Focus your energy in the right place to unlock the hidden savings

Jonathan Smith, a member of GAMBICA's Variable Speed Drives Group and a leader of Rockwell Automation's Power and Control business, argues that industry should be focusing on interconnecting enterprises to unlock production efficiencies and reduce energy consumption.

Recent years have seen a shift towards energy efficiency as a way of reducing costs in manufacturing and industry. Legislation has pushed in the same direction for the sake of meeting emissions targets and ecological needs as the world's natural resources bear the strain of the rapid growth of the global consumer market.

The UK's Carbon Trust estimates that 40% of all energy consumption is by motors and drives. There are 300 million motors in use in industry, infrastructure and large buildings, and that figure is increasing by around 10% (30 million) per year. According to the US Department of Energy, consumption by manufacturers worldwide is projected to increase by 75% between 2010 and 2030. The world is becoming more, not less, thirsty for energy; and efficiency is becoming increasingly important.

Any vendor of drives into the EU must now comply with the Ecodesign of Energy Related Products Directive 2009/125/EC. The legislation was developed in part by listening to equipment vendors through European Union working groups, and as such the industry had an opportunity to input to the final directive.

Despite the nature (and benefits) of a competitive market for industrial solutions, there are times when working together is very important for the good of industry – and indeed the environment. At such times, membership of an organisation such as GAMBICA is very important. When EU directives are being considered, GAMBICA makes it possible for UK vendors to represent the industry in the working groups, for example.

Capturing data available from automation systems is fundamental to the connected enterprise

But it doesn't stop there. It's also very important that end-users understand the environmental imperative and the business case for reducing energy usage to have a sustainable business model in a competitive global economy. It would not be good for the UK economy if our manufacturing were to lose ground to more efficient manufacturing around the world, and GAMBICA has a very important role in helping to deliver this message in a non-partisan manner.

It goes without saying that the Ecodesign of Energy Related Products Directive is helping to make UK manufacturing and industry more energy-efficient, and that this is a very good thing. By making products more efficient, it stands to reason that the industries that use those components will become more efficient.

It's also widely understood that variable-speed drives, for example, are vastly more efficient than older fixed-speed drives that use valves or dampers. Moreover, modern drives can collect output data that allows managers to understand exactly what a particular drive is using – as the adage goes, "you can't control what you can't measure". What we're seeing more of now, in the world of the modern Connected Enterprise which is typically empowered by the use of Ethernet/IP, is how the joining together of data from across the plant can offer many more ways of measuring and many more subsequent ways of reducing power consumption.

Capturing the data available from modern drives and other systems on operational technology (OT) is fundamental to The Connected Enterprise idea, but data without context is not an asset. To get the best from the data collected and to transform it into actionable information, it needs to be visualised in the Information Technology (IT) function of the business.

An effective IT/OT network can deliver performance-critical information for real-time decision-making by allowing it to be viewed in context as well as against historical performance data. It can quickly show levels of energy usage, for example, and highlight instantly if a pump or fan is working harder than it should, or if any part of the system is drawing more power than normal.

Management of KPIs such as energy usage become much simpler with data visualised and accessible, not only on the plant floor, but throughout the company, and in real-time, to the decision-makers capable of turning this information into quantifiable productivity improvements. This highlights another fundamental aspect of The Connected Enterprise and its ability to enable smart manufacturing initiatives including Industrie 4.0 – namely that it's a process of on-going review and assessment; a culture of incremental gains based on information that can drive continuous improvement and better efficiency so that industry can remain sustainable and competitive in the global market.

With a further one billion consumers widely predicted by 2020, there is a rapidly growing global market to service – which is a fantastic opportunity for UK industry. To leverage this opportunity, now is the time for our industry and manufacturing to concentrate on connecting the enterprise to unlock production efficiencies through both process optimisation and energy reduction. ■