

CHURCH PARK Photovoltaic system (40kW domestic)

The Solar PV installation at Church Park has now been in place for 6 full years (July 2016 – June 2022).



Every month readings are taken from the PV meter at Church Park giving us a continuous record of the electricity generated, exported and imported. Comparing the monthly figures with those from previous years gives us an overall view of the system performance. The output from the Solaredge inverters is also monitored, showing us the performance of the system down to individual panel level.

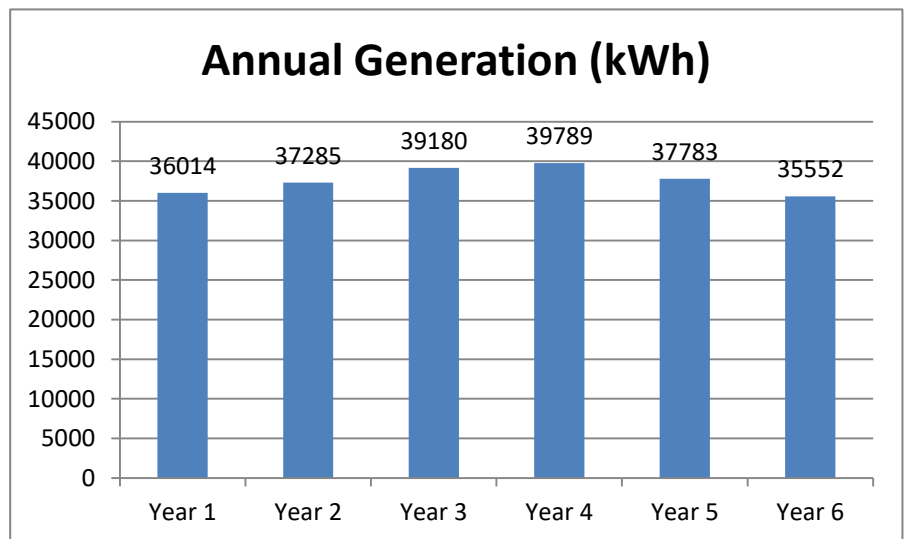
As well as receiving Feed-in Tariff, we are paid for the amount of electricity exported to the National Grid. Electricity used on site is sold to M. Pethick, at a rate lower than a standard provider would charge, but higher than the export tariff, so both parties benefit from the arrangement.

We calculate the carbon savings, based on information from the [Department for Business, Energy and Industrial Strategy](#)

Below is our carbon report for Year 6 of the system:

In its sixth year (July 2020 – June 2022), the system has generated **35,552 kWh**.

In our original cash flow forecasts, our “best case” scenario predicted generation of 33,947kWh per year, so over the 5 years we have exceeded this figure by 4.75%.

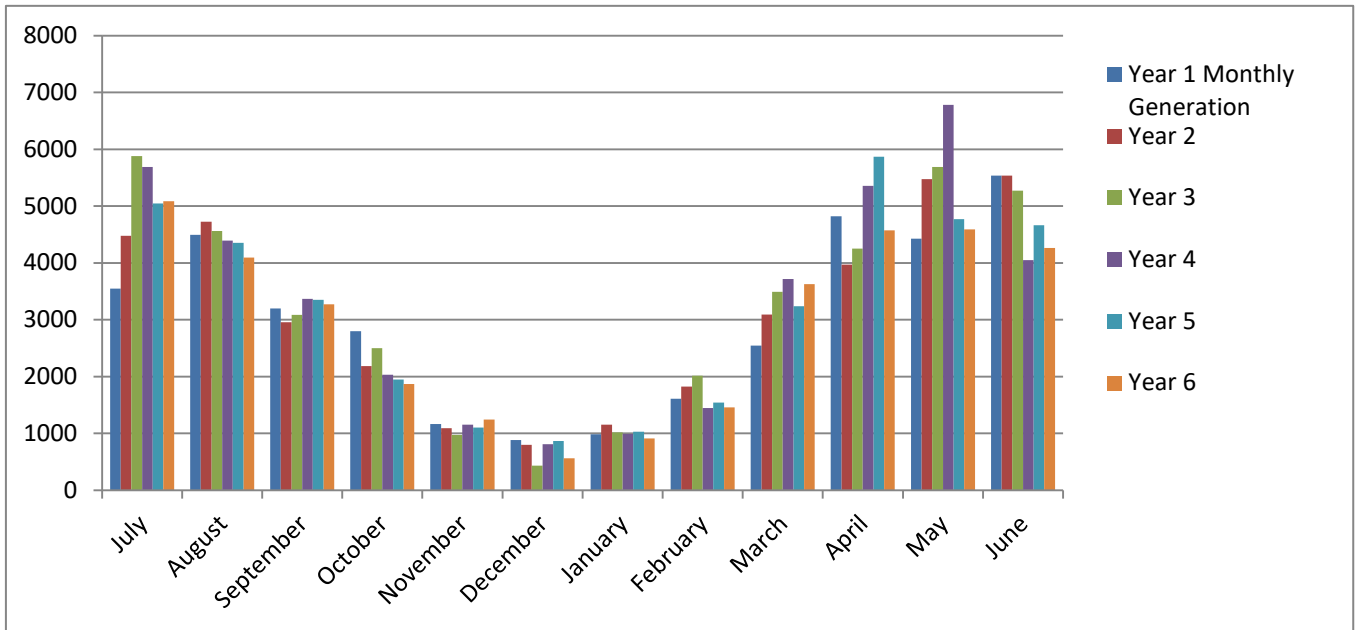


CO₂ savings are calculated using the updated (2022) conversion factor of 0.19338 kg CO₂e saved for each kWh produced from a carbon free source. The factor is based on the current carbon emissions from UK power stations per kWh generated, it includes CO₂ equivalent value of other greenhouse gases such as methane and nitrous oxide. It is updated and reducing year on year as the use of coal in power stations is reduced, the 2021 figure was 0.21233.

