

ST NICOLAS' CE COMBINED SCHOOL TAPLOW – SOLAR PV PROJECT

Project inception

St Nicolas' CE Combined School Taplow has a strong desire to become more climate focused, driven by multiple factors such as the climate emergency, the will of our Eco council, financial benefits and ultimately the belief that it is the right thing to do.

In 2020 the Academy identified that electricity usage was one of the main areas where we could achieve large benefits. For the 2020-21 year the academies overall electric usage was 31,000 KWH, at the time this equated to an annual charge of £5,066. This led the management team to initiate a feasibility study for the installation of solar PV panels.

Technology and Return of Investment (ROI)

After a yearlong investigation and formal tendering process, delayed by Covid, the school elected for a 27Kw SolarEdge system comprised of 68 panels. Total cost to the school £28k with an initial projected ROI of 6 years balanced against a panel life of 25 years. This did not include any battery installation at the time as it was felt that night time usage was not worth the net outlay.

The system was finally installed in Aug 2022.



10 of the panels.

Black panels selected for aesthetics, especially as we border a conservation area

The final installation came at the same time as the renewal of our electric contract which would have taken our annual bill up from £5k to just over £22.5k due to the energy crisis. The installation of the solar PV alone reduced that down to £13k for 2022-23 and took the ROI down to 2.5 years.

Battery project

After only 2 months solar generation it became clear that the missing batteries would have a larger effect than originally thought. Night time usage was £2.5k for the year however the importance of charge and discharge during the day became clearer which would generate a further £3k in savings giving a combined £5.5k projected saving per year.

The ideal battery solution to link with our SolarEdge installation was the Tesla Powerwall 2 AC which combines 13.5KWH storage capacity with an onboard 5KWH inverter. Cost per Powerwall £11k. As we have

3 phase supply we would need 3 Powerwalls, combined cost £33k, ROI of 6.5 years. Warranty period 10 years' with an operating life 15+ years. The trustees again felt this made complete financial sense and would give the school total off grid status for 7-8 months of the year, as well as being protected from any national grid outages.



Tesla Powerwall 2 AC x 3

Environmental benefits

In its first year our installation has saved 5,845 Kg in CO2 emissions which is the equivalent of having planted 354 trees.

Supporting the curriculum

The pupils understand climate change and the need to develop sustainability and to reduce our carbon footprint on the environment. They recognise our efforts to improve the schools Eco credentials and can relate the subjects being taught in science and geography covering climate change and the changing world to the efforts the school are taking. The Eco Council, represented by all year groups reception to 6, know that by doing this the school sets the example and hopefully the message gets out to the wider community.

The future

The academy has invested £61k from our reserves, no grant funding, PFI or solar renting involved. Our projected electricity budget savings annually, on our current price plan, is circa £18k, an ROI of 3.5 years.

Ultimately the financial savings are important however in the drive towards sustainability and the quest for carbon reduction balanced with our academy Eco ethos and vision means it was simply the right thing to do!

Steve Warren
Academy Business Director
St Nicolas' CE Combined School Taplow