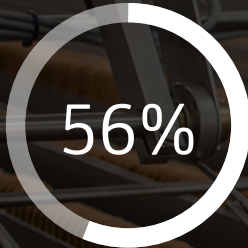


Increase production efficiency to improve narrow margins

Powering profitability for food and drink manufacturers



56%

The percentage of manufacturer respondents who said that investing in energy efficiency technologies was very important for their business¹

New opportunities to stay competitive

Challenged by rising input costs and an uncertain trade environment, as well as the need to continue investment in automation and new product development, how can food and drink manufacturers protect their often narrow margins?

With energy accounting for a significant proportion of operating costs, driving greater efficiency is an obvious area to focus on to improve profitability. Indeed, we believe that new technologies and new approaches to managing energy provide significant opportunities to improve efficiency and reduce costs, enabling businesses both to invest in innovation and to protect profitability. To stay competitive, it is now essential that food and drink manufacturers take advantage of these opportunities.

Persistent pressures

Today's increasingly uncertain markets and a continuing squeeze on margins are putting food and drink manufacturers under intense pressure. Raw material costs are generally on the rise and subject to growing volatility in many categories, labour costs are also rising in many markets, and consumer incomes remain stagnant.

In the UK, average margins currently stand at 5.3%, falling from a long-term average of 6.3% across the sector.² At the same time, the impact of Brexit and a more aggressive US trade policy is significantly increasing uncertainty for manufacturers on both sides of the Atlantic. With Mexico and Canada being the top two destination markets for US processed food products, a trade war could be devastating for America's food and beverage companies – the biggest source of US manufacturing jobs, employing 1.4 million workers.³

Staff shortages and skills gaps make the landscape even more challenging – 57% of UK food and drink manufacturers are experiencing difficulties in recruiting.⁴ In the US, 47% of food and drink manufacturers say availability of skilled workers is the issue most likely to negatively impact profitability, and 71% anticipate employee costs will increase in the next 12 months.⁵

These challenges, coupled with the need to improve productivity, are increasing the focus on automating production processes. Added to which, the relentless requirement to innovate and bring new or enhanced product lines to market makes the need for continual investment even greater. A survey by the Food and Drink Federation found that 89% of food and drinks businesses are actively involved in new product development.⁶ These twin imperatives of automation and innovation not only add to the pressure on margins, but also put capex budgets under strain.

81%

The percentage of food and drink manufacturers who identified volatility of raw material prices as the biggest threat to their business⁷

66%

The percentage of UK food and drink companies who plan to invest in manufacturing automation in 2018 – up from 51% in 2016⁸

76%
FOR FOOD

69%
FOR BEVERAGES

The percentages of manufacturing activities that have the potential to be automated⁹

Achieving efficiencies through new energy approaches

With margins under pressure and considerable demands on both capex and opex budgets, we believe it's essential for food and drink manufacturers to increase efficiency in every area of their business – including energy.

Energy costs for food and drink manufacturers can represent a significant proportion of overheads, particularly in businesses with refrigeration needs and/or heat-intensive processes. Indeed, energy can often account for more than 15% of operational expenditure. A Carbon Trust survey of 2,000 food and drink manufacturer sites found that freezing and chilling accounts for around 50% of all electricity used.¹⁰ With energy prices unpredictable and likely to rise, improving energy efficiency has become an imperative.

Increased automation of production processes, plus greater use of technologies such as AI and IoT to improve productivity, make having an efficient and flexible energy supply even more critical. However, many food and drink manufacturers are currently running ageing and inefficient energy estates, leading to unnecessary wastage and costs.

Simple steps for immediate savings

In many cases, significant savings can be achieved through relatively simple measures, for example:

Replacing older lighting technologies with LED can improve efficiency by up to 90%.¹¹

Installing motion sensors – ensuring that lighting is only switched on when needed – can reduce energy usage by 30%.¹²

But, alarmingly, research by Centrica Business Solutions found that only 21% of manufacturer respondents have implemented energy-efficient lighting at most or all of their sites, suggesting significant untapped opportunities for efficiency gains.¹³

Ensuring that production equipment and processes are working efficiently can also have a big impact on reducing energy usage, for example:

Effective process measurement and control can cut energy costs by 10% according to the Carbon Trust.¹⁴

Maintaining refrigeration systems regularly ensures that they operate efficiently. Blocked, dirty and leaking components can all lead to increased energy demand and costs.¹⁵

Air compressor management – when idling, air compressors still use 40% of their full load and so switching them off when not in use can considerably reduce wasted energy usage. Regular maintenance also boosts efficiency.¹⁶

New efficiency-driving technologies

Switching to more efficient generation technologies – such as solar and combined heat and power (CHP) – can also have a major impact on energy costs.

