 REC 370 TP4 (TwinPeak 4 Blackframe)	102

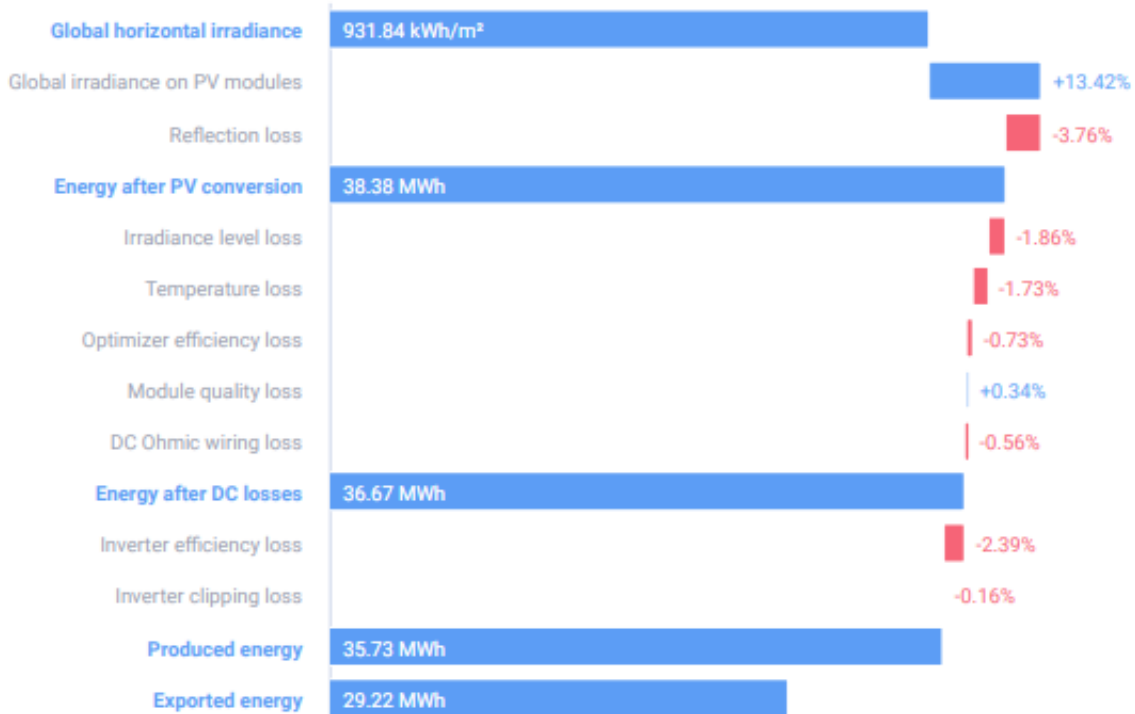
ELECTRICAL DESIGN

Inverters & Storage	Strings per inverter	Optimizers per string	PV modules per string
 1 x SE5K-RWS 0kW 0%  1 x BYD Premium LVS 12			
 1 x SE27.6K 36.66kW 133%	∅ 3 x strings	 17 x P701 (2:1)	 34

BRAUNSTONE LIBRARY

Kingsway 209, Braunstone Town, LE3 2PP, United Kingdom | Lydia Assi | 5 Dec 2021

SYSTEM LOSS DIAGRAM



SIMULATION PARAMETERS



LOCATION & GRID

Time zone	GMT (London)
Weather station	Leicester (6.96 km away)
Station altitude	86 m
Station data source	Meteonorm 7.1
Grid	400V L-L, 230V L-N



LOSS FACTORS

Near shading	Enabled
Albedo	0.20
Soiling/Snow	0%
Incidence angle modifier (IAM), ASHRAE b0 param.	0.05
Thermal loss factor U _c (const) Flush mount	20
Thermal loss factor U _c (const) Tilted	29
LID loss factor	0%
System unavailability	0%

Appendix 1d: Solar PV Installation at Mossdale Meadow Depot

MOSSDALE MEADOWS

Lubbesthorpe Way, Leicester. LE19 1JZ, United Kingdom | Lydis Asst | 5 Dec 2021



SYSTEM OVERVIEW  64 PV modules |  2 Inverters |  32 Optimizers |  1 Batteries

SIMULATION RESULTS


Installed DC Power
23.68 kWp


Max Achieved AC Power
16.00 kW


Annual Energy Production
19.01 MWh


CO2 Emission Saved
4.43 t


Equivalent Trees Planted
203

SYSTEM PRODUCTION

Total Production - 100 %
19.01 MWh

Self-consumption - 55 %
10.38 MWh

Export - 45 %
8.64 MWh



CONSUMPTION

Total Consumption - 100 %
14.92 MWh

Self-consumption - 70 %
10.38 MWh
2.54 MWh from batteries (17%)

Import - 30 %
4.55 MWh



MOSSDALE MEADOWS

Lubbesthorpe Way, Leicester, LE19 1JZ, United Kingdom | Lydia Assi | 5 Dec 2021

ESTIMATED MONTHLY ENERGY



Total clipped energy: 0%

PV MODULES

# Module	Model	Peak power	Racking type	Orientation	Azimuth	Tilt
32	REC Solar AS, REC 370 TP4 (TwinPeak 4 Blackframe)	11.8 kWp			288°	27°
32	REC Solar AS, REC 370 TP4 (TwinPeak 4 Blackframe)	11.8 kWp			108°	27°
Total:	64	23.7 kWp				

MOSSDALE MEADOWS

Lubbesthorpe Way, Leicester, LE19 1JZ, United Kingdom | Lydia Assi | 5 Dec 2021

ESTIMATED BILL SAVINGS YEAR 1




Annual

Current Annual Bill	Annual Bill with SolarEdge	Net Bill Annual Savings	Bill Offset
£ 2,116.97	£ 193.49	£ 1,923.48	90.86 %

Estimated Net Lifetime Bill Savings £ 40,273

Utility Provider: **Generic Commercial** | Utility Rate: **Day and Night Rate**

BILL OF MATERIALS (BOM)

Items	Quantity
 SE5K-RWS	1
 SE16K	1
 P701	32
 BYD Premium LVS 12	1
 REC 370 TP4 (TwinPeak 4 Blackframe)	64

ELECTRICAL DESIGN

Inverters & Storage	Strings per inverter	Optimizers per string	PV modules per string
 1 x SE5K-RWS 0kW 0%  1 x BYD Premium LVS 12			
 1 x SE16K 18.84kW 118%	2 x strings	 16 x P701 (2:1)	 32

MOSSDALE MEADOWS

Lubbesthorpe Way, Leicester, LE19 1JZ, United Kingdom | Lydia Assi | 5 Dec 2021

SYSTEM LOSS DIAGRAM



SIMULATION PARAMETERS



LOCATION & GRID

Time zone	GMT (London)
Weather station	Leicester (7.21 km away)
Station altitude	86 m
Station data source	Meteonorm 7.1
Grid	400V L-L, 230V L-N



LOSS FACTORS

Near shading	Enabled
Albedo	0.20
Soiling/Snow	0%
Incidence angle modifier (IAM), ASHRAE b0 param.	0.05
Thermal loss factor Uc (const) Flush mount	20
Thermal loss factor Uc (const) Tilted	29
LID loss factor	0%
System unavailability	0%