

Total combined PV requirement of all Action Plan Recommendations

Tewkesbury Borough Council

Solar PV Impact : PV Requirement after Action Plan measures installed

System Sizing by Area

Area required	6,750 m2
Estimated capacity	1,350.00 kWp

System Capacity & Export

PV system chosen capacity	1,350 kWp
Solar collection factor (shading)	100 %
Current electricity tariff	15.9 p/kWh
kWh used on-site (offset)	75 %
Deemed export rate	25 %

Exported Generation

Bonus for exported units	5.5 p/kWh
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Generation Breakdown

Annual generation	1,215,000 kWh
- Offset units	911,250 kWh (Est. 75% used on site)
- Exported units (see note 1)	303,750 kWh

Annual Revenue Breakdown

Export bonus payment	£ 16,706
Potential Import savings	£ 144,433
Total Benefit	£ 161,139

Economics

Full installed COST	£ 945,000
Cost per kWp	£ 700
Basic ROI	17.1%
Simple Payback	5.9 years

Total PV Requirement after Action Plan measures:

Total kWh:	1,209,812
Total CO₂e:	382.28


Panel Data

Panel type	Mid Performance
Specific peak output	200 W/m2
Annual output	900 kWh/kWp

Installation Costs for Standard Roof Systems

Likely Installed Costs (excl. any necessary infrastructure costs)	
Solar PV - 25kW+	£ 1,000 /kWp
Solar PV - 100Kw+	£ 800 /kWp
Solar PV - 250kW+	£ 700 /kWp

		West					South					East				
		-90	-75	-60	-45	-30	-15	0	15	30	45	60	75	90		
Inclination	Vertical	90	56	60	64	67	69	71	71	71	71	69	65	62	58	
		80	63	68	72	75	77	79	80	80	79	77	74	69	65	
		70	69	74	78	82	85	86	87	87	86	84	80	76	70	
		60	74	79	84	87	90	91	93	93	92	89	86	81	76	
		50	78	84	88	92	95	96	97	97	96	93	89	85	80	
		40	82	86	90	95	97	99	100	99	98	92	88	84		
		30	86	89	93	96	98	99	100	100	99	94	90	86		
		20	87	90	93	96	97	98	98	98	97	94	91	88		
		10	89	91	92	94	95	95	96	95	95	94	93	91	90	
		Flat	0	90	90	90	90	90	90	90	90	90	90	90	90	



Note 1: Exported Units - it is unlikely approval will be secured for this level of exported energy. The Distribution Network Operator should be consulted ahead of considering other options

Comments

This calculator shows the required solar array needed to generate the energy demand at the council by converting all fuel emissions into kWh. The cost of this solution + the cost of the ASHP + the cost of implementing the Demand Reduction measures can be compared against the estimated savings to produce ballpark ROI

All Gas consumption has been displaced by ASHP or c

KWh	Comments
523,737	ASHP elec demand
15,064	TBC Owned Cars (if EV) demand
40,034	Grey Fleet Offset
6,582	Water offset required
624,395	Remaining elec demand after demand reduction implemented
New demand 1,209,812	total Kwh to be RE Generated
40.37%	59.62% equiv energy removed before
2,208,033	Gas kWh
726,452	Elec kWh
6,858	Water kWh
40,034	Grey Fleet kWh
15,064	TBC Owned Fleet (excl UBICO) kWh
2,996,441	Baseline total kWh by converting all fuel into kWh for illustration of extent of energy demand reduction