

Chichester City Council

REPORT to FINANCE COMMITTEE

SOLAR SYSTEMS INSTALLED

SOLAR Vs ELECTRIC IMPORT & NetZero
ACHIEVEMENT REPORT
2024

BY
PROPERTY & MAINTENANCE MANAGER
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Date: 05/11/2024

SOLAR SYSTEMS INSTALLED

Overview:

There are three Solar PV systems in operation withing the Council, two at the Council House and one at St James's Allotment.

CH Solar 1:

The original system installed in 2011 is located to the front of the building above chambers, comprising of:

25 x 185w solar panels, declared capacity 4.63kW, estimated annual generation 3,855kW (2011)

This system has been installed for 13.5 years and has generated a total of 43,468kW.

This is registered to a "Feed In Tariff (FiT)" with OVO Energy where we receive income for generating power to the grid. Below is a table, detailing our income and expenditure over the last 3 years, with an average per annum, going forwards which includes an annual safety check and performance test, which had not been carried out till this year.

System 1			Meter Readings				
Statement Date	Period Start	Period End	Start	End	Rate Per kW	Generated	Net £
17/08/2021	20/05/2021	17/08/2021	32028	33250	£ 0.42	1222	£ 517.77
10/11/2021	18/08/2021	10/11/2021	33250	33989	£ 0.42	739	£ 313.11
17/02/2022	11/11/2021	17/02/2022	33989	34860	£ 0.42	871	£ 369.04
19/05/2022	18/02/2022	19/05/2022	34860	35729	£ 0.44	869	£ 383.08
10/08/2022	20/05/2022	10/08/2022	35729	36598	£ 0.46	869	£ 395.86
17/11/2022	11/08/2022	14/11/2022	36598	37436	£ 0.46	838	£ 381.73
16/05/2023	15/11/2022	16/02/2023	37436	37884	£ 0.46	448	£ 204.07
16/06/2023	17/02/2023	31/05/2023	37884	38289	£ 0.49	405	£ 198.95
04/08/2023	01/06/2023	02/08/2023	38289	39842	£ 0.52	1553	£ 802.12
19/03/2024	03/08/2023	19/03/2024	39842	41220	£ 0.52	1378	£ 711.73
24/07/2024	20/03/2024	20/06/2024	41220	42416	£ 0.54	1196	£ 646.00
					Total	10388	£4,923.46
					Average Per Annum	3463	£1,641.15
					<i>Annual Inspection</i>		£ 600.00
					Average Profit Per Annum		£1,041.15

RETURN ON INVESTMENT:

2011 - Original install cost £18,546.00

2018 – Repairs and Modifications £1,740.00

Total £ 20,286 - Paid

CH Solar 2:

This system was installed in 2021 is located to the rear of the building above the assembly room, comprising of:

17 x 375w solar panels, declared capacity 6.3kW, estimated annual generation 5,978kWh

Unfortunately, this system was not registered by the previous Property Manager and no documentation or certification issued. Therefore, the council has been using generated electricity and supplying a portion back to the grid for zero revenue.

Documentation was finally received in May 2024.

This system has now been expanded with additional panels into one system due to the following:

The previous Property Manager had ordered a 3rd system which was going through LBC consent with CDC comprising of 28 x 425w solar panels along with battery storage. This application was void as we could not physically fit 28 panels on the available roof space. Therefore, we submitted a revised application for 21 x 425w solar panels. This was approved by CDC.

Therefore CH Solar 2 is now the following configured system:

- 17 x 375w solar panels, declared capacity 6.3kW, estimated annual generation 5,978kWh.
- 21 x 425w solar panels, declared capacity 8.925kW, estimated annual generation 9,112kWh.
- 1 x 5.32 Kw battery
- Totals: declared capacity 15.22kW, estimated annual generation 15,090kWh.

NOTES:

1. This system cannot be registered using the FiT Scheme as new installations after 2019 can only be registered to an SEG (Smart Export Guarantee) scheme which pay a far lesser rate than FiT schemes.
2. This system has now gained DNO certification to allow us to sell back to the grid.
3. Our current electricity supplier DRAX do not take systems smaller than 30kW.

