Domestic Case Study

The Family in a Semidetached House

Wesley and Michaela Reynolds live in a semidetached house in Chorleywood, Hertfordshire with their three children. With four family members at home during the day consuming electricity, the Reynolds were keen to reduce their growing energy bills and take advantages of the government's feed-in tariff scheme. Skyline Solar installed a 4 kWP solar PV system comprising 16 solar panels on the back of the south-facing property.

Where the Reynolds live in southern England enjoys between 14,000 and 16,000 hours of sunshine each year. This is enough for the family's PV system to power a number of domestic appliances during the day at no ongoing cost. The Reynolds' use of energy coincides with the peak production of free, green electricity from their PV system, meaning that they have enjoyed a drastic reduction in their electricity bills – which had been increasing on an annual basis.

In brief

Home type	Semidetached house
Average annual electricity bill before installation	£1,400
PV system size	4 kWp
System installation cost	£8,200
Estimated payback period	7 years
Estimated total financial benefit over period of feed-in tariff	£31,940

The Reynolds' installation cost a total of £8,200. It is eligible for a feed-in tariff comprising a generation element of 21p per kWh and an export element of 3p per kWh. As a result the Reynolds will benefit from a projected annual return of 11.58% and a payback period of 7 years. Over the 25-year period of their feed-in tariff, they will enjoy an estimated total financial benefit of £31,940.

Client Name	Project address	ChorleyWood, Hertfordshire
Wes Reynolds	Post Code	WD3 5JU

Type of Building: Retrofit

Direction of Roof: South

Angle Roof: 45

Shading: None or Very Littl

Size of PV Panels Wp	250	No of Panels	16	Size of System kWp	4
Annual Solar Radiation kWh	1054	General Inflation %	3	Fuel Inflation %	3
PV System Output kWh/year	3373	Cost of electricity/unit	£0.12	Export Rate/unit	£0.031
Feed-in Tariff	**0.21**	**Client Use %**	**80**	**Export %**	**20**

Estimated Financial Returns

CO2 Saving Kg	Year	FIT Payment	Fuel Saving	Export Income	Total Benefit
1451	**1**	£637	£324	£21	**£982**
7110	**5**	£3,315	£1,684	£109	**£5,108**
13871	**10**	£6,970	£3,541	£229	**£10,740**
20367	**15**	£11,042	£5,609	£362	**£17,013**
26651	**20**	£15,609	£7,928	£512	**£24,049**
32731	**25**	**£20,730**	**£10,530**	**£680**	**£31,940**

Estimated Payback

System Cost	£ 8,200
System cost returned in	**year 7**

Average annual return on investment **11.58%**

** These calculations are based on a very conservative fuel inflation figure of 3%. Fuel inflation has averaged 12% over the last 5 years and is expected to increase further. At 12% inflation, the total financial benefit increases to £58,854 for a return on investment of 24.71%.*