



Klöckner Pentaplast - A Global Energy Task Force on a Mission

Klöckner Pentaplast ("kp") is a global manufacturer and one of the leading suppliers of sustainable plastic packaging products, serving customers around the globe with rigid and flexible packaging, as well as specialty film solutions in the pharmaceutical, medical device, food, beverage and card markets, amongst others. The global leader in recycled content products and high barrier protective packaging is purpose-driven to deliver the sustainable protection of everyday needs. With over 50 years in business, kp plays an integral role in the customer value chain by safeguarding product integrity, assuring safety and consumer health, improving sustainability and protecting brand reputation. Kp has corporate offices in London UK, Montabaur Germany, and Gordonsville Virginia, USA with a total of 32 facilities in 18 countries, with ca. 5,900 employees worldwide.

In 2019, as part of a broader focus on sustainability, kp established a Global Energy Task Force to address the challenge of energy usage in our manufacturing plants, to drive energy efficiency in operations, and reduce our environmental impact. Having only joined kp in early 2020 and becoming part of the task force, I instantly recognised and was inspired by the skills and knowledge of my colleagues, with decades of manufacturing excellence experience. Together, we have set our sights on energy to help achieve our sustainability goals. Here is how!

The Energy Task Force has developed a coordinated approach to seek out areas of improvement in energy, building on all the great progress over many years at kp, in operating efficient manufacturing plants. It consists of a cross-functional team of circa.100 experts or 'Energy Champions', with different expertise across Operations, Engineering, Maintenance, Procurement and Business Excellence. By coordinating activities, we can better achieve our desired outcomes. The diversity of skills, knowledge and experience in the team is a key strength, providing clarity and imagination to approach energy in a holistic way. A critical factor in ensuring the success of

the Energy Task Force was having a clear mandate from the Executive Team with a governance process to ensure targets and regular progress updates.

Early tasks involved building robust analysis tools and energy performance indicators (KPIs) standardised across our plants, which is key to demonstrating results. Next was to set a clear target: reducing normalised global energy usage by 3% annually against the 2019 baseline. This is a challenging target when benchmarked against our competitors in the sector.

We use our understanding and analysis of energy consumption and costs to drive ideas from the bottom-up. Whether it is optimising maintenance regimes, adjusting plant operations or investing in new equipment, our site teams know their plants better than anyone else. Furthermore, they understand the natural synergy

between energy efficiency and improved productivity. The spotlight is on translating ideas into energy saving projects with strong business cases that make commercial sense.

Given our global footprint, sites have developed tailored energy action

plans to improve performance, aligned with their local energy cost and regulatory environment. A 'one-size-fits-all' approach is not possible as some technologies will work well in one location and not so in others. It starts with doing fundamentals well and tackling the 'low hanging fruit'. The interesting thing about 'low hanging fruit' is they grow back and need to be continuously picked, so many projects need to be tackled each year. To support our efforts, we have created a Toolkit for facilities around the world to identify best practices that will help them reduce energy consumption, and in turn, emissions.

Finding and fixing compressed air leaks is an example. Every year we review our compressed air systems and seek to optimise performance in reducing system pressure, fixing leaks, decreasing manufacturing equipment demand, and upgrading compressed air equipment.

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We use Energy Workshops or 'Kaizen events' to generate energy saving ideas. The approach is grounded in the principles of the Plan-Do-Check-Act (PDCA) continuous improvement frameworks which, given kp's long and distinguished manufacturing history, are already integrated into business processes. It is a matter for harnessing these existing levers for energy. Kp is continuously investing in replacing less efficient old equipment with high efficiency technologies in existing plants.

The list of projects and innovations in energy efficiency at kp are growing at considerable pace. So far in 2020, there are over 50 projects globally reported in the Energy Task Force programme across different technologies

– compressed air, process cooling, LED lighting and high efficiency motors and drives. We will continue to complete energy efficiency projects, supported by our energy action plans, and report the savings resulting from those efforts. We are also exploring the opportunity for on-site generation of renewable electricity using solar panels.

We launched a 'Battle of the Base Load' campaign to tackle energy consumption that is not directly attributable to the manufacturing process – i.e. the energy 'overhead'. A proportion of energy used in plastics manufacturing is a base load and can be reduced with an effective plan – e.g. shut-down & start-up procedures, tackling processes held at temperature during downtime, reducing air leakage, adjusting cooling water set points. We have developed a lens to visualise and measure the base load, to focus minds on reducing it in day-to-day operations.



“ COMMUNICATING THE LESSONS LEARNED, EXPERIENCES AND RESULTS OF DIFFERENT IDEAS IS A KEY SUCCESS FACTOR FOR ANY PROJECT. ”

Key future areas of focus also include installation of energy-efficient motors, recovering waste heat from our processes, and improved energy monitoring systems to better visualise and measure energy. We are constantly seeking insight into energy performance at facility, process and machine level. Better energy monitoring in manufacturing plants is a key lever to the long-term success of energy efficiency.

Luckily, there is already a strong best practice sharing culture at kp, and the work of the Energy Task Force builds on this foundation, with process updates from each plant, discussed with the global team at regular meetings. Communicating the lessons learned, experiences and

results of different ideas is a key success factor for any project. Energy teams – like all others in manufacturing environment – must work in collaboration to achieve mutual goals.

Immanuel Kant famously asserted that “to will the end, you must also will the means”. Overall, at kp the direction of travel is set and the end goal established. Our emphasis now is to ‘will the means’ with a clear global action plan to do more with less resource usage, and meet our sustainability goals. The Energy Task Force is on a mission, and – as all readers of this magazine will know – one of the joys of working in energy is that there are constantly new challenges, innovations and opportunities ahead.

Author's Profile:

Ethan O'Brien is Group Energy Manager at Klöckner Pentaplast. Ethan is a regular contributor to The EMA Magazine. He is a Full Member of the Energy Institute (MEI) and a Chartered Energy Manager. Ethan won a '35 Under 35' UK Environment Media Group award in 2018. Ethan holds a master's degree from the University of Edinburgh Business School.