OPTIONS:

1. Change supplier? Contracted to Drax for a further 2 years.
2. Change supplier? Octopus and others do not supply unmetered electricity for our lighting around the city. If they could we would have got £0.15 per kW.
3. Sell back to Octopus without supply contract, we would get £0.04 per kW
4. Convert Fit system to and register 20Kw System, not viable return
5. Increase battery capacity by installing 2 x 5.32 Kw batteries the total price will be £4,964.00+VAT so that 100% of solar is used in-house only.

RETURN ON INVESTMENT Option 2 & 5:

Purchased	kWh per annum	Unit kW	In-house Usage	In-house Offset £	Export Unit kW	Export	Export Offset £	To Date	Installed Cost	Outstanding	
Yes	5978	£ 0.33	2989	£ 986.37				£ 2,959.11	£ 7,800.00	£ 4,840.89	
Yes	15090	£ 0.33	7545	£ 2,489.85	£ 0.04	7545	£ 301.80	£ 2,791.65	28423	£ 33,263.89	Years to Pay Off
									Option 2	£ 33,263.89	12
No	15090	£ 0.33	15090	£ 4,979.70				£ -		£ 4,964.00	
									Option 5	£ 38,227.89	8

Note: Option 5 upgrade would pay off in 1 years.

ST JAMES'S Solar 3:

This system was installed in 2023 is located on to the roof of the container, comprising of:

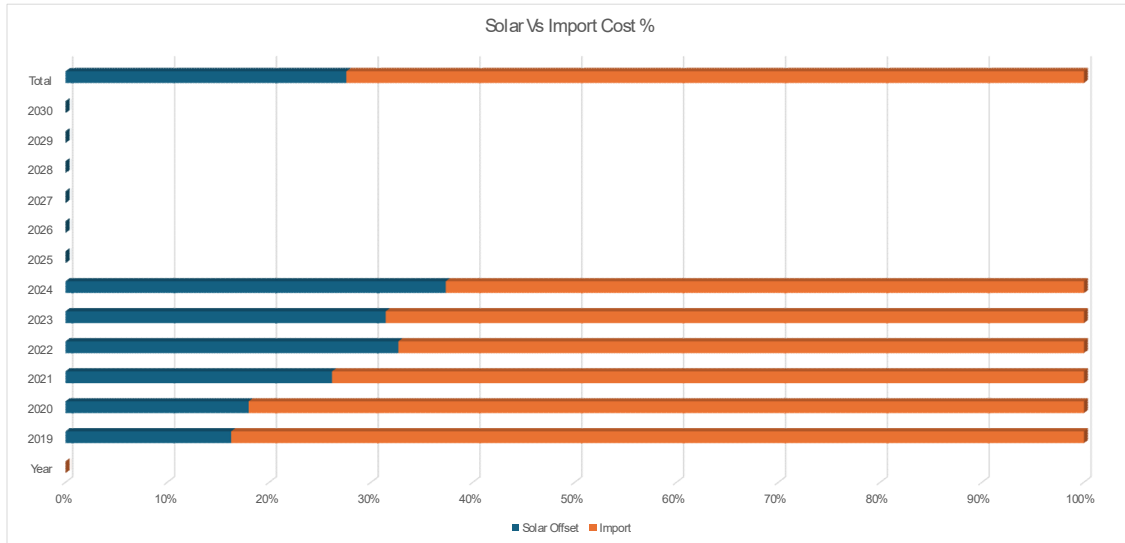
4 x 425w solar panels, declared capacity 1.7kW, estimated annual generation 1,628kWh

This system charges all batteries for mowing, other equipment and tops up the EV when located at St James's allotment.

