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Decarbonising Critical Infrastructure

At a Glance

- 10 GWh estimated annual natural gas savings
- 2.4 GWh expected increase in electricity use due to electrification
- $256k projected annual operating cost savings
- 1818 tonnes estimated CO_2 emissions avoided per year
- $16.4M capital investment (excluding new utility building and substations)

Why This Needed Attention

Two critical buildings were still tethered to a central utility plant that was nearing the end of its life. That alone posed a risk to long-term operations. But the bigger issue was strategic: the site needed a way to reduce its carbon footprint, support future consolidation, and take control of its energy use without disrupting day-to-day performance.

This wasn't just about replacing ageing infrastructure. It was about creating a smarter, more resilient setup that aligned with long-term sustainability goals and gave the site the flexibility to evolve. The challenge was clear: decouple, decarbonise, and do it in a way that made operational and financial sense.

Where We Stepped In

Initially, we were brought in to investigate a failed pipework system. From the site inspection, it became clear that this failure was part of deeper site-wide asset and infrastructure issues. These issues pointed to a broader opportunity: to rethink how these buildings were supplied by utilities, and to set the site up for long-term asset resilience.

We didn't just patch the problem. We stepped back to view the bigger picture and uncovered a strategic pathway to decouple both buildings from the central utility plant. That shift opened the door to significant carbon savings, operational resilience, and a future-ready energy model.

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Solution Summary

95%+
Carbon emissions reduced

6 Year
Roadmap to fully decouple

$256K
Annual operating cost saved

The Challenge Behind the Scenes

The biggest hurdle wasn't technical; it was the lack of reliable data. With no metered steam usage, we had to build a demand model from scratch, relying on engineering judgment and operational insight.

Key challenges included:

- No clear baseline for steam demand
- Uncertainty around peak and average loads
- High risk of mis-sizing systems and overspending
- Need for a robust, assumption-led approach to guide decisions

Despite the gaps, we created a solid foundation that shaped every step of the programme with confidence.

The Roadmap That Made It Work

We developed a six-year roadmap to fully decouple both buildings and cut emissions by over 95%. The sequence was intentional: reduce demand, electrify, then install permanent infrastructure, avoiding unnecessary spend and unlocking value at every stage.

Key actions:

- Metering for energy baselines
- HVAC optimisation
- Heat pumps for heating
- Reuse of existing systems

Why It Matters

This isn't just about cutting carbon, it's about building long-term resilience, reducing costs, and creating a scalable model for future decarbonisation without compromise.

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