Sustainable Alternatives for Replacing Ageing HVAC Systems

System Type	Best For	Energy Source	Carbon Impact	CapEx	Key Consideration
Air-Source Heat Pump	Most commercial buildings with moderate heating/cooling needs	Ambient air	★★★★☆ Efficient & low-carbon	££	Works well in mild UK climates; incentives available
Ground-Source Heat Pump	Buildings with external space or borehole access	Underground heat	★★★★★ Ultra-efficient	£££	Higher upfront cost; excellent for long-term performance
Water-Source Heat Pump	Sites near rivers, lakes, or aquifers	Water body (open/closed loop)	★★★★★ Low operational carbon	£££	Requires proximity to water and licensing
Hybrid Heating System	Buildings transitioning off gas, with grid limitations	Electricity + gas backup	★★★☆☆ Transitional solution	££	Good for phased decarbonisation or legacy system integration
Solar-Assisted HVAC	Buildings with roof space & high daytime demand	Solar PV + electricity	★★★★☆ Offsets energy use	££	Works best paired with ASHP or battery storage
Thermal Storage + BMS	Buildings with peak/off-peak demand shifts	Stored energy	★★★★☆ Demand optimisation	££	Enhances flexibility and reduces energy costs