



# MEAT PROCESSING

This award winning meat manufacturer has 3 decades of experience in both primal and retail and is located across several sites in Europe. The group forms an integrated fresh meat processing and sales outfit selling to a wide and varied client base. A strong reputation, high retail standards and constant Innovation are key to the success of the brand.



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CARBON**

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# THE PROBLEM

The company enlisted Crowley Carbon to ensure that it was equipped to meet the growing market demand for its products. Process and energy efficiency are paramount to meeting its CSR targets while also reducing costs and increasing output. The sub 3 year payback and the energy saving guarantee offered by CC meant that it made good business sense to proceed with the project.

## THE CHALLENGE

- Minimise energy consumption
- Maximise microbiological control
- Optimise surface fat condition and thus downstream productivity
- Cold shortening and appearance
- Manage weight loss
- Optimise loading

## INDUSTRY SPECIFIC ISSUES

- Sub-optimum loading
- Least efficient chiller first
- Peak load occurring during peak electrical cost
- Doors open longer than required
- Wash down just before loading
- Poor defrost management
- Poor fan control
- Excess condensation



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# THE SOLUTION

## BONING HALL

Upgrades to pipework, insulation and coolers.

Controls installed to cool boning hall and provide hot water for wash down

Electronic expansion valves installed on cold store and boning hall plant (existing) to improve efficiency

Pressure switches installed on cold store plant to improve control of compressors



## TOTAL ENERGY MANAGEMENT



COOLING



HEATING

## REFRIGERATION PLANT

Glycol balance: system rebalancing from a refrigerant distribution perspective in order to maximise coil surface area and therefore maximise cooling capacity.

Minimise TD between air and ammonia

The suction setpoint was increased in stages whilst monitoring the air temperature within the chills to increase the yield and reduce energy cost.

## TOTAL ENERGY MANAGEMENT

C3 - Crowley Carbon's bespoke energy management software designed specifically for large scale industrial refrigeration was installed on cold store refrigeration plant to improve efficiency.

Optimisations include:

### Thermal Server

- Optimising discharge pressure based on real time electricity prices and buffer tank volume
- COP monitoring of TS
- Dynamic suction pressure optimisation

### Time scheduling - meter following plant vs time

- Blood chiller
- Vacuum pumps
- Air coolers
- Lights

**Hot water** - Red Amber Green reporting on volume of each water category.

### Compressed air consumption

### Door position vs fridge consumption

- Door limit switches

### Cold Store Condition Monitoring

- Monitor for gas leakage
- Condenser condition
- Defrost optimisation

### Chills Monitoring

- Suction temp
- TD between suction and air
- Discharge temp



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## C<sup>3</sup> SUBSCRIPTION SERVICE

1. Energy mapping
2. Live & historical energy monitoring
3. Energy reporting and quarterly reviews
4. Multi – site comparison
5. Energy consumption forecasting



## THE RESULT

**Savings :** €640,000

**Capital Costs:** €1022,000

**Financed:** In House

**Payback:** 1.5 YEARS

**20% Increase in Process Efficiency**

**Energy Savings = 7,866,666 kwh**

**Carbon Savings:** 2,200T

**Co2 = 4,000T**



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