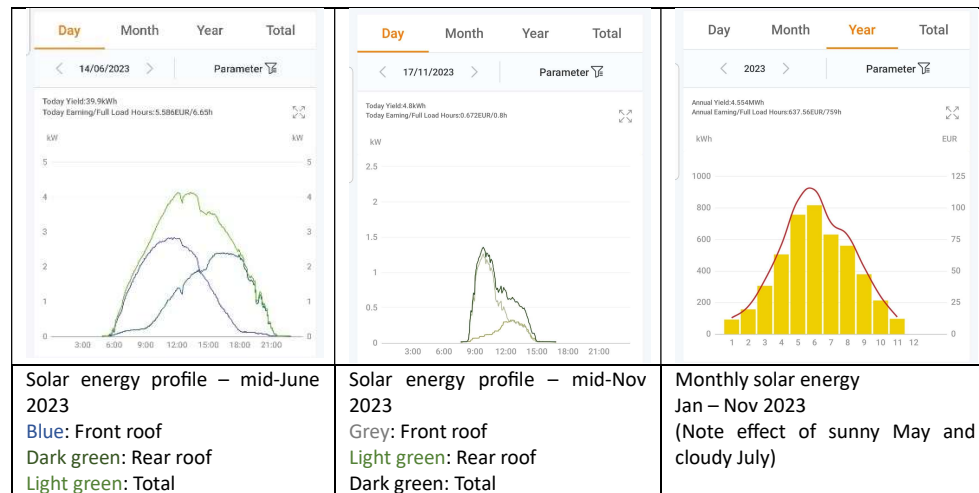


Technical details

Supplier: Alternative Energy Ireland (after 3 quotations)

System: 16 X Longi 405W 54 cell HI-MO5 All Black solar panel
 AEI Solis 6kW dual-string inverter & SolisCloud app
 Eastron SMD120A single phase Energy Meter
 Eddi V2.1 Immersion Controller & myenergi app
 4 X Tico Optimisers

Performance: Solar energy generated in year 4,625 kWh



Data from SolisCloud app

Roof orientation: Front roof - East-Southeast – 8 solar panels
 Rear roof – West-Northwest – 8 solar panels

Meter & Tariff: Day/night tariff; smart meter installed 5th Oct 2023

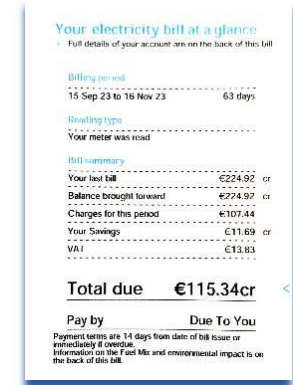
Dr Gerry Wardell, November 2023
 Phibsboro Village Tidy Towns, Climate Club
 Phibsboro Sustainable Energy Community



Roof-top Solar Panels

A Financial Case Study

Rooftop solar panels can make a great contribution to combating climate change and global warming. They offer households an immediate action which has a positive environmental impact in delivering a greener, healthier and better place for everyone.