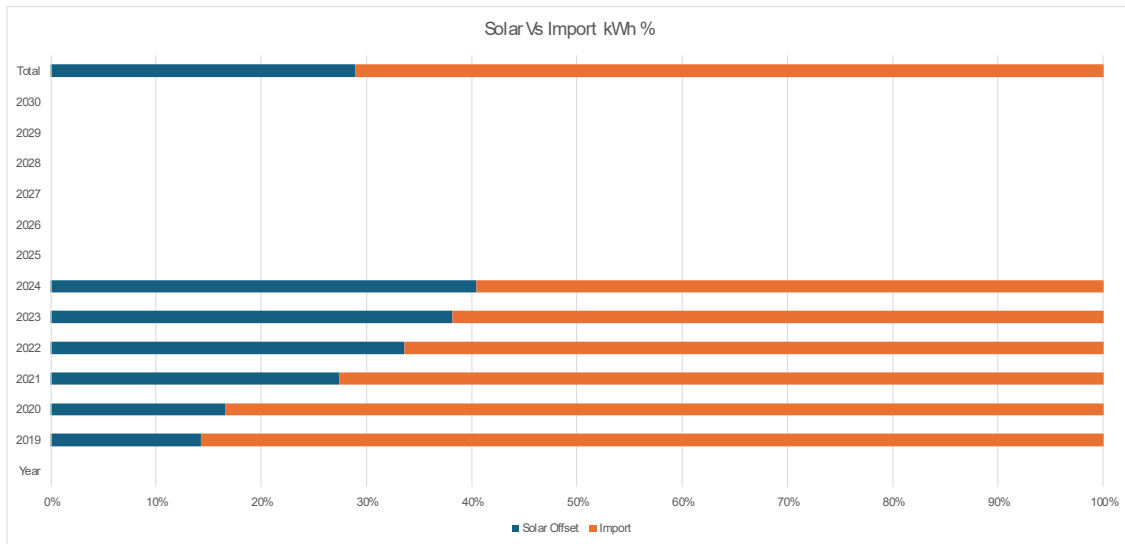
RETURN ON INVESTMENT:

ROI	Purchased	kWh per annum	Unit kW	In-house Usage	£ Offset	To date	Installed Cost	Outstanding	
St JAMES's Solar 2 - 2023-2024	Yes	1132	£ 0.33	0	£ 373.56	£ 373.56	£ 9,999.00	£ 9,625.44	Years to Pay Off
							Option 2	£ 9,251.88	25

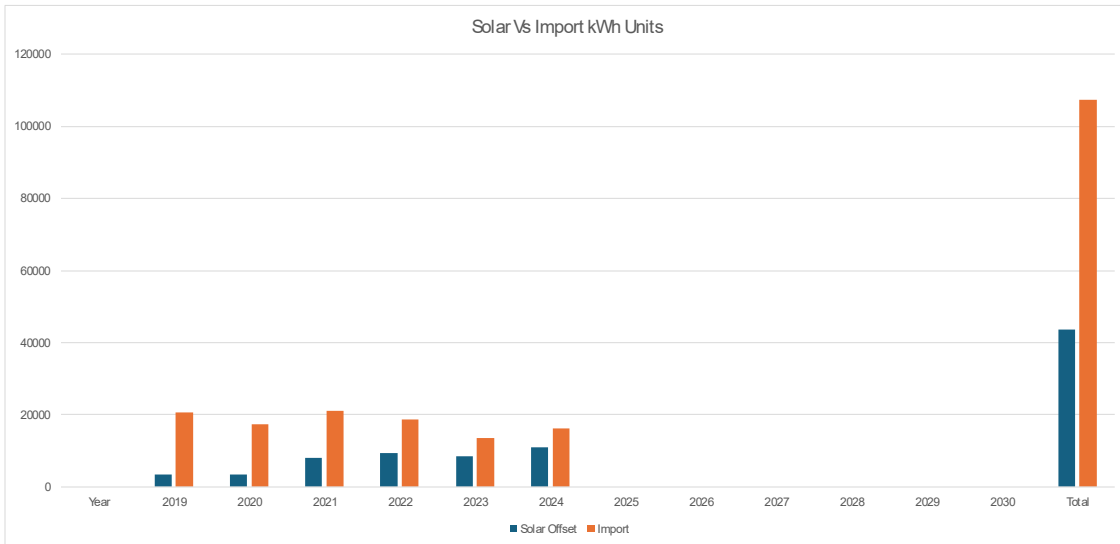
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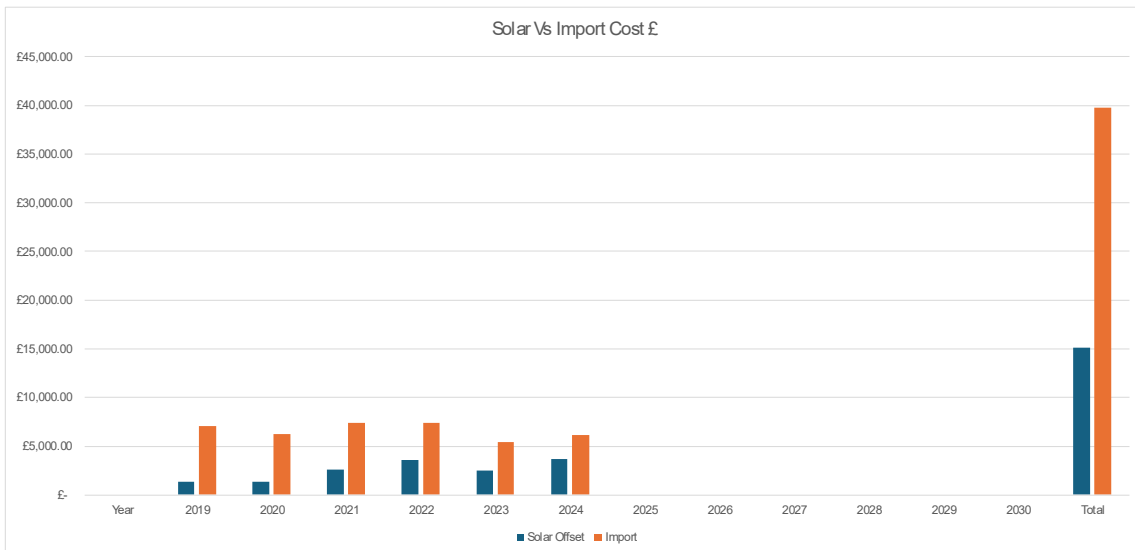
The above chart demonstrates in percentages of solar Vs imported electricity. We can see that we have increased our solar usage from 15% to 37% in the current year. Average 27%.