Therefore we have saved: 35552 x 0.19338kg = 6.88 tonnes of CO₂e in Year 6.

While this figure looks less impressive than in previous reports, it is actually a reflection of the increasing efficiency of the production of power from fossil fuels in terms of CO₂e over recent years.

- Generation to date (6 years):



What does it mean?

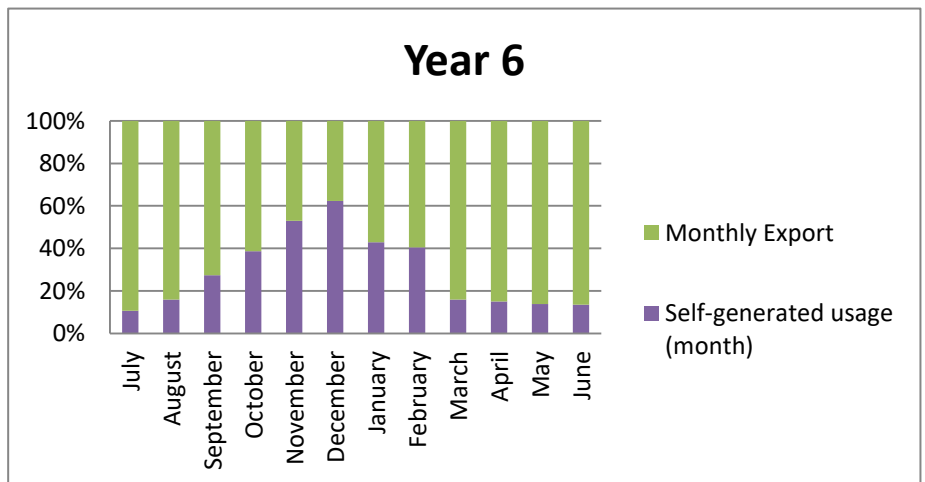
[According to the latest Government figures](#), the average UK household uses just under 4000kWh of electricity per year, so **this year Church Park has generated enough power for nearly 9 households!**

With regard to greenhouse gas emissions, an average car produces 0.27108kg CO₂e per mile. **Our Year 6 saving of 6.88 tonnes of CO₂e covers 25,380 miles. The average annual mileage of all cars in the UK is given as 7,400, so this is the equivalent of 3.43 cars.**

On-site Usage in Year 6

The percentage of generated power used on-site varies between 10.76% and 62.39%, the average being 29.16%. Church Park does not use any battery storage.

Prior to installation, cash flow calculations were based on the assumption that on-site usage would be *at best* 10% of total generation, so we are pleased that in reality we are far exceeding this forecast. This is also a positive outcome for the user, who pays for the on-site power at a lower rate than his imported power.



Financials

In year 6, SHARE has received a total of £4,967 in Feed In Tariff (FIT), £1,633 for Export of electricity to the National Grid and £646 for sales of electricity on site. Total income is therefore **£7,246**. This exceeds our original “best case” cash flow calculations (£5,569 in Year 6) by 30%.

Tariff rates increase in April each year, in line with the RPI.

Ongoing costs for the year total were £347 (insurance and Western Power Distribution meter charge). This year SHARE has not independently insured the installation; instead it has been covered by M.Pethick’s business insurance with the NFU, and SHARE has paid the additional premium.

Potential costs for system maintenance, which were built in to our original cash-flow calculations, have not yet been triggered. (This is in contrast to other systems we know of, where the nature of the work on site means that solar panels may need cleaning regularly).

Going forward, in Year 7 it will be necessary to replace one of the panel optimisers which has not been working. Also due to changes in statutory Engineering regulations ([Accelerated Loss of Mains Change Programme \(ALoMCP\)](#)), changes to the system settings will be necessary. Funding has been applied for, and the deadline for this work to be completed is August 31st 2022.

The Church Park project is financed by a system of rolling loans from SHARE members. This year the board took the decision to repay a larger proportion of member loans. At the end of Year 6 of the project (30/6/22) there were 6 members investing £7,767 at an annual interest rate of 2.75%. Interest is paid at the end of June each year, and SHARE aims to reduce the total borrowings by £2,220 per year. Cash flow calculations predict that this will continue to be achieved.

Appendix 1 - Generation

Date	Month	Reading (kWh)	Monthly generation (kWh)	Monthly export (kWh)	CO ₂ e savings (kg)
01/08/2021	July	195135	5084	4537	983.14
01/09/2021	August	199232	4097	3442	792.28
01/10/2021	September	202502	3270	2374	632.35
01/11/2021	October	204374	1872	1149	362.01
01/12/2021	November	205617	1243	584	240.37
01/01/2022	December	206178	561	211	108.49
01/02/2022	January	207093	915	523	176.94
28/02/2022	February	208554	1461	870	282.53
31/03/2022	March	212179	3625	3045	701.00
01/05/2022	April	216750	4571	3880	883.94
01/06/2022	May	221339	4589	3955	887.42
03/07/2022	June	225603	4264	3689	824.57
	Year total		35552	30447	6875.05

Appendix 2 – FIT/export rates

	FIT	Export tariff	
1/4/22 – 30/6/22	14.44p/kWh	5.99p/kWh	This is an increase of 7.5%
1/7/21 – 31/3/22	13.43p/kWh	5.57p/kWh	