

## Meeting new EU regulations for energy efficiency and carbon emissions – the clock is ticking and we can help

**The European Union wants to cut greenhouse gas emissions by 2030 and has brought in new regulations on energy efficiency to achieve this. It is essential that companies know what they have to do to comply with these legal obligations but not everyone is up to speed with the most recent changes.**



The European Union (EU) is in the process of making a 'green transition' and wants to reduce greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels. As a result, there is huge pressure on businesses who operate within the EU to make changes now. But what changes are needed and what's the best way of making them? In the fast-moving industrial sector it can be difficult to keep up with regulations and the EU has said it wants to speed up the process of becoming 'climate-neutral'. The situation is fluid and confusing.

### **Optimising energy efficiency**

The EU's new 'Fit for 55' programme requires companies to follow strict emissions trading system (ETS) regulations while putting energy efficiency measures in place and moving towards adopting renewable energy. To comply with Fit for 55, businesses must make significant investments in sustainable practices and

technologies, optimise energy use and carry out regular monitoring and reporting of emission levels.

This means preventive maintenance, with equipment checked and inspected on a regular basis to avoid serious and costly problems. The only way of doing this efficiently is to use advanced testing and monitoring equipment.

In terms of making significant energy and cost savings while reducing environmental impact, one of the most widely used programmes in this area is the ISO50001 international standard for energy management systems. Providing a framework for organisations to implement a comprehensive energy management strategy, the standard enables companies to manage and improve energy performance while boosting energy efficiency by setting targets and measuring results against them. Carrying out energy audits is essential because they enable businesses to identify and tackle any issues. An audit typically involves analysis of



energy consumption throughout a business, assessing the efficiency of all equipment and systems and suggesting the best energy-saving solutions.

To achieve all of the above, companies need accurate data from which they can gauge efficiency levels. They need to be able to collect it easily and cost-effectively and to have the option of sharing the data with third parties, either purely for reporting purposes or for the relevant parties to take whatever remedial action is required.

### Identifying the baseline

A major challenge for many companies is knowing where to start. Before they begin to make any changes they must understand how energy is distributed and consumed across their industrial facility... and by which equipment. Of particular importance is identifying which sub-systems consume the most energy. For example, how many motors and compressors are there, how big are they and how are they controlled? How is energy consumption logged in terms of kW, kWh and power factor? It is vital that engineers check the company's energy profile directly against what is actually happening on a daily, weekly or monthly basis.

Engineers also need to measure, log and compare parameters and assess power quality. Consistent and reliable power quality is essential for equipment to work as efficiently as possible. Poor power quality, often the result of harmonic distortion or high currents, can not only cause equipment to operate at sub-optimal levels but can also lead to greater amounts of expensive energy being consumed unnecessarily.

If companies take all of the above onboard, it will go a long way towards preventing downtime by ensuring they have a proactive maintenance plan and effective troubleshooting capabilities that can nip

problems in the bud before they become catastrophes.

### Temperature is energy

One of the key factors in achieving optimal energy efficiency is to understand that temperature is energy. This means that if there are unexpected hotspots in a factory these are an indication that energy is escaping, it is not being managed effectively and energy output is being unnecessarily inflated. Higher temperatures can also lead to costly production downtime through equipment overheating and even represent potential fire hazards.

Cost reductions are a major element of the Fit for 55 programme and preventing energy loss can make a significant contribution to these savings. The argument goes that by becoming more energy efficient and reducing temperature levels, companies not only minimise their carbon footprint, they also boost productivity and keep machinery and equipment running at maximum levels. This in turn reduces downtime and has a positive impact on operational costs. Again, having easy-to-use, highly accurate measuring and monitoring devices will enable businesses to tackle temperatures and keep them under control.

### Using tools designed for optimum efficiency

We've established that the best way to reduce industrial CO2 emissions and minimise energy wastage is to carry out regular, preventive inspections before problems become insurmountable and/or too costly. Many companies have already started along the path of improving energy efficiency, permanent monitoring of power quality and focusing on reducing their carbon footprint. However, with ever-increasing global demand for energy,



consumption levels have inevitably risen. As a result, businesses are going to need the most powerful and effective tools on the market to meet the challenges that have been set by these latest regulations from the EU.

Optimum efficiency is the goal and temperature losses, for example, can be identified easily by using a thermal imaging camera. A thermal imager provides a visual guide to temperature change and is an ideal tool for predictive maintenance. The device can identify and diagnose temperature issues with motors, transformers and drives, electrical panels and HVAC ductwork. They can also detect problems with water lines, even in walls, ceilings or roofs.

Likewise, an energy logger is designed to record energy consumption. It can perform energy, load and power quality studies over a set amount of time, offering vital insight into an electrical system's overall health. Armed with this kind of data, businesses can decide the best course of action to prevent costly equipment damage.

A power quality analyser can take the logger's information and go one step further by supporting troubleshooting and analysis operations. However, it is essential to choose the correct type of analyser for a plant's specific needs. For example, analysers can have different sampling speeds while some lack the ability to capture event data that might be critical in identifying electrical problems. Depending on the problems a business is experiencing, an analyser that has a 1MHz sampling rate to capture fast transients might be the best option. Alternatively, a speedier 20MHz sampling rate will capture the fastest transients in much higher detail if this is what is required.

Another major issue businesses worry about in terms of plant efficiency is how to pin-point losses in compressed air, gas and vacuum systems. However, this needn't be a concern because the process can be simplified through the use of acoustic imaging cameras and ultrasonic leak detectors.

It's often the case, especially in the food and beverage industry, that the reliability of predictable air pressure is vital to keeping a plant up and running. This means even small leaks can cause large issues and be a source of energy loss. Instead of having to check every pipe manually, shut down operations to listen for leaks or use the water and soap method to run checks throughout the building, acoustic imaging cameras and ultrasonic leak detectors make it much easier for engineers to find air, gas and vacuum leaks in their compressed air systems.

Finally, power loss levels can be identified using an energy loss calculator which also means that businesses can now effectively monetise poor power quality levels. And all of the devices above can be augmented by such troubleshooting products as battery analysers and clamp meters.

Of course, devices that are used in an industrial environment need to be rugged and reliable but the biggest differentiator for equipment from Fluke is ease of use. Operators today have major demands put on them in terms of keeping machinery and systems working at peak efficiency, so it is a significant advantage to have access to devices that immediately indicate what the problem is and provide easy to understand guidance on how to tackle it. Armed with monitoring and troubleshooting devices from Fluke, operators can achieve their emission reduction goals much faster than would otherwise have been possible without the need for

extensive professional training and education, particularly in analytics.

## Conclusion

Managing energy conservation isn't a one-off task. Instead, it should be treated as an ongoing improvement process and businesses must understand that using the most appropriate products can make the process much easier and more efficient.

It's said that the ultimate measure of an organisation's energy efficiency is its electricity bill – a bill that is too high means that energy efficiency is too low. That's why operators are prepared to welcome anything that will speed up the process of them meeting the latest EU targets because they will be able to keep their energy costs down. Timing is crucial with just six years to go and it is essential that businesses put solutions in place today that will enable them to meet such demanding energy efficiency goals by 2030. Fluke's solutions have been designed to enable users to work faster and more efficiently, significantly cutting costs while simultaneously protecting the planet.

Read more about Fluke's commitment to industrial energy efficiency and its range of tools that can make it happen in some of the other articles on this page.

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