

Energy insight: the secret sauce to food retail success

March 2018



Energy insight: the secret Sauce to food retail success

Business as usual in food retail relies on critical assets that eat up a lot of energy and are notoriously fickle when it comes to performance. When failures occur – and they frequently do – the damage is not limited to maintenance and repair costs, but includes food waste, lost sales and a tarnished reputation.

Increasingly, food retailers are turning to next-generation Energy Management Systems to keep a finger on the pulse of their critical asset performance.

By benchmarking the incoming data stream for each machine against industry standards, similar equipment, and its own operational records, the system can recognise precursor anomalies in the performance of these assets. In such a case, an alert is automatically issued to the relevant manager(s), before any capital degradation or system compromises can take hold, effectively insulating the operation against costs encroaching on already narrow profit margins.

Introduction

Retail of any kind has its challenges, but nothing can come close to the pressures faced by food retailers.

Whether you're the manager of a small organic grocery or the CEO of a major national chain, narrow profit margins are often accepted as an inevitable part of the market.

But while this acceptance has given food retailers a good idea of what they can expect, it sometimes masks the very real potential for savings and growth. All food retailers can profit substantially by reducing their energy waste.

Causes of energy waste

For the typical commercial operation, about 30% of total energy consumption is waste. This could be a result of building management system overrides, off-hours consumption, or equipment that is run inefficiently. According to one study published in the journal ScienceDirect, most of the energy consumed by supermarkets in the UK is due to refrigeration, followed by lighting and HVAC systems. While all three of those systems are essential

to operations, they're each littered with pitfalls for mismanagement and inefficiency. In other words, most food retail operations leave a lot of room for improvement and waste reduction.

Taking refrigeration as just one example, it's easy to see how improved system visibility can pay off in spades. There can be any number of factors contributing to the ineffective and inefficient performance of your refrigeration units, from depleted coolant levels to poor insulation, to overly low standard temperature settings. And that's holding aside the efficacy and efficiency of your refrigeration equipment maintenance schedules.

The truth is, when you set out to reduce waste within your food retail operation, there's too much involved to manage by hand.



By gaining visibility into the performance and health of your critical systems, you can reduce waste and boost equipment reliability on the path to wider profit margins.

Highlights

- The most accessible path to greater profit for many food retailers is a reduction in business-as-usual operating costs. Towards that end, a thorough contextualisation of energy waste and sub-optimal equipment performance in food retail is in order
- While a proper quantification needs to be undertaken on a case specific basis, the average costs involved in energy waste and sub-optimal equipment performance within food retail are well documented and constitutes significant burden to business success
- There are also ethical and PR considerations that should contribute to any retail operation's eco-waste policies
- All this born in mind, one ought to consider the role of connected technologies in creating actionable and accountable operational insights

Financial incentive to rethink energy management

According to the U.S. Environmental Protection Agency's ENERGY STAR program, for supermarkets, every \$1 saved by increasing energy efficiency is equivalent to a sales increase of \$59. The next time you hear someone complain of thin margins in food retail, remember that number.

But savings on the back of energy insights go way beyond turning the lights off at the end of the day. Aside from eliminating the costs of excessive energy consumption, an operation that pays close attention to its energy signature, is in a better position to optimise equipment performance and diminish failure rates.

Unless you're new to food retail, it's no secret that system failures carry costs that extend beyond those of simple repair. When an air conditioner breaks, potential

customers may leave and take years of weekly business with them. When a refrigerator breaks down, you're looking at lost sales and hundreds of items in the trash — and that's if you catch the problem before a customer takes home a food item that was not safely stored. You need your refrigeration units, compressors, condensers and lighting to be working efficiently 24/7, and you certainly can't afford to accept expensive, avoidable malfunctions as just part of the job.



Social incentive to rethink energy management

Also according to ENERGY STAR, a typical 50,000 squarefoot supermarket in the U.S. will pay more than \$200,000 every year for electricity and natural gas. That's a significant cost to the company, but it also costs the environment. That amount of energy consumption works out to roughly 1,900 tons of CO₂ emissions.

As our society, and in turn our governments, have become more aware of the impact of industries on the earth, businesses have been made subject to sustainability and energy efficiency initiatives. Whether you're looking at a fine or a rebate, saving energy is in your own best interest. Here's an example along the regulatory angle: According to new US energy efficiency

Regulations for any new commercial refrigeration equipment and walk-in coolers and freezers, stores will now be required to reduce energy usage between 20% and 50%.

It's not, however, just a matter of meeting statutory regulations. Companies are increasingly expected to demonstrate their social consciousness and environmental responsibility.

Far from trivial, with the rise of voluntary certification programs (ENERGY STAR, B Corp, Carbon Trust Standard, EMAS, Forest

Stewardship Council, ISO 14001, MCERTS, and CSR RepTrak[®], etcetera) and the subsequent command of public interest, the pressure for companies to place positively within those programs is intense.

Some best-in-class food retailers have embraced this business forward mentality in their Corporate Social Responsibility commitments. One example is Kroger. The chain has received tremendous positive press and bolstered customer loyalty while simultaneously managing to save itself money and protect the environment with its pledge to – and more importantly, its follow through on – reducing its carbon footprint.

No longer is corporate environmental responsibility a matter of positive press, but it's an absolute must for any company that values western markets. The public is more demanding than ever and you can be sure that with or without regulations, people will be voting with their wallets.

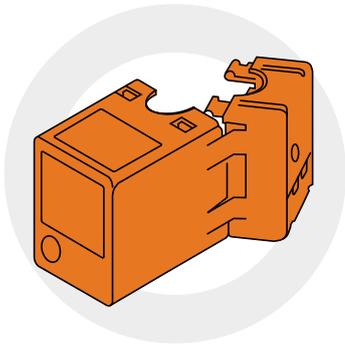


U.S. will pay more than
\$200k
every year for electricity
and natural gas.

