UNIPART

Performance in motion

A guide to energy control for the Aerospace industry

Take control of energy consumption and cost across assets, zones and sites

Take real-time control of your energy

EI. Energy Control System is a proactive energy management solution combining AI-driven analytics with expert insight to help aerospace and defence organisations reduce waste, cut emissions, and maintain operational control without disrupting secure or mission-critical operations.

Energy control across aerospace & defence

The high standards required for operational continuity, precision manufacturing, and secure infrastructure in aerospace and defence demand more than simple monitoring. From production lines and R&D labs to hangars, warehouses, and service centres, each environment presents its own energy challenges.

By combining IoT data, AI analytics, and actionable insights, EI. provides the intelligence needed to address these challenges effectively across diverse environments, enabling aerospace and defence organisations to:

- Take control of energy across their entire estate
- Drive efficiency and reduce waste
- Support mission-critical delivery and sustainability objectives

Production facilities

Facility type	Energy challenges	EI. benefit
Manufacturing facilities	High baseline loads, hidden out-of-hours energy use, inefficient equipment	Reduces cost leakage, protects programme margins, identifies performance anomalies. Supports carbon reporting
Final assembly lines	Energy-intensive tools, irregular peaks, unmonitored compressed air systems	Smooths demand, prevents waste, aligns energy use with production cycles
R&D centres	Continuous background energy draw, constant HVAC demand	Optimises lab environments, improves visibility of non-production energy cost drivers

Logistics & infrastructure

Facility type	Energy challenges	EI. benefit
Large-scale warehousing	Lighting/HVAC run 24/7, manual data collection	Zonal control delivers real time visibility, analysis and actionable insight based on automated data sets, supports logistics decarbonisation strategy
Airports / MRO bases	Ageing infrastructure, multi-zone inefficiencies, untracked base load	Enables scalable control, protects critical operations, identifies hidden cost impacts from asset energy data
Hangars	High-cost space heating, inefficient lighting schedules	Identifies and cuts overhead energy waste without compromising readiness

Support & admin operations

Facility type	Energy challenges	EI. benefit
Customer service centres	Constant server cooling, poor lighting control, desk equipment left on 24/7	Reduces overheads, supports employee engagement and ownership of energy reduction, supports data centre efficiency targets
Offices & commercial spaces	HVAC/lighting left on in unused areas, energy blind spots	Identifies areas of waste, prioritises actions with minimal disruption, supports ISO14001 and SBTi targets

1. Cost control

Hidden inefficiencies silently erode margins. Rising energy costs across UK industry, with electricity up 75% and gas more than doubled since 2021, put pressure on manufacturing and supply chains. In aerospace and defence, these costs directly affect programme delivery, contract competitiveness, and long-term sustainability targets.

EI. detects, analyses, and controls energy waste in real time, reducing costs without disrupting mission-critical operations or production schedules.

How EI. delivers cost control:

- **Real-time oversight:** EI provides immediate visibility into energy overuse across production lines, test facilities, and secure operations.
- **Performance insights:** It highlights underperforming or energy-intensive machinery that drives up costs and operational risk.
- **Compliance and transparency:** EI helps you meet regulatory requirements and provides clear cost trend data, enabling you to benchmark performance and manage efficiency across multiple sites and complex programmes.

Case study: £42,000 cost savings annually using EI.

The challenge

A leading advanced manufacturing business faced rising energy costs across its production facility. Without real-time visibility, the business couldn't align energy use with production cycles or pinpoint where energy was being wasted, affecting efficiency, profitability, and operational margins.

The solution

Unipart installed EI. across machinery, production lines, and HVAC systems. Smart sensors provided live energy consumption data, while AI-generated insights and guidance from our Energy Gurus helped the team:

- Identify equipment and processes consuming energy outside core production hours
- Detect sub-optimal machinery performance and hidden inefficiencies
- Adjust schedules and shut down idle assets

By turning real-time data into actionable energy management, the business could directly control and reduce costs without disrupting operations.