Saving £400k and 1k+ tonnes of CO₂ a year

For one of Britain's largest bakeries, we installed a 1MWe CHP unit that uses waste gas and water to power its new European plant (the largest in Europe), saving £400k and 1,084 tonnes of carbon emissions per year.

However, a major problem for many food and drink manufacturers is a lack of visibility of how energy is actually being used, preventing them from identifying current inefficiencies. This is where energy insight tools can be invaluable. Advanced sensor solutions pinpoint exactly how energy is being used, right down to device level. Analytics tools are also extremely helpful, identifying key areas to address to improve operational efficiency.

One UK food and drink manufacturer used this technology to spot a sequence of operations errors within its cooling compressors. Data from sensors – tracking energy consumption correlated to ambient temperature – revealed sudden bursts that pointed to a particular mechanical miscalibration. By recalibrating the compressor, they saved £115,000 per year.¹⁷

4th

The food and drink processing industry is the fourth highest industrial energy user in the UK¹⁸

75%

The percentage savings in energy costs that can be achieved by replacing older lighting technologies with LED¹⁹

21%

The alarmingly low percentage of manufacturing respondents who have implemented energy-efficient lighting at most or all of their sites²⁰

1 Energy Advantage Research, Centrica Business Solutions. Statistics based on a six country survey of more than 1,000 energy decision-makers in large organisations.

2 Kill Or Cure, OC&C Strategy Consultants, 2016

3 NAFTA: <https://naftafoodandag.org/facts/#foodmanufacturing>

4 2017 Food & Drink Report, BDO, 2017

5 Food & Beverage Monitor, RSM, 2017

6 Food and Drink Federation, 2017

7 2017 Food & Drink Report, BDO, 2017

8 2017 Food & Drink Report, BDO, 2017

9 Human + machine: A new era of automation in manufacturing, McKinsey & Company, 2017

10 Food & Drink Processing Sector Overview, The Carbon Trust, 2012

11 Centrica Business Solutions: <https://www.centricabusinesssolutions.com/our-solutions/products/commercial-led-lighting>

12 Centrica Business Solutions: <https://www.centrica.com/news/10-ways-reduce-waste-energy-your-production-line>

13 Energy Advantage Research, Centrica Business Solutions. Statistics based on a six country survey of more than 1,000 energy decision-makers in large organisations

