

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

Patented enPact Refrigeration Technology Delivers 19.6% Validated Energy Savings at a Major Frozen-Goods Production Facility

## INTRODUCTION

A large U.K. frozen-food production facility operating high-load cold-store and freezer assets needed a validated solution to reduce rising energy consumption without disrupting production. With continuous refrigeration required to maintain strict product integrity, even modest efficiency gains offered significant financial impact. The business sought a no-downtime, scalable solution that could be deployed across its wider estate.

### SOLUTION

The site deployed the patented **enPact Refrigeration & Cooling** technology to improve the performance and efficiency of its refrigeration systems.

The optimisation works by:

- Enhancing refrigerant flow and heat-exchange efficiency
- Reducing compressor run-time (a major driver of refrigeration energy usage)
- Stabilising temperature control across cold-stores and freezers
- Improving latent cooling performance without changing operational processes

Installation was completed with zero disruption to production or site operations, and savings were validated using ON/OFF comparison periods.

### CHALLENGE

- High refrigeration load across large cold-store and freezer spaces
- Significant daily kWh consumption variation linked to ambient temperatures and production patterns
- Need for transparent ON/OFF measurement to validate true savings
- Rising electricity costs increasing operational pressures
- Requirement for a sub-6-month payback to enable wider site rollout

## RESULTS

### Measured Performance (Actual)

- **19.6% total energy reduction**
- **131,826 kWh annual savings**
- **£40,664 annual financial savings**
- **Payback: 5.06 months**
- **£782 weekly savings**

### Weekly Comparison (Before vs After)

- **Week OFF: 12,905 kWh**
- **Week ON: 10,369 kWh**
- **Weekly savings: 2,535 kWh**

Metric	Quoted	Actual
Savings (%)	20%	19.60%
Weekly kWh Savings	1,424 kWh	2,535 kWh
Annual kWh Savings	74,081 kWh	131,826 kWh
Annual Financial Savings	£22,851	£40,664
Weekly Financial Savings	£439	£782
Payback (Months)	9.01 months	5.06 months

Real-world performance delivered exceptional uplift vs expectations, with kWh, financial savings, and payback all outperforming initial estimates. This confirms a strong, repeatable opportunity for long-term efficiency gains.

### CONCLUSION

The patented enPact Refrigeration & Cooling technology delivered outstanding, validated savings for this frozen-food production site, achieving a **19.6% reduction** and a **5-month payback**.

The strong, repeatable results demonstrate clear scalability across the customer's wider estate, providing a high-value pathway for energy, cost, and carbon reduction.

### OPERATIONAL IMPACT & BUSINESS BENEFITS

- 19.6% reduction lowers refrigeration operating load and stabilises cold-store performance
- Improved cooling efficiency reduces compressor strain, extending equipment life
- Weekly savings of £782 improve cost predictability for production planning
- Fast 5-month payback frees capital for other operational improvements
- Validated ON/OFF savings provide confidence for long-term optimisation planning

## INTERESTED IN ACHIEVING SIMILAR SAVINGS ACROSS YOUR ESTATE?

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

✉ enquiries@emissis.com | 🌐 emissis.com | ☎ 01642 049024