The impact

- £42,000 in annual energy cost savings achieved by reducing unnecessary consumption and optimising equipment scheduling
- 188,000 kWh of energy waste eliminated
- Reduction in Scope 2 and 3 carbon emissions
- ROI achieved in under 9 months
- Supported a culture of continuous energy efficiency and operational control

2. Energy control

Aerospace and defence organisations are under growing pressure to reduce carbon emissions without compromising mission-critical operations. The Ministry of Defence has set a 2040 net zero target for its operations and infrastructure, while many OEMs and Primes are committing to science-based targets through the Science Based Targets initiative (SBTi). With over 10,000 companies signed up and more than 7,000 independently validated, the SBTi has become the recognised benchmark for credible decarbonisation in complex, high-stakes industries like aerospace and defence.

Achieving these ambitious goals requires real-time control of energy consumption. EI. transforms passive energy monitoring into actionable insights, providing automated analytics, predictive alerts, and tailored oversight. It helps aerospace and defence organisations cut waste, protect margins, and reduce carbon without disrupting critical operations.

How EI. supports operations:

- **Operational visibility:** Real-time dashboards and reporting across production lines, test facilities, and secure operations
- **Risk mitigation:** Instant alerts and automated responses prevent waste or anomalies from affecting critical programmes
- **Decision intelligence:** Insights for Operations, Finance, and ESG link daily activity to strategic objectives
- **Scalable control:** Enterprise-wide oversight across multiple sites ensures consistent performance across complex operations

3. Operational control

Energy is a critical operational resource for aerospace and defence organisations. Inefficient usage across production lines, test facilities, or secure operations can quietly increase risk, disrupt mission-critical programmes, and impact delivery schedules.

Yet many sites still rely on monthly bills or basic meter readings, leaving significant energy waste undetected. Energy can account for up to 15 percent of a facility's operating costs, and losing even a quarter of that to inefficiency equates to 3 to 4 percent of revenue.

The impact extends beyond cost. Systems that run inefficiently operate hotter, wear out faster, and demand more maintenance, while missed opportunities for efficiency incentives and renewable energy tax benefits add to the hidden burden.

EI. provides aerospace and defence teams with real-time visibility and control over energy use, turning hidden inefficiencies into actionable insights. By detecting anomalies early and providing predictive alerts, EI. helps protect operational capability, prevent downtime, and maintain programme continuity.

How EI. delivers operational control:

- **Anomaly and failure detection:** Tracks energy patterns across production lines, test facilities, and secure operations to flag hidden risks
- **Real-time alerts:** Enables immediate intervention to prevent equipment failure, load spikes, or operational disruption
- **Predictive insights:** Supports planning and future-proofing of critical systems and infrastructure
- **Actionable intelligence:** Translates energy data into decisions that reduce waste, protect margins, and maintain mission readiness

By combining real-time visibility with predictive insights, EI. helps organisations reduce waste and maintain operational control without disruption.

Case study: Real-time energy control cuts carbon and waste

The challenge

A UK logistics facility faced unusually high energy usage. Relying on monthly billing, the facilities team had no way to identify inefficiencies, allowing energy waste to silently increase costs and carbon emissions.

The solution

After assessing the site's operations and energy systems, Unipart concluded a non-disruptive approach was needed to avoid interrupting critical processes. Non-invasive smart sensors were deployed across HVAC and heating zones, providing:

- Real-time energy tracking by zone
- AI-driven alerts for after-hours anomalies
- Automated optimisation recommendations
- Guidance from Energy Gurus to prioritise actions

Within days, EI. identified specific consumption anomalies, analysed usage against operating hours, and recommended corrective actions, helping the team reduce waste and improve efficiency without disrupting operations.

The impact

- 87% reduction in heating energy consumption in critical areas
- £16,693 annual cost savings
- Full ROI achieved in under six months
- Significant reduction in Scope 2 carbon emissions

Master your energy with EI.

Take control of energy across every mission-critical asset, zone, and site with a solution engineered for the complexities of aerospace and defence:

- Proactive, real-time energy management instead of retrospective monitoring
- Reduction of invisible waste across facilities and operations
- Improved cost efficiency across production and energy use
- Support for sustainability commitments and progress toward net zero
- SBTi-aligned energy management, delivering measurable progress without disrupting critical operations

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Scan the QR code to schedule a personalised demonstration with Ben Williamson and see how we can help your organisation.

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