14 Food & Drink Processing Sector Overview, The Carbon Trust, 2012

15 Food & Drink Processing Sector Overview, The Carbon Trust, 2012

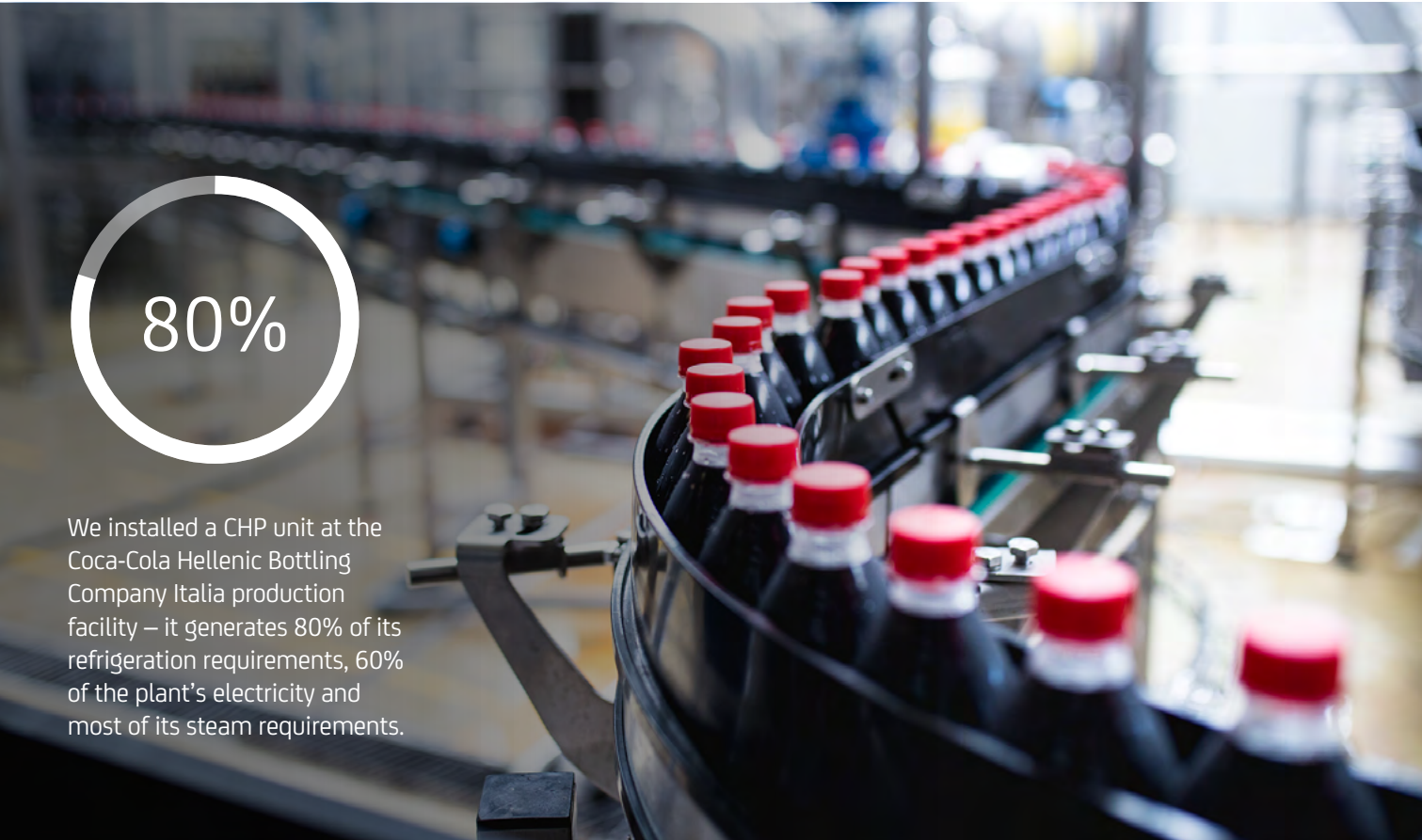
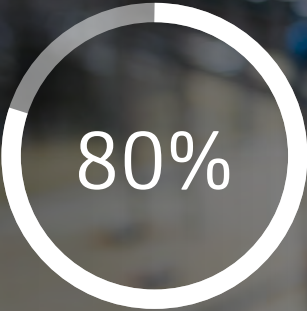
16 Food & Drink Processing Sector Overview, The Carbon Trust, 2012

17 Centrica Business Solutions: Centrica: <https://www.centrica.com/news/energy-management-technology-helps-food-manufacturers-meet-iso-goals>

18 Food & Drink Processing Sector Overview, The Carbon Trust, 2012

19 Centrica Business Solutions: <https://www.centrica.com/news/10-ways-reduce-waste-energy-your-production-line>

20 Energy Advantage Research, Centrica Business Solutions. Statistics based on a six country survey of more than 1,000 energy decision-makers in large organisations



80%

We installed a CHP unit at the Coca-Cola Hellenic Bottling Company Italia production facility – it generates 80% of its refrigeration requirements, 60% of the plant's electricity and most of its steam requirements.

Your priorities

Our experience of working with food and drink manufacturers has highlighted the energy strategies that we believe should be prioritised to achieve the efficiencies that help build a profitable future:

- **Gain better visibility of energy usage** to enable waste and inefficiencies to be easily identified.
- **Improve energy efficiency to reduce operating costs** and enable increased investment in product innovation.
- **Ensure a flexible and reliable energy supply** to support increased automation and use of advanced AI and IoT technologies.

Our solutions

Our work with leading food and drink manufacturers means we are ideally placed to help businesses improve production efficiency through our:

- **Insights and analysis solutions**
 - **Energy insights** provide real-time data and analysis on energy usage to equipment level, enabling identification of areas that can be improved.
 - **Energy efficiency audits** from our experts provide clear and practicable roadmaps for achieving efficiency goals.
 - **Heat monitoring and analytics** generate actionable insights for heat, hot water and steam usage.
- **Energy-efficiency technology**
 - **CHP generation technology** delivers massive energy efficiency gains of up to 85% in processes that require simultaneous generation of heat and electricity.
 - **Energy-efficiency solutions** – ranging from boilers to LED lighting and insulation – enable reductions in energy consumption and cost.
 - **Demand response** – use our market-leading technology to get paid for supporting the grid at times of energy shortage.

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