CASE STUDY — National Food Processing Site (U.K.)

Refrigeration & Cooling Optimisation Delivers **41.5%** Reduction Across Refrigeration Units + **11.7%** Savings on Main Incoming Supply

INTRODUCTION

A major U.K. food processing facility with large refrigeration loads was experiencing rising electricity costs across its cold-store, processing, and packing areas. With refrigeration operating continuously and accounting for a significant share of site demand, the business needed a validated solution that reduced consumption without interrupting production.

The site deployed enPact Refrigeration & Cooling optimisation, targeting compressor efficiency, heat-exchange performance, and overall refrigeration run-time.

SOLUTION

enPact Refrigeration & Cooling:

The site deployed the patented enPact Refrigeration & Cooling optimisation technology to improve the efficiency and performance of multiple high-load refrigeration units. The system enhances heat-exchange, reduces compressor run-time, stabilises temperatures and improves overall cooling performance across the site.

The optimisation required no disruption to production, cold-store operation or workflow, and delivered immediate, validated reductions measured through ON/OFF comparison periods.

CHALLENGE

- Continuous refrigeration demand across multiple units
- High operational temperatures driving excessive compressor cycling
- Refrigeration imbalance between units causing inefficiencies
- Requirement for proven, validated savings- not estimated reductions
- No option for production downtime or operational disruption

A solution was needed that could cut refrigeration energy use without affecting product quality, temperatures, or workflow.

RESULTS

Refrigeration Unit Savings (8 Units Total)

41.5% refrigeration energy reduction overall

The optimisation delivered strong and consistent reductions, with multiple units exceeding **60–70% savings.**

Unit	Savings %
Unit 2	38.90%
Unit 3	47.50%
Unit 4	67.70%
Unit 5	12.30%
Unit 6	73.10%
Unit 7	-2.8% (neutral)
Unit 8	0.10%
Overall	41.50%

Main Incoming Supply Impact

Even with the majority of savings focused on refrigeration, site-wide performance improved:

- **11.7% total reduction on main incoming supply**
- **358.04 kWh saved per day**
- **130,685 kWh annualised savings**
- **£24,830.15 annual financial benefit (based on site's tariff)**
- **Significantly surpasses the quoted value of 36,202 kWh**

Key Insight - Refrigeration Is the Driver

Because refrigeration is the highest-load system onsite, improving compressor efficiency delivered large downstream effects, lowering overall electrical demand even outside the cold-store areas.

CONCLUSION

The enPact Refrigeration & Cooling optimisation delivered substantial, validated reductions across this food processing site. With a 41.5% improvement across refrigeration assets and an 11.7% reduction at the main incomer, the solution far exceeded expectations and achieved results with zero operational disruption.

The success of this deployment provides a clear business case for additional optimisation across the rest of the client's estate.

ESTATE-WIDE IMPACT PROJECTION

Rolling this optimisation out across all three sites would deliver:

- **392,000** kWh annual energy savings
- **£74,500** yearly financial benefit
- Consistent 11–12% reductions across all locations
- Significant carbon and cost savings with no operational disruption

These results demonstrate a clear and scalable opportunity across the full estate.

INTERESTED IN ACHIEVING SIMILAR SAVINGS ACROSS YOUR ESTATE?

Get in touch to discuss validated energy-reduction opportunities and multi-site rollout potential.

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