

Six Strategies to Improve Energy Efficiency at Food & Beverage Facilities - Northmore Gordon

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Removal covers activities that permanently remove CO₂ from the atmosphere such as new forestry plantations, soil carbon improvement or carbon capture and storage. certificates Live Certificate Prices The value of certificates change day-to-day, check todays prices Solar VEECs (VEU PBA) VEU PBA for Large-scale Solar Measurement & Verification (VEU & ESS) M&V; for Large C&I; Efficiency Projects (VEU PBA & ESS PIAM&V;) BESS Calculator Estimate the Peak Reduction Certificate revenue available to your NSW battery project in minutes ERF & Carbon Credit Registration ACCUs for Emission Reduction Projects Boiler Upgrades (VEU & ESS) NSW & VIC Boiler Rebates REC Registration (I-RECs & LGCs) Register renewable assets for I-RECs and LGCs Trade RECs & Carbon with us Trade Local & International Environmental Attribute Certificates moREnewable100 (RECs & Offsets) Reach Global Sustainability Goals with Certificates and Offsets Deemed Certificates (VEU & ESS) NSW & VIC Rebates Global Certificates Environmental Attribute Certificates Australian Programs Australian EAC Programs Case Studies Sectors Articles Team More Close More Open More Northmore Gordon Learn more about Northmore Gordon with the latest news and insights, were to find us, and the extensive terminology used in emissions reductions About Us Who we are & what we do in energy efficiency & decarbonization. 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With most organisations attributing over 15% of their operational costs to energy consumption, there is an immense opportunity for improved energy efficiency to lower their organisational operating costs and contribute toward corporate emission reduction targets. Read on to discover the six energy efficiency strategies that food and beverage organisations should consider for their facilities. Strategy 1 — Review Compressed Air Distribution System and Compressed Air Use Optimising a manufacturing plant's compressed air distribution system is an effective way for the plant to reduce its carbon footprint and save a considerable amount on operational expenses. For food and beverage plants, it is common for 10-40% of total energy costs to go toward the generation and distribution of compressed air. Considering that energy costs make up 80% of an air compressor's total cost of ownership, it is clear how efficient equipment and system maintenance can lead to significant savings. To optimise the compressed air system, it is important to eliminate the amount of compressed air lost through leakage. It is not uncommon for a facility to lose up to half of the energy expended to generate compressed air on leakages. Identifying leaks and repairing these enables facilities to improve their energy efficiency and reduce consumption. Although identification of major air leaks can be detected by listening for the leaks in non-production periods, a more robust and detailed analysis typically requires specialised equipment and an experienced technician. Another issue is that a plant may use compressed air inappropriately. For instance, some operators may use compressed air to clean equipment, which is wasteful and can potentially give rise to Occupational Health and Safety (OHS) issues. Instead, vacuuming or sweeping away debris is a safer and more energy-efficient means of cleaning. Strategy 2 — Review Steam System Due to the integrated role steam has throughout a facility, it is critical to have a comprehensive understanding of the plant's heat flow and temperature requirements to make effective improvements to the plant's thermal energy processes. Like compressed air distribution

