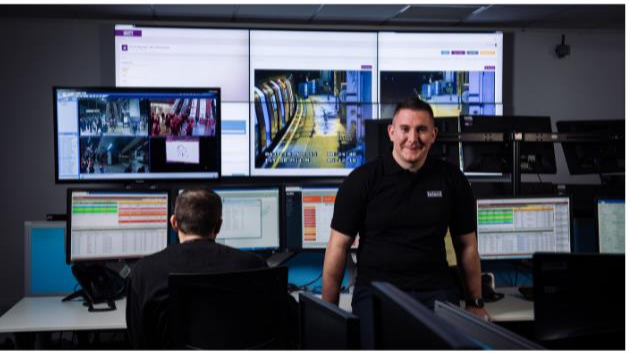

Green Solutions:

Camberley Smart Lab

Smart Power Meets Sustainability

Telent Green Solutions Working Group

telent NET ZERO

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talent with technology

Why Smart Power Matters

The Problem: Inefficient Energy Use

Traditional server rooms and IT infrastructure often operate continuously, consuming large amounts of electricity and generating heat. This leads to inflated energy bills and places unnecessary strain on cooling systems.

The Impact: Environmental and Financial Costs

Running systems at full capacity 24/7 results in high operational costs and contributes significantly to carbon emissions. For companies like Telent, this challenges both budget efficiency and sustainability commitments.

The Shift: Smarter, more Sustainable Operations

Smart power management introduces intelligent control systems that optimise energy use based on demand. By powering down idle equipment and streamlining cooling, Telent is reducing waste, lowering costs, and advancing its green agenda.

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Our Vision

Telent have committed to achieving net-zero GHG emissions by 2050 through the Science Based Targets initiative (SBTi)

This includes emissions created indirectly by our entire value chain, from raw material extraction to customer use of our products and services - providing sustainable whole-life solutions to our customers

In 2023, we set a near-term target to reduce all emissions by an average of **50%**, no later than 2030

What did Telent change?

The Opportunity: Smarter Energy for Net Zero
Smart power and building management reduce energy use, cut costs, and support Telent's sustainability goals.

Intelligent Control: Energy Only When Needed
Systems power down when idle, using energy only when required—without affecting performance.

Flexible Access: On-Demand Availability
Manual overrides ensure systems are accessible when needed, maintaining flexibility.

Automated Efficiency: Dashboard-Driven Power
A central dashboard manages power use, reducing manual effort and improving efficiency.

Overall Goal of Smart Power Management

To intelligently manage energy consumption across Telent's infrastructure—reducing waste, lowering operational costs, and accelerating progress toward sustainability and net zero objectives without compromising performance or flexibility.

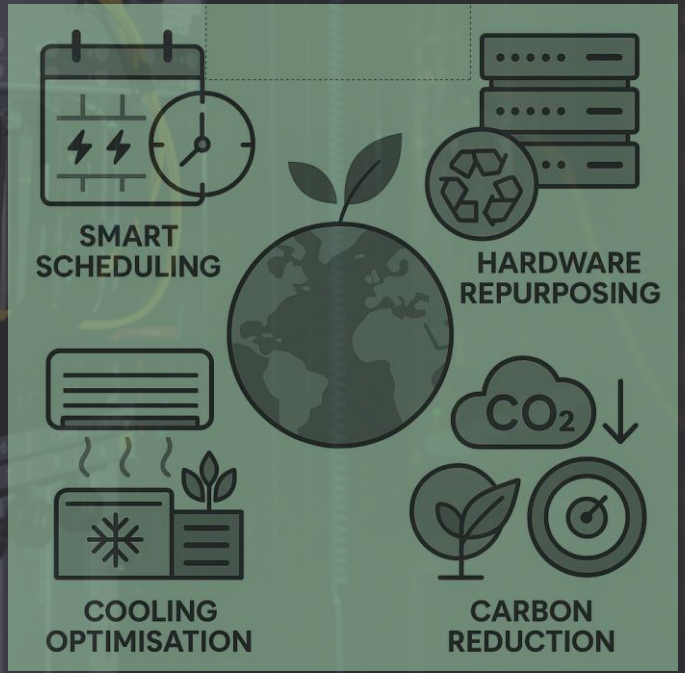
How Telent Delivered Results

Smart Scheduling: Cut Energy Use by 70%
Telent implemented intelligent server scheduling—automatically powering down idle systems and reducing unnecessary energy consumption.