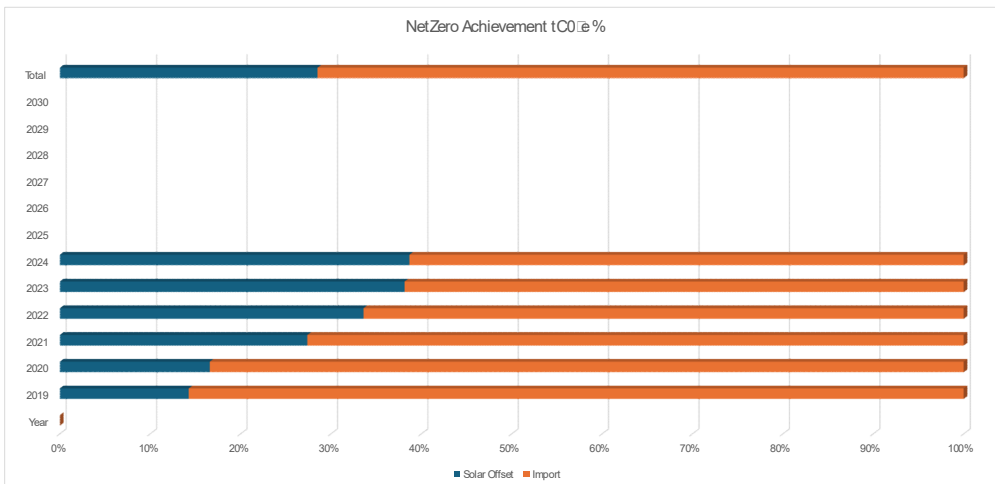
The above chart demonstrates in percentages kWh for solar Vs imported electricity. We can see that we have increased our solar usage from 14% to 40% in the current year. Average 28%.



The above chart demonstrates the number of units produced by solar Vs imported electricity. Clearly showing our solar investment is changing our importing of electricity.



The above chart demonstrates in cost £'s for solar Vs imported electricity.



The above demonstrates that with the implementation of solar our NetZero achievement from 2019 stood at 13% in 2024 this has risen to 38%.

Note: This is not the true Net Zero status over the whole Council but does demonstrate we are moving forward. I am currently putting a report together for NetZero and our status to date.