Heat Pump Scenario	Data	*HP Notes*
Current Annual Heat Demand - Gas in kWh	2,518,065	Whole TBC Office included in figures
Demand Reduction (DR) from time savings	222,960	
Demand Reduction from temp savings (after savings from time reductions applied)	82,491	
New potential demand from DR savings	2,212,613	12% DR saving
Demand after Combustion losses removed	1,880,182	Total of all individual buildings estimated plant efficiency
COP of A-2-A	4	
COP of A-2-W	3	
Demand of A-2-A	308,971	Based on individual buildings estimated ratios
Demand of A-2-W	214,766	
Total New Heat Demand - kWh	523,737	76.3% reduction in demand after DR savings applied (79.2% against total current demand)
Assumed cost of gas/kWh (incl. Climate Chage Levy	2.51	Proportionate unit rates of all buildings compared to their annual consumption (based on some estimated energy costs)
Assumed cost of elec/kWh (incl. Climate Chage Levy	13.58	
Estimated current annual operating cost	£63,248	
Estimated annual operating cost of new system	£71,100	
Potential revenue - Renewable Heat Incentive (2.75p/kWh)	£14,403	
Total potential annual cost benefit	£6,510	Total benefit across all Buildings
Current Annual Emissions from gas consumption	458.74	
Estimated Annual Emissions from Heat Pump system	165.49	using 2019 conversion factors
Tonnes CO2e annual saving	**293.25**	**63.9%** reduction in emissions
Emissions based on projections for 2030	**50.80**	based on conversion factor of 0.097

All TBC Buildings

Solar PV Impact : Heat Pump Emissions Off-set

System Sizing by Area

Area required	**2,910**	m2
Estimated capacity	582.00	kWp

System Capacity & Export

PV system chosen capacity	**582**	kWp
Solar collection factor (shading)	**100**	%
Current electricity tariff	**13.6**	p/kWh
kWh used on-site (offset)	**75**	%
Deemed export rate	**25**	%

Export Generation

Bonus for exported units	**5.5**	p/kWh

Generation Breakdown

- Annual Generation	**523,800**	**kWh**
- Offset units	392,850	kWh (75%)
- Exported units	130,950	kWh

Annual Revenue Breakdown

Export bonus payment	**£**	**7,202**
Potential Import savings	**£**	**53,331**
Total Benefit	**£**	**60,533**

Economics

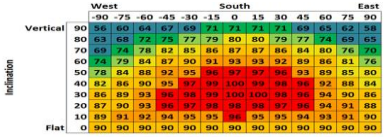
Full installed COST	**£**	**407,400**
Cost per kWp	**£**	**700**
Basic ROI		14.9%
Simple Payback	**6.7**	**years**

Panel Data

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

Offset of Heat Pump demand:

Scenario	T/CO2e	Equiv Elec kWh
Based on projected 2030 emission factor for electricity	**50.80**	**523,737**



Likely Installed Costs (excl. any necessary infrastructure costs)

Solar PV - 25k\	£ 1,000	/kWp
Solar PV - 100k	£ 800	/kWp
Solar PV - 250k	£ 700	/kWp