“
The public is more demanding than ever and you can be sure that with or without regulations, people will be voting with their wallets.”

Putting together a recipe for success

That's where a device level energy management system (EMS) comes in. Through its smart sensors, an advanced EMS affords managers a much more granular visibility into the inefficiencies stemming from each device in their operation.



In practice, smart sensors assess performance and provide realtime analytics to stakeholders.

No longer needing to wait until month's end to gain limited, broad-stroke insight into energy consumption via an electric bill, or partial data from a BMS, store managers leveraging device level EMS technology have ondemand access to equipment performance information; shining a bright light on operational improvement opportunities.

In practice, smart sensors assess performance and provide realtime analytics to stakeholders. When monitoring energy consumption, this data feedback enables improved operational efficiency and allows users to preempt failures, first at the device level and then at the system level.

In the past, businesses undertook to solve problems as they arose. A refrigerator fails, so you throw out the milk and call in someone to repair it. This approach and its associated waste eventually gave way to a more proactive model wherein businesses would call in help before a problem presented itself. A refrigerator is doing fine, but every three months you have someone come look at it just in case.

The downside to a preventative regiment, of course, is that it involves some degree of totally unnecessary downtime and maintenance – both expensive. Now, with the ability to easily deploy smart sensors our Panoramic Power self-powered wireless sensors, are installed simply by clipping the sensors to the relevant circuits), there's a better way. A prescriptive way.

With a virtual dragnet for early stage malfunction and waste detection in place, managers can have their equipment maintained only when the need arises and still before material degradation, system hindrance, or operational failure occurs.

With a simultaneously comprehensive and granular degree of oversight, you can look beyond simple malfunction and repair. By benchmarking the incoming data stream for each machine against industry standards, similar equipment, and its own operational records, the system can – for example – recognise cooling cycles that are more frequent than necessary. Addressing that kind of issue is good for the environment and great for your profit margins.

Why Panoramic Power?

There are plenty of EMS platforms, but Panoramic Power Energy Insight is unique in its simple sensor installation and next-gen data processing.

With our Panoramic Power unobtrusive, wireless, selfpowered sensors, you don't need to tear anything up or power anything down in order to deploy. Wiring every critical asset in your store just means snapping sensors onto power cables at the device level.

There are many different types of EMS platforms available today. Some monitor on the building level, on the floor, panel level or system level.

However, monitoring on the device level provides the most granular visibility possible. While other EMS or BMS (Building Management Systems) send data every thirty seconds or every couple of minutes, Panoramic Power aggregates data every ten seconds before sending it to a communications bridge, where it uploads to the Cloud for machine-learning enabled data processing. You might think that the difference between ten seconds and thirty seconds is small, but in the world of electricity it's an eternity.

A surge strong enough to overwhelm your equipment and cause a total system shutdown can easily occur and recede within a span of seconds. A one thirtieth view into your energy draw includes enormous gaps in your visibility. The larger the gaps, the longer it will take to detect consumption patterns that deviate from the acceptable range.

Drawing on deep learning data insights, our Panoramic Power PowerRadar sends realtime alerts to site managers and generates automated, detailed and actionable reports. Benchmarking amongst devices, sites and regions helps detect suboptimal operations. When appropriately leveraged, return on investment for the Panoramic Power energy management system is often achieved within six months.



Chart your course to tomorrow: Stay current, stay profitable

The Internet of Things is a phrase used to describe how physical “things,” meaning devices and sensors, are intelligent, connected and able to collect and share data. Everything we’ve mentioned until now is in fact an example of how food retail businesses can benefit from the Internet of things.

Ignore it at your own peril, the Internet of Things has arrived. The only part that’s up for debate is whether or not you will use it to benefit your store. According to Keith Mercier, Global Retail Leader for IBM Watson, there could be as many as 30 billion devices hooked up to the IoT by the year 2020. By that same year, the economic value-add for the IoT across sectors is projected to read \$1.9 trillion. Far from an exception, food retail in many ways epitomises the value add potential of the Internet of Things.

According to Michael J. Higgins, senior vice president of marketing, strategic planning & business development at Hussmann, implementing an effective IoT strategy can allow retailers to “significantly improve, automate and refine business processes, reduce operational costs, integrate

channels, and most importantly, better understand and engage with customers.” Of course, this goes well beyond smart energy systems, but all the same, will little risk, high reward and virtually unlimited expansion potential, there’s no more reasonable place to start. As early as tomorrow morning, you can start decreasing energy costs and leveraging the power of smart, connected infrastructure.

The constant quest to decrease costs and increase sales has weighed on the minds of food retailers for generations, and never before has there been such a large piece of the puzzle so readily available. The technology to cut energy costs, boost system performance, and extend equipment longevity exists, it’s just a question of whether or not you choose to make use of it.

“

The technology to cut energy costs, boost system performance, and extend equipment longevity exists. It's just a question of whether or not you choose to make use of it.”





Panoramic Power Energy Insight is the leading provider of device level energy management solutions, enables businesses to optimise their energy consumption and improve system level performance and facility operations. Using affordable real-time wireless sensor technology and a cloud-base analytics solution, companies across a wide range of industries gain critical and continuous insights into their energy usage and are able to optimise operations, processes and maintenance resources. To learn more about energy management solutions and corporate sustainability, visit www.centricabusinesssolutions.com/energy-insight

centrica
Business Solutions

centricabusinesssolutions.com

©2018 Centrica plc. Registered office: Millstream, Maidenhead Road, Windsor, Berkshire SL4 5GD. Registered in England & Wales No. 3033654

WP-2018-8-UK_EN