systems, steam piping and valves are subject to leakage and subsequent wasted energy. Repairing leaks is a sensible start to reducing a facility's steam requirement. Insulating steam piping and valving to prevent heat loss will also reduce demand on the boiler, which lowers fuel consumption and creates a safer work environment. Beyond insulation and leak repair, there are several other energy-efficiency best practices that can be used to optimise steam generation systems: install an economiser on the boiler to utilise untapped energy from the boiler waste heat stream install an oxygen trim on the boiler to monitor and adjust combustion air to maximise combustion efficiency through the minimisation of excess air. Not only does this enhance overall boiler efficiency, but it can assist with stack emissions compliance. install variable speed drives (VSDs) on the induced draft and force draft fans to adjust the fan speed in accordance with demand optimise boiler sequencing in multi-boiler installations through a boiler management system maximise condensate return Industrial heat exchange, or heat recovery, provides a source of clean, reliable thermal energy. Capturing and utilising the energy potential of a return heating stream is an effective way to reduce boiler demand, save on fuel costs, and reduce emissions. Because it is more energy-efficient to create hot water than it is to generate steam, it is also worth assessing heating requirements to determine if hot water can replace steam. Strategy 3 — Consider Implementing Heat Pumps A heat pump can potentially provide for many of a facility's hot and chilled water needs. For hot water needs up to 90°C, an industrial heat pump is extremely efficient, requiring only a third of the energy needed to power a traditional hot water heater. For more domestic needs, such as hot water for staff amenities, a commercial heat pump set at 60 – 65 °C can be used. Commercial heat pumps can also chill water, some creating temperatures as low as -9°C. Using CO₂ as a natural refrigerant instead of a chemical alternative, commercially available heat pumps also help improve a facility's carbon footprint. In many cases, the operational efficiency of heat pumps make them a viable alternative to be considered when determining how to reduce carbon intensity and cut energy costs. To further reduce heating and cooling demand, the required temperatures for various applications should be assessed. It may be that cooler temperatures will suffice for various hot water applications, such as using 60 °C water in place of 70 °C water for cleaning purposes. In some cases, warmer temperatures – or even ambient temperature water – may suitably serve a plant's cooling water requirements. Changing the temperature of a heating or cooling medium may result in larger heat transfer areas being required, longer heating and cooling times, and proof of cleanliness being compromised. Therefore, several factors need to be considered before making these temperature adjustments to ensure the continuation of quality operations. If deemed viable, adjusting the water temperature profile across the processes and maximising heat regeneration across the plant will help reduce heating and cooling energy requirements, aiding energy conservation, emissions reductions, and cost savings. Strategy 4 — Reduce Cooling Requirements To reduce the cooling requirements for refrigerated rooms, it is imperative to minimise cold air escape. Firstly, it is important to limit the time that the refrigerated room is directly exposed to ambient air, which occurs whenever the door to a refrigerated room opens to an ambient space. When this happens, cool air migrates to the warmer environment, leaving a void to be filled by fresh air that needs to be chilled through the refrigeration system. One way to limit this exposure to the outside environment is to install roll fast doors that are activated using push buttons or vehicle sensors in the floor. Another strategy is to incorporate an airlock between the refrigerated room and the warmer external space. Additionally, it is important to ensure proper insulation around doors and other penetrations to prevent cold air from escaping through holes and cracks. An infrared gun can be used to identify cold spots resulting from a leak. Lastly, a facility should assess if it keeps its refrigerated space at an appropriate temperature. If the temperature can be slightly raised — from 1°C to 3°C, for instance — then the facility will require less energy to maintain suitable conditions. Strategy 5 — Enable Pump Systems to Match Demand Prioritising energy efficiency is important when considering a pump, fan, or other pieces of motor-driven equipment. Pumps are used for transporting ingredients, products, utilities, and effluent, making them one of the most frequently installed pieces of equipment in food and beverage plants. It is common for pumps to account for 25-50% of a facility's total electrical usage. Reviewing and optimising the operating conditions of pumps and similar equipment can therefore have a significant impact on a plant's energy efficiency and operational expenses. Significant opportunities exist to reduce pumping system energy consumption through smart design, retrofitting, and operating practices. In particular, pumping

applications with variable-duty requirements offer great energy and cost savings potential. Pump systems are often oversized, many by more than 20%. If a pump demand varies, retrofitting oversized systems with VSDs can better match pump output to system requirements. This retrofit can save considerable amounts of energy, as well as enhance performance, improve reliability, and reduce life cycle costs. If a process' flow requirement is constant, then a properly-sized replacement pump may be a consideration, or alternatively, the existing pump could be throttled through flow rate control to conserve energy. Similar to pumps, fan motors can benefit from the installation of VSDs. Whether the fans are on boilers, refrigeration units, or other equipment, a VSD Variable Speed Drive enables the fan motor to conserve energy while more accurately meeting demand. Strategy 6 — Maximise Capacity Processes are generally most efficient when equipment is operating at maximum capacity. For instance, it is more efficient for a two-boiler system to have one boiler running at maximum capacity rating (MCR) with the other on standby than to have both boilers operating simultaneously at 50% MCR. Similarly, organisations that produce the same product at different sites, such as sprayed dried whole milk powder, should consider conducting long runs at one site while the other location temporarily shuts down. This has the potential to be more efficient than doing short runs across both sites as frequent equipment startups and shutdowns lead to an increased amount of non-productive energy and resource consumption, resulting in less energy-efficient operations. For industrial food and beverage facilities, there is often a significant opportunity to improve energy efficiency with existing infrastructure. By exploring ways to improve thermal energy retention and optimise systems to meet energy demand, facilities can identify strategies that result in considerable cost savings and improved energy efficiency. Northmore Gordon helps industrial food and beverage facilities realise these savings. Our team of energy experts can help to identify and implement energy-saving strategies as well as to measure their impact. We are committed to finding energy solutions that meet industrial facilities' corporate needs. Contact our team to enhance your facility's energy efficiency strategy. Economy Supply Chain , Energy Efficiency , Food and Beverage You may also like: Welcome to our August & September 2026 Compliance Update. Australian Certificate Markets – August 2026 Update Where's the value in renewable heat? Latest Updates ASRS Group 3: are you in scope and don't know it? September 18, 2026 Correct as at 13 September 2026. 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