

New Build PV Proposal

Background

- In order to meet BREEAM (Building Research Establishment Environmental Assessment Method) requirements imposed under planning conditions for the expansion project and part L of the building regulations, we need to install Photovoltaic panels on the roof of either the teaching block or sports hall (or both).
- The minimum requirement is to install a 3kW array to each of the Sports Hall and Teaching Block. This costs circa £10k.
- Bauder have looked at increasing the size of the PV arrays to cover the projected max loads of each of the new blocks and a draft scheme is attached. The anticipated cost of maximising the PV is circa £70k.
- There is a funded PV solution via the Schools Energy Co-op and a draft proposal is attached. In summary the proposal is that:
 - The School purchase electricity from them at 9.9p per unit for 25 years via a 'power purchase agreement'. This would be inflation linked.
 - There would be no capital outlay on the PV.
 - It would still be possible to add PV to the existing School roof separately.
- In principle, we could apply for a salix loan to purchase the equipment, however this requires an 8 year payback and is deducted from GAG.

Impact analysis and proposal

The Schools Energy Co-op proposal & brochure are attached.



Chelmsford Girls School Solar PV project
The Schools Energy Co-op brochure April

The Schools Energy Co-op is a not for profit purchase power co-operative and therefore does not form any lease agreement.

PCH have previously done due diligence on procurement of purchase power agreements and have recommended School Energy Co-op as offering the best service taking into considering maintenance costs which are covered for the 25 years of the agreement by them (with the option to purchase ongoing maintenance)

No capital outlay is required for this project, however we can choose to contribute and realise a more favourable payback. School Energy Co-Ops have indicated that the capital commitment can be retrospective as the building project concludes if required.

School/site name	Chelmsford's School for Girls	
Post code	CM1 1RW	
Site type	School	
Number of pupils/size	1050	
PV array kWp	105.48	
Annual output kWh	92,298	
Utilisation	80%	
Current grid electricity price	14.50	pence/ kWh
PPA price	9.90	pence/kWh

Illustrative electricity cost savings for school :

No Capital Outlay

Year	Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
At 2% RPI	£134,238	£3,397	£3,520	£3,647	£3,779	£3,916	£4,058	£4,204	£4,356	£4,514	£4,676	£4,845	£5,020
At 3% RPI	£177,430	£3,397	£3,589	£3,792	£4,007	£4,234	£4,473	£4,726	£4,994	£5,276	£5,574	£5,889	£6,222

2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
£5,201	£5,388	£5,582	£5,783	£5,991	£6,207	£6,430	£6,661	£6,900	£7,147	£7,404	£7,669	£7,944
£6,573	£6,944	£7,336	£7,750	£8,187	£8,648	£9,135	£9,650	£10,193	£10,767	£11,373	£12,013	£12,688

PV @ 2% RPI	£103,124
PV @ 3% RPI	£117,137

Capital outlay options

The School's Energy Co-op have provided indicative pricing for various capital outlay scenarios:

- If you make a nil contribution we are anticipating that you buy the power you use which is generated by the panels for 25 years at a starting price of 9.9p/kWh, the price being increased by RPI annually.
- If you make a capital contribution of £10,000, the starting price is 8.75p/kWh
- If you make a capital contribution of £25,000, the starting price is 7.25p/kWh
- If you make a capital contribution of £50,000, the starting price is 4.75p/kWh

For a £10,000 capital outlay, the incremental present value benefit, and the associated future value loss of interest on the deposit (currently invested at 1.75%) is as follows, with an illustrative interest loss if the rate rises to 3%:

Incremental PV benefit

2% RPI	£25,623
3% RPI	£30,188
Capital deposit FV @ 1.75%	£15,430
Capital deposit FV @ 3%	£20,938

For a £25,000 capital outlay, the incremental present value benefit, and the associated future value loss of interest on the deposit (currently invested at 1.75%) is as follows, with an illustrative interest loss if the rate rises to 3%:

Incremental PV benefit

2% RPI	£59,209
3% RPI	£68,621
Capital deposit FV @ 1.75%	£38,575
Capital deposit FV @ 3%	£52,344

For a £50,000 capital outlay, the incremental present value benefit, and the associated future value loss of interest on the deposit (currently invested at 1.75%) is as follows, with an illustrative interest loss if the rate rises to 3%:

Incremental PV benefit

2% RPI	£115,186
3% RPI	£132,675
Capital deposit FV @ 1.75%	£77,149
Capital deposit FV @ 3%	£104,689

In all cases, there appears to be a business case to make a capital investment at current interest rates received on the deposit account, however this benefit is not sustained if interest rates rise above 4% and over a 25 year period this is unpredictable. Looking at a 5 year period gives the following results, which indicates that a short term payback of any capital investment will not be realised.

Incremental PV benefit	10k	25k	50k
2% RPI	4,373	10,088	19,612
3% RPI	4,487	10,323	20,049
Capital deposit FV @ 1.75%	10,906	27,265	27,265

My recommendation would be to retrospectively provide a capital investment if there are sufficient funds available at the end of the building project, however this would have a long payback period and has inherent risk regarding longer term deposit interest rates.