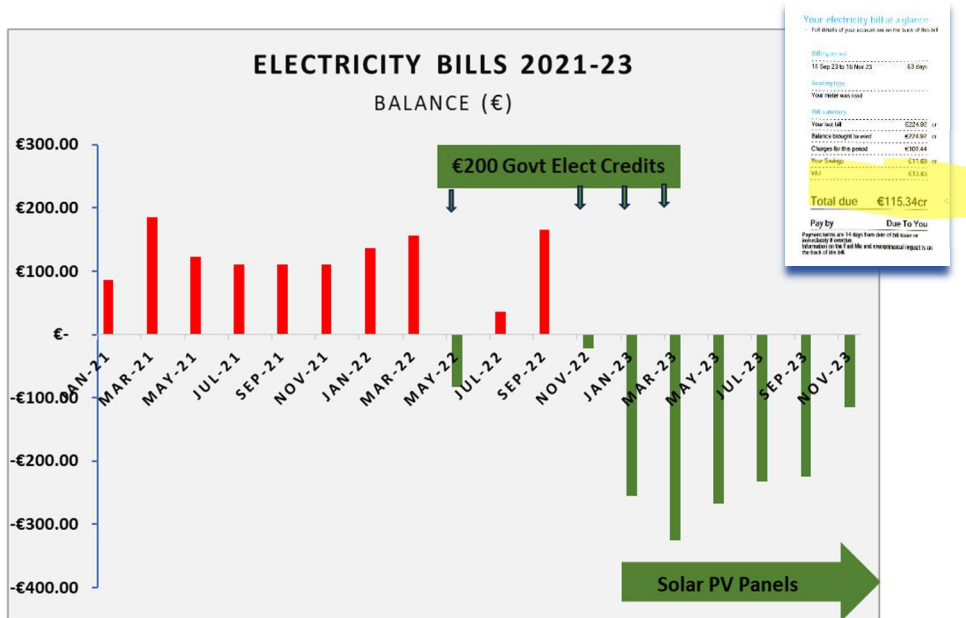


The solar panels also offer a win-win opportunity by saving real money on the electricity bills. Having installed 16 solar panels on this 100 year-old mid-terrace redbrick house in Phibsborough in November 2022, the electricity bill payments have been €ZERO for the whole year since then. Furthermore, there is currently a credit of €115cr on the electricity account at the end of the year.

This has given rise to a first-year return of 10.4% per annum on the initial investment for installing the panels. Such a rate of return compares very favourably with any other bank or pension fund investments, and it is tax-free.

How does this work?

This Case Study refers directly to the actual electricity bills which are issued by the electricity supplier every two months. In the graphic below each red/green bar represents the 'Total due' at the bottom line of a bill (see highlight). The red bars represent payment due and the green bars represent the credit balance in the account in each 2-month bill.



Details of savings for the year

| | |
|---|--------------------------------|
| Nominal cost of electricity for the year | €1,450 |
| Value of free solar electricity (by replacing units bought) | €480 |
| Surplus solar electricity sold back to grid | €554 |
| Switching supplier. 10% discount | €110 |
| Government Electricity Credit: 2 X €200 in 2023 | <u>€400</u> |
| Total savings for year | €1,544 |
| Opening balance Nov 22: €21cr | Closing balance Nov 23: €115cr |

Cost of the panels

| | |
|---|-----------------|
| Total installed cost of 16 panels + electronics | €12,310 |
| Less SEAI grant | <u>-€ 2,400</u> |
| Net amount paid (incl. VAT of ~€1,300) | € 9,910 |

Savings from Solar per annum

| | |
|---|----------------|
| Value of free solar electricity | € 480 |
| Surplus solar electricity sold back to grid | <u>€ 554</u> |
| Total | € 1,034 |

Rate of Return

Savings/Cost x 100% = 10.4% p.a.

Net Present Value (NPV)

NPV is used in capital budgeting and investment planning to analyse the profitability of a projected investment or project. Rule of thumb is that investment should be made only when NPV is positive.

| | |
|---|----------|
| Guaranteed lifetime of panels | 25 years |
| Guaranteed lifetime of inverter circuit | 10 years |
| NPV @ discount rate of 4% | € 4,909 |
| NPV @ discount rate of 6.5% | € 1,800 |

Environmental value

Electricity in Ireland is generated from a mix of fossil fuels (Coal, oil and gas) and renewables (solar, wind). Fossil fuels emit carbon dioxide (CO₂), which is a greenhouse gas causing global warming and climate change.

| | |
|---|----------------------------------|
| Solar energy generated in first year | 4,624 kWh |
| CO ₂ per kWh (EPA data for 2022) | 345 grams/kWh |
| Total CO₂ saved in year (4,624 x 345) | 1.6 tonnes CO₂ |