

THORNHILL

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ISO 50001 Energy Management Systems Implementation Case Study Thornhill Heat Exchangers



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Thornhill Heat Exchangers Ltd, incorporating Bells Heat Transfer Ltd, is a world leader in the servicing, manufacture and supply of heat exchangers and of aftermarket plate heat exchanger gaskets. Founded in 1988, it operates from a manufacturing and servicing site in Yorkshire, and has comprehensive production facilities that boast one of the largest gasket compression presses in the UK. The company takes pride in operating the most efficient and environmentally friendly manufacturing facilities in the marketplace and is committed to adopting good environmental practice in its day to day business.

Servicing plates and manufacturing gaskets takes copious amounts of energy. The facilities at Thornhill have capacity to service over 100,000 plates annually. The company wanted to reduce energy use, verify how much is being used and where. Thornhill undertook a series of four workshops facilitated by Projective – engineers specializing in preparing manufacturing companies for implementation of the standard.

Aims

- Ensure compliance
- Operate low carbon footprint
- Reduce energy use

Benefits

- Immediate costs savings identified
- Development of an energy management policy
- Demonstrate commitment to customers

Background

The decision to implement ISO 50001 was taken by Thornhill's MD Mike Thornhill. He is candid about his reasons. "First and foremost I wanted to save costs. But I also want to ensure that our quality standards remain at the forefront of everything we do. Already certified to ISO 9001, which in itself has a stringent environment requirement, it makes complete business and commercial

sense to ensure we are compliant with the most up to date energy management standards and operate with a low carbon footprint. For our clients too it is important for them that we consider energy management and set an example within our industry."

Getting started

Mike sees energy management working at a number of levels. "Work will have to be done to create awareness within the manufacturing facilities, but I believe that the workshops themselves will achieve this simply by raising the issues of what we are doing now and why." The second level is to run all manufacturing equipment in the most efficient and effective manner and the third level is to ensure that current manufacturing processes and configuration map onto the goal of effective energy usage.

The Thornhill team attending the workshops was cross functional. This is essential, according to Kit Oung, senior energy engineer at Projective "Everyone involved in energy should attend; from energy purchase, utility operation and generation to plant operations and maintenance." Cross representation ensures buy-in from all departments and creates

stakeholders who will implement the policy on a daily basis.

Implementation

The Thornhill team looked at their current business processes and policies, drafted and adapted procedures in line with the plan-do-check-act model that underpins ISO 50001 and so put in place the structure to enable them to implement the new standard.

The team had been asked to gather data on energy usage. The intention was to review how energy was used at the manufacturing sites, how it was recorded and how that information was communicated. A monthly analysis of natural gas and electricity consumption allowed consumption vs. weather to be studied. And although overall figures and costs were available, no quantitative energy mapping was possible at this stage. Mike Thornhill said, "Although from a finance point of view it is useful to use a set formula for dividing costs between the revenue streams of the business, when it comes to energy management it is much more important to evaluate usage against revenue proper in order to leverage savings. The workshop made me

realise the potential we had for better use of our resources."

So the task was set to begin sub metering at a high level in order to qualify the relationship between production and energy consumption and to assess energy consumed by the three business units independently. This would enable the establishment of a baseline for energy budgeting, energy monitoring and subsequent on-going energy saving.

The group looked at hypothetical situations to evaluate opportunities for energy saving. A walk around the Thornhill manufacturing site with the energy engineers from Projective to identify any possible quick wins for energy saving immediately identified total cost savings of around £150,000 per year. These ranged from installing a group office light switch for £50 to save an estimated £360 per year to condensing the boiler stack gas and using the heat for hot water which would save an estimated £36,000 per year at an estimated installation cost of only £35,000.

The final workshop reviewed progress. The Thornhill energy policy was drafted and the team looked closely at its alignment with ISO 50001.

Thornhill immediately saved

£150,000

Conclusion

"We are now ready to move forward towards certification," says Mike Thornhill. "It is important for us to have our energy usage and efficiency independently verified. Savings have been identified and the route map put in place through the workshop approach, but the benefits will arise when the standard is in place and we operate according to the 'plan-do-check-act' principles every working day."

For this SME the road to certification was beneficial both to the business in terms of better communication of the energy issues and to its customers with a guarantee of a sustainable approach to manufacturing. Mike is enthusiastic, "I would recommend to anyone they go down this road. It brings together your team, unites your business in a common goal and reaps rewards in terms of cost savings and sustainability."

About ISO 50001 Energy management systems, Requirements with guidance for use

What is your organization doing to manage energy efficiency and control energy costs?

ISO 50001 stipulates the requirements for an energy management system. Designed to make the most of energy technology, this standard helps management to reduce their energy consumption, while boosting their overall energy conservation. This includes reduced energy costs and carbon emissions, and a more secure supply of energy. ISO 50001 helps organizations to take on a systematic approach to continually improve their energy performance and establish a credible, certified reputation.

This unique standard also helps improve management techniques by providing a comprehensive scope of requirements to run an efficient energy management system. These include energy policies, planning, legal requirements, as well as energy reviews, baseline and performance indicators. ISO 50001 also explains how to demonstrate competence, operational control and best practice procurement of energy services, products and equipment.

About BSI

BSI is a global independent business services organization that inspires confidence and delivers assurance to over 80,000 customers with standards-based solutions. Originating as the world's first national standards body, BSI has over 2,400 staff operating in over 120 countries through more than 50 global offices. BSI's key offerings are:

- The development and sale of private, national and international standards and supporting information that promote best practice
- Second and third-party management systems assessment and certification in all critical areas of management disciplines
- Testing and certification of services and products for Kitemark and CE marking to UK, European and International standards. BSI is a Notified Body for 17 New Approach EU Directives
- Certification of high-risk, complex medical devices
- Performance management software solutions
- Training services in support of standards implementation and business best practice.

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BSI Group

Adam Smith Building
Thomas R. Malthusstraat 3c
1066 JR Amsterdam
The Netherlands

T: +31 (0)20 346 0780
E: info.nl@bsigroup.com
www.bsigroup.nl