



ငံ္ခနံ Cold Chain FEDERATION

Renewable Energy and the 'Cold Store of the Future'



What's the big picture?

 Renewables and efficiency measures, boosted by substantial electrification, can provide over 90% of the necessary CO₂ emission reductions by 2050*

• Today, solar PV can locally produce at 4-5p/unit versus 12-15p/unit grid supplied



*Source: International Renewable Energy Agency. Future of Solar Photovoltaic, November 2019.

What does a future cold store look like?





What does a future cold store look like?







What can you do in 2021?

Svstem Size	0.25MW	1MW		
	250kWp	1000kWp		
Current annual electricity consumption (kWh)	1,000,000	4,000,000		
Solar PV system cost	£145,000	£550,000		
Solar PV system Annual Yield (QCell panels) kWh	225,000	900,000		
CO2 Emissions Avoided Tonnes / Annum	57.1	228.2		
Simple unit cost of Solar electricity produced over 25yrs	4.25p/kWh	4.1p/kWh		
Current unit cost of Grid supplied electricity	14.5p/kWh			
Estimated onsite usage of solar electricity.	90%	90%		
Projected 1st year income and savings	£30,488	£121,950		
First year return on capital	21.0%	22.2%		
Payback Years	4.8	4.5		
Savings and income after 25 years	£1,234,784	£4,939,137		

High onsite consumption = Great commercial returns

20%+ Return On Investment

4-6 year payback





Yr 1 estimated generation:

eration: **225,000 kWh**

On site use: 90.0%

Electricity Bill Savings									
Assumed Electricity Price	14.50	p/kWh					HP Asset	Finance indicati	on
Assumed % Used on site	90.0%	0						E d'an an a'	
Yr 1 Electricity Saving	14.50	multiply by	202,500) kWh	£29,363		Annual	Estimated	Annuai
Income from export	5	p/kWh				Year	Savings & Income	capital & interest cost	surplus after finance cost.
Assumed % exported to grid	10.0%)				1	£30,488	£26,552	£3,935
Yr 1 Income from Export	5	multiply by	22,500	kWh	£1,125	2	£31,222	£26,552	£4,670
			,			3	£32,447	£26,552	£5,895
						4	£33,720	£26,552	£7,167
Estimated Total Savings & Income Yea	<u>r 1</u>				<u>£30,488</u>	5	£35,041	£26,552	£8,488
						6	£36,412	£26,552	£9,860
Capital Cost Exc. VAT					£145,000	7	£37,837	£26,552	£11,284
						8	£39,315	n/a	£39,315
Basic first year rate of return %					21.0%				

25 year estimated purchase and operational cost.

	Purchase Price (a)	O&M 25 years @£12kWp pa (b)		Predicted Output over 25 years kWh (c)	Solar Elec. pence / kWh (Fixed) (a+b)/c	Notes
Capital cost per kWh produced including O&M costs	£145,000	£75,000	divided by	5,181,660	4.25	Operations and Maintenance (O&M) estimated costs @£12/kWp per annum include 1 panel clean a year, fire & theft insurance, export metering charges, inverters to be replaced once (outside of initial 10 year
As above, but including Finance costs.	£185,867	£75,000	divided by	5,181,660	<u>5.03</u>	warranty) during 25 year period. Figures DO NOT include potential Annual Investment Allowance Tax benefit



Jears











COLD CHAIN FEDERATION

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