Optima
Systems Consultancy

Small steps, real results.

How **Optima Systems Consultancy** transformed a neglected 1980s office into a more efficient, comfortable workplace, without waiting for perfect conditions or big budgets.

- **Thornbury, Bristol**
- **3,000 sq ft office**
- **2.6 tCO_2e reduction**
- **~£1,200/year savings**

THE OFFICE THAT NEEDED A SECOND CHANCE

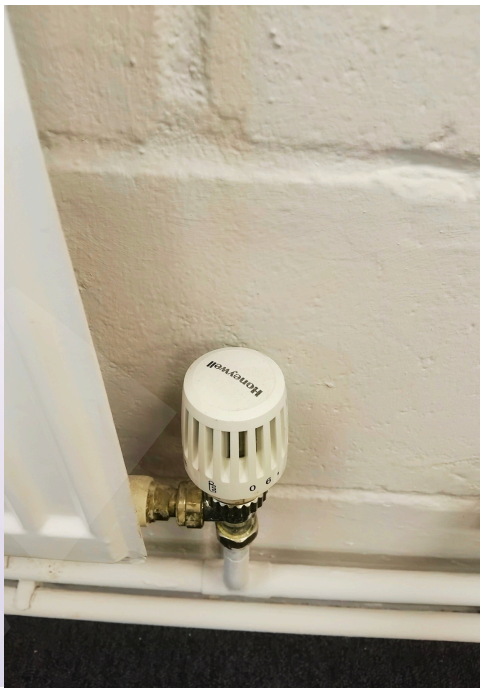
AT A GLANCE

In 2018, Optima signed the Head Lease on a tired semi-detached office building in Thornbury, Bristol — a two-storey, 1980s-built property with 3,000 square feet of space. The building worked, but only just. Cold spots in winter. Ageing lights failing regularly. Heating controls set to factory defaults rather than how anyone actually used the building.

The question was straightforward: now that we're responsible for this building, what do we actually do with it?

The answer wasn't a grand retrofit plan. It was a practical, phased approach — get the fundamentals right, make quick wins that people feel immediately, and build a roadmap for the bigger moves when the timing and permissions align. What followed was a series of deliberate improvements that collectively reduced running costs, cut carbon, and made the office a place people actually wanted to be.

> *We didn't start with a big, shiny "net zero transformation". We started with the basics: comfort, waste, and the small annoyances that quietly cost money every month.*
>
> - Chris Lamb, Chair, Optima Systems Consultancy



STARTING CONDITIONS

A standard 1980s commercial build — cavity walls and double glazing already present, but heating controls, insulation, and lighting had all been neglected over the years.

Type	Floor area	Occupancy	Location
Semi-detached 2-storey office	**280m² (3,000 sq ft)**	**5–20 staff weekdays**	**Thornbury Bristol**

BEFORE WE STARTED

- Loft insulation at only 100mm (well below recommended levels)
- 24 radiators with mixed, failing, or absent TRVs
- 77 old light fittings: bulbs and starters failing regularly
- Heating programmer set to defaults, not actual office hours
- Draught issues at the front door
- Old fridge, always-on servers, portable AC units in use

PRACTICAL UPGRADES, MEASURABLE RETURNS

The approach was deliberately sequenced: fix the basics before spending on technology, and prioritise measures that reduce waste and improve daily life for people in the building.

Heating control — TRVs on all 24 radiators
~£1,000 installed · £300/yr saving · 0.7 tCO_2e/yr

Loft insulation — 100mm → 400mm
165m² coverage · ~£6,000 installed · £600/yr saving · 1.4 tCO_2e/yr

LED lighting — 77 panels upgraded
77 LED panels @ 38W · ~£2,500 installed · £300/yr saving · 0.5 tCO_2e/yr

The upgrade measures implemented in Optima's office include **thermostatic radiator valves** (TRVs) on all radiators, enhancing energy efficiency. **Loft insulation** was increased from 100mm to 400mm, significantly improving thermal comfort by reducing heating costs and carbon emissions.

Additionally, **LED lighting** was installed, comprising 77 energy-efficient panels, resulting in substantial energy savings. A **hybrid working model** and **EV slow charging stations** were integrated into the carbon strategy, supporting sustainable practices and reducing overall carbon footprint in the workplace.

OTHER SMALL WINS THAT STACK UP

Alongside the main measures, a range of smaller improvements contributed to reducing background energy drain: **PIR-controlled lights and fans in toilets**, a modern **energy-efficient fridge**, an **insulated kettle**, **low-energy monitors**. The always-on server hardware was replaced with **modern laptops** and **cloud services** — cutting standby consumption significantly.

Optima backs this up with practical infrastructure: seamless **remote working setup**, **cycle scheme support**, **changing and shower facilities**, and — as a cost-effective interim step before full EV charging infrastructure — **13A external sockets for slow charging of plug-in hybrids and EVs** during office hours. A standard commute distance is easily covered from a half-day's slow charge.

Travel and commuting: for a consultancy like Optima, carbon footprint assessment under UK government procurement frameworks (PPN 06/21) includes business travel and staff commuting — and for many professional services firms, this dwarfs the office energy footprint. **Hybrid working** isn't just a staff benefit; it's a genuine carbon strategy.

KEY OUTCOMES

The biggest change is the one you feel walking through the door. The office is simply a better place to work, and that matters as much as any energy metric.

The numbers, plainly stated

Measure	Capital cost	Est. annual saving	tCO_2e reduction	Simple payback
TRVs (24 radiators)	~£1,000	~£300/yr	0.7 tCO_2e	~3.3 years
LED lighting (77 panels)	~£2,500	~£300/yr	0.5 tCO_2e	~8.3 years
Loft insulation (165m²)	~£6,000	~£600/yr	1.4 tCO_2e	~10 years
Total	**~£9,500**	**~£1,200/yr**	**2.6 tCO_2e**	**~7.9 years**

All figures are internal estimates based on standard energy modelling assumptions. Carbon figures use UK government conversion factors. Payback periods reflect energy savings only and do not account for reduced maintenance costs, which would shorten payback — particularly for the LED upgrade.

LIVED EXPERIENCE

— Overall better working environment

- Brighter, cleaner lighting
- Better thermal efficiency means cooler office during hot summer days and better heating control at winter
- Hybrid / EV vehicles can be charged in the car park
- New, smarter kitchen appliances to use

> *"We started with control, insulation, and lighting. The sort of improvements you feel on day one and benefit from every month after."*
>
> - Chris Lamb, Chair, Optima Systems Consultancy

REFLECTIONS

1. **Start with basics before technology**
If your heating schedule, draughts, and controls aren't right, bigger upgrades won't deliver what they should.

2. **Do what you can now, and plan for what you can't.**
As a commercial leaseholder, solar PV can be attractive but tricky: landlord permissions, fees, and misaligned payback periods versus lease length can stall progress. The best time to agree PV is often during a new lease or renewal, when rights, costs and benefits can be agreed properly.

3. **Think beyond the building.**
For businesses like ours, travel can dominate footprint. Hybrid working (done well) reduces emissions, saves time, and lowers hassle for staff and clients.

4. **Frame it as "spend to save", not just sustainability**
The business case for these measures becomes more compelling when you account for the full picture: reduced maintenance, better staff retention and recruitment appeal, lower running costs and a workplace people want to come to. The numbers rarely tell the whole story.

WHAT COMES NEXT?

PV and battery storage are on our radar, but the timing needs to align with lease milestones so we can make the business case stack up. Longer term, that also opens the door to replacing gas heating with a heat pump when it becomes feasible.

There's also a wider opportunity: if a building can host more PV than it uses, local community energy arrangements can help bring in investment, use surplus locally, cut carbon, and create social value.