



HOSPITALS

Energy Efficiency Guide



ENHANCING PATIENT CARE WHILE OPTIMISING ENERGY USE.

Hospitals are complex, energy-intensive environments. From operating theatres to wards, from laundries to MRI scanners — every system matters. Energy efficiency in hospitals isn't just a cost-saving exercise — it's about creating comfortable, safe environments, meeting net zero targets, and safeguarding the future of public health.

Key areas of Hospital Energy consumption

- HVAC: One of the largest loads — critical for infection control and patient comfort.
- Lighting: Operates 24/7 in wards, corridors, theatres and admin areas.
- Medical equipment: High demand, often around-the-clock.
- Hot water & sterilisation: Intensive needs in wards and operating theatres.
- Laundries: Huge demand for hot water and heat — typically run in-house.
- Refrigeration: Medical fridges, blood storage, pharmacy, mortuary.
- Catering kitchens: Large-scale, high-turnover food production.
- Public/retail areas: Tenanted shops or food outlets with varying standards.



PRACTICAL ENERGY-SAVING MEASURES

1. Install Building Management Systems (BMS)

Monitor and optimise temperature, air flow and lighting across zones – from ICU to corridors. Review settings regularly to prevent ‘set and forget’ inefficiencies.

2. Modernise HVAC

High-efficiency boilers, heat recovery ventilation, and smart zoning can reduce HVAC demand without affecting comfort.

3. LED + Sensor Lighting

Swap out fluorescents for LEDs, especially in corridors and admin areas. Add PIR sensors in plant rooms, storerooms, and infrequently used facilities.

4. Efficient Sterilisation

Where practical, invest in energy-efficient autoclaves or coordinate cycles to maximise load efficiency and reduce standby energy draw.

5. Refrigeration Maintenance

Critical in hospitals – especially for mortuary, pharmacy and pathology. Clean condenser coils, check seals, and avoid overcooling. Install alarmed thermostats where loss would impact compliance.

6. Catering Upgrades

Large kitchens waste energy fast. Switch to induction where possible, fix extractor fan timing, and use demand-controlled ventilation. Sub-meter catering separately to monitor usage.

LONG-TERM SUSTAINABILITY DEVELOPMENT

Energy efficiency isn't a one-off project — it's a continual process of reviewing, investing, and improving. Hospitals are often decades old, with capital works occurring in phases. So, it's critical to align building design and equipment strategy with long-term sustainability goals.

Designing for Net Zero

Any new developments, refurbishments or major upgrades should be scoped with net zero in mind. This means:

- Renewable integration: Rooftop solar PV, solar thermal for hot water, or even ground/air source heat pumps where viable.
- Battery storage: To manage demand-side response and store excess renewable energy.
- Passive design: Insulation, glazing, shading, and natural ventilation strategies to reduce baseline demand.
- Green BREEAM/LEED ratings: Design to accredited sustainable building standards.

Early-stage design choices impact decades of operational cost, patient comfort, and emissions. Aim high from the outset.

Asset Review & Upgrade Strategy

Hospitals run a significant volume of fixed, high-energy equipment — from HVAC plant to medical imaging. Many systems are operated past their intended lifecycle.

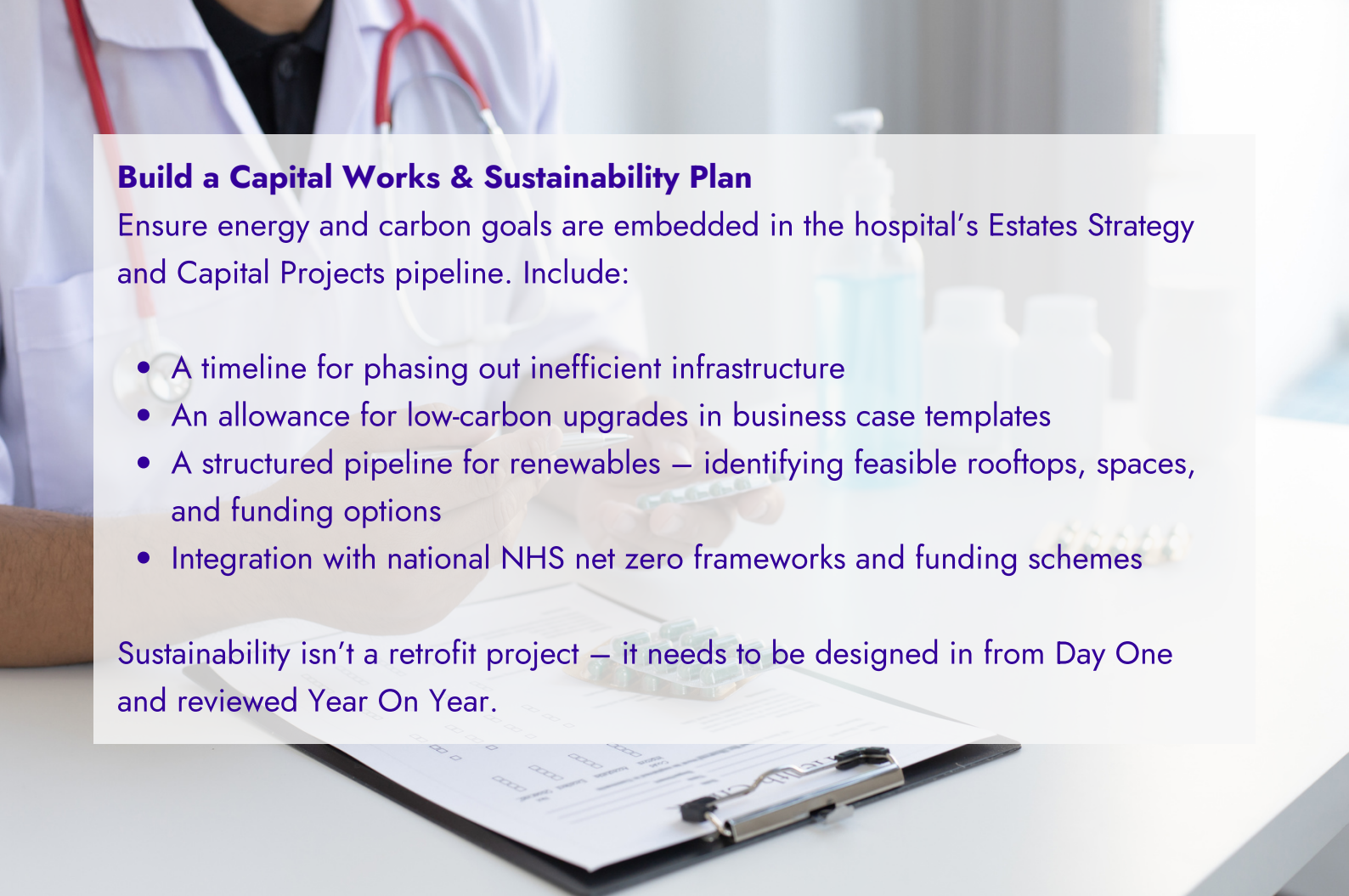
Develop a rolling asset evaluation schedule, ideally aligned with:

- Annual energy audits
- Planned preventive maintenance (PPM) cycles
- Manufacturer end-of-life support cut-offs
- Technology reviews (e.g. NHS Supply Chain updates)

This allows hospitals to:

- Benchmark performance against newer models
- Plan investment based on payback and carbon reduction
- Avoid reactive, crisis-driven replacements

For example: Upgrading a 15-year-old CT scanner or an autoclave might deliver not only energy savings, but also speed, reliability, and better patient outcomes.



Build a Capital Works & Sustainability Plan

Ensure energy and carbon goals are embedded in the hospital's Estates Strategy and Capital Projects pipeline. Include:

- A timeline for phasing out inefficient infrastructure
- An allowance for low-carbon upgrades in business case templates
- A structured pipeline for renewables – identifying feasible rooftops, spaces, and funding options
- Integration with national NHS net zero frameworks and funding schemes

Sustainability isn't a retrofit project – it needs to be designed in from Day One and reviewed Year On Year.

ACCOUNTABILITY IN LEASED RETAIL UNITS

Hospitals often rent out space to external vendors – coffee chains, newsagents, cafés. While these businesses sit inside the estate, their energy use often falls outside core monitoring – and outside sustainability controls. This is a missed opportunity.

Recommendation:

- Build green lease clauses into new and renewed tenancy agreements.
- Require tenants to submit energy consumption data annually.
- Encourage shared services – e.g. waste management, HVAC zones – to avoid duplication.
- Where possible, extend your BMS monitoring to include tenant spaces.

Holding tenants accountable for energy standards reinforces your hospital's sustainability credentials – and avoids reputational risk by association.



Engage Your People

- **Appoint energy champions** in facilities, estates, and clinical teams.
- **Provide feedback** on energy trends and savings to leadership and frontline teams.
- **Create quick-reporting channels** for leaks, lighting faults or overheating.
- **Train cleaning and maintenance staff** to identify and report energy waste.

Why it's Worth it

- NHS trusts spend over £1 billion annually on energy – cutting just 10% releases significant capital.
- Energy savings improve air quality, comfort and equipment reliability.
- Being visibly sustainable improves recruitment, retention and public trust.
- Aligns with the NHS England target to reach net zero by 2040 (core emissions) and 2045 (wider footprint).

Case Studies

- Queen's Medical Centre, Nottingham cut emissions by 30% via heat recovery and building upgrades.
- Mount Sinai, NY reduced energy use by 10% with an on-site energy manager and rolling plant upgrades.
- Guy's and St Thomas' NHS Trust has embedded sustainability metrics into capital planning and procurement.

SUMMARY CHECKLIST



BMS INSTALLED AND ACTIVELY MANAGED



**LIGHTING UPGRADED TO LED AND
ZONED WITH SENSORS**



**SUB-METERING IN CATERING, IMAGING,
LAUNDRY, AND THEATRES**



**REGULAR HVAC AND REFRIGERATION
MAINTENANCE**



**TENANTS HELD TO SUSTAINABILITY
AND REPORTING STANDARDS**



**INTERNAL ENERGY TEAM/CHAMPION
STRUCTURE IN PLACE**



**SUSTAINABILITY EMBEDDED IN
PROCUREMENT**



Need Support? Let's Talk

At PE, we offer tailored consultancy to help you reduce energy use, cut carbon, and improve margins – without compromising service or guest experience.

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