Hardware Repurposing: Saved £30K in Resources
Instead of purchasing new equipment, Telent reused PDUs and cabling from other projects, reducing waste and lowering capital expenditure.

Cooling Optimisation: Reduced A/C Load
By lowering server activity, Telent decreased heat output—allowing cooling systems to operate more efficiently and consume less power.

Carbon Reduction: Progress Toward Net Zero
These combined actions significantly lowered Telent's carbon footprint, aligning with corporate sustainability and net zero goals.



Environmental Benefits

Using a smart power system Telent has managed to highlight measurable environmental benefits

Energy Consumption Reduction:
Measured Impact: Up to 70% reduction in energy usage
How: Through intelligent server scheduling and automated power-down of idle systems.

Cost Savings Through Hardware Reuse:
Measured Impact: Over £30,000 saved
How: By repurposing PDUs and cabling from other projects, reducing the need for new equipment and associated manufacturing emissions

Lower Cooling Demand:
Measured Impact: Indirect but observable
How: Reduced server activity led to lower heat output, decreasing the load on A/C systems. While exact percentages aren't available, this contributes to overall energy efficiency and reduced HVAC runtime.

Carbon Footprint Reduction:
Measured Impact: Derived from energy savings
How: The significant drop in electricity usage directly reduces carbon emissions, supporting Telent's net zero and sustainability targets.

Camberley Smart Lab

Green saving: Approx. 1,865kg CO2 Reduction

Status

Telent's Smart Lab has transitioned from a traditional 24/7 server environment to an intelligent, demand-driven infrastructure.

Key features include automated server shutdowns, manual override access, and a centralised soft dashboard for power control.

Hardware reuse (e.g., PDUs and cabling) has already saved over £30,000

Sustainability

Energy usage reduced by up to 70%, cutting operational costs and emissions.

Estimated 25 tonnes of CO_2e saved annually, based on UK government conversion factors.

Reduced server heat output has indirectly lowered A/C demand, improving overall energy efficiency.

These actions align with Telent's net zero and sustainability goals.

Scaling and Integration

Plans to integrate renewable energy sources and free-air cooling systems.

Expansion of AI-driven control for both power and cooling.

Potential rollout of Smart Lab principles across other Telent facilities and business units.

Scalability

The Smart Lab serves as a blueprint for sustainable IT infrastructure.

Demonstrates how existing assets can be repurposed to achieve environmental and financial gains.

Scalable across departments, locations, and potentially client-facing solutions.

Innovation Culture

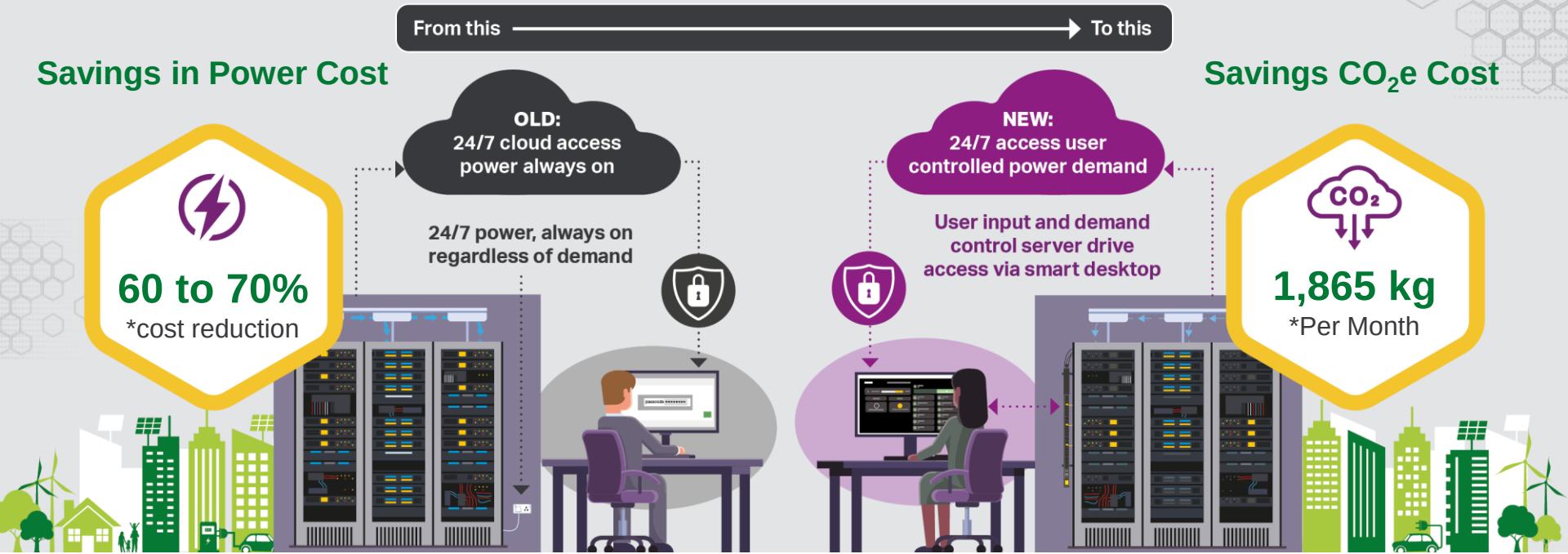
The initiative reflects a proactive, solutions-oriented mindset within Telent.

