

# Pioneering industrial energy management

**Saint-Gobain Construction Products' Gyproc plant in Kirkkonummi was one of the first industrial plants in Finland to have its energy management system certified under the ISO 50001 standard in recognition of the plant's dedicated energy-saving work.**

Saint-Gobain's Kirkkonummi plant has the capacity to produce up to 35 million square metres of Gyproc plasterboard a year. Its products are used in construction and renovation projects in Finland, the Baltic Countries and Russia.

In the Kirkkonummi plant the main ingredient of plasterboard, gypsum, is crushed in a ball mill and crystal water is removed in a process known as calcination. The resulting stucco gypsum is then mixed with water and other ingredients to form gypsum slurry, which is sandwiched between two layers of strong paper. Plasterboards are then pre-cut for drying in large ovens.

"The calcination and drying processes are highly energy intensive. Energy costs make up about a third of our total variable production costs, so we're naturally keen to find ways to save energy," says **Piotr Ozimek**, Saint-Gobain's operations director for Eastern Europe, who is based in Kirkkonummi.

In January 2013 the plant joined the EU emissions trading scheme, making actions that reduce energy-related carbon dioxide emissions even more worthwhile.

Saint-Gobain's Kirkkonummi plant has joined the voluntary energy efficiency agreement for industries. Piotr Ozimek, Saint-Gobain's operations director for Eastern Europe Ozimek values this scheme, which subsidises energy audits and offers grants for investments that use new technologies or promote renewable energy.



**The plant's energy management team plays a key role in the management system, by drawing up annual energy-saving plans and meeting monthly to review progress.**

"Over the last six years we've run our own energy management system as an important pillar of the wider World Class Manufacturing (WCM) programme run across Saint-Gobain's global operations," says Ozimek. "This system focuses on searching for energy losses and implementing projects designed to reduce energy use. It proved quite straightforward to adapt our own system for certification under ISO 50001 in 2011. The ISO standard has similar requirements and philosophy, but is