Encourages cross-functional collaboration (engineering, sustainability, IT).

Positions Telent as a leader in sustainable digital infrastructure.

Green Solutions: Camberley Smart Lab

Smart Power Meets Sustainability



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Green Solutions: Camberley Smart Lab

PRIMARY EQUIPMENT (BEFORE AND AFTER)

Servers
Before: Always-on physical servers consuming power 24/7.
After: Virtualised servers (e.g., via Proxmox) with automated shutdown during inactivity.

Power Distribution Units (PDUs)
Before: Standard, unmanaged PDUs.
After: Reused and reconfigured PDUs with switching capability, integrated into a smart dashboard.

Cabling Infrastructure
Before: Static cabling with no reuse strategy.
After: Repurposed cabling from other projects, contributing to £30K in savings.

Cooling Systems (A/C)
Before: Constant operation to manage heat from always-on servers.
After: Reduced load due to lower server activity, improving efficiency (though exact % savings not measured).

Power Monitoring & Control
Before: No real-time monitoring or control.
After: Integration with Mod-bus for phase monitoring and a soft dashboard for intelligent power management.

Electrical Infrastructure
Before: Basic 3-phase power setup.
After: Schneider 3-phase system tapped into incoming supply, enhanced with monitoring tools.

OPERATIONAL AND TECHNICAL ASSUMPTIONS

Monthly Electricity Cost
Assumed to be **£12,000/month** based on historical lab operation data.

Electricity Rate
Estimated at **£0.30 per kWh**, reflecting the UK average commercial rate in 2023–2024.

Energy Reduction Estimate
A **70% reduction** in energy use was assumed based on observed changes in server scheduling and power management.

Carbon Conversion Factor
Used the **UK Government's 2023 factor** of **0.19338 kg CO_2e per kWh** for grid electricity (location-based).

Cooling Efficiency Impact
While cooling demand was reduced due to lower server heat output, **no specific percentage** was assumed or calculated due to lack of direct measurement.

Hardware Reuse Savings
The **£30,000 savings** figure includes both PDUs and cabling, based on internal reuse rather than new procurement.

Server Virtualisation
Assumed that virtualisation (e.g., via Proxmox) contributed to reduced physical server usage and power draw

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FUEL COST CALCULATIONS

Before Smart Power (April–June 2024)

Average Monthly Energy Use: 22,410.79 kWh*

Average Cost per kWh: £0.4903

Transition Month (July 2024)

Energy Use: 14,457.94 kWh

Cost: £7,190.21

Cost per kWh: £0.4973 (Note: High rate still applied in July despite reduced usage)

After Smart Power (August 2024–May 2025)

Average Monthly Energy Use: 12,764.92 kWh**

Average Cost per kWh: £0.3035

Saving: **60-70%** per month (including cost per kWh reduction)

CARBON REDUCTION CALCULATIONS

Carbon Savings (Aug 2024 – May 2025)
Total CO_2 Saved: 18,653.17 kg CO_2e
*Baseline: Average monthly emmisions from April–June 2024
4,333.80 kg CO_2e per month

**The new average monthly CO_2 emmisions and savings from August 2024 to May 2025 is approximately:

Ave 2,468.48 kg CO_2e = Saving: 1,865.32 kg CO_2e per month

This is based on the UK Government's 2023 greenhouse gas reporting conversion factor for grid electricity: 0.19338 kg CO_2e per kWh.

KEY TAKEAWAYS

Energy use dropped by **~43%** after smart power implementation.

Monthly cost dropped by **~65%,** even with rising energy prices.

July 2024 shows the effectiveness of reduced usage even before the lower rate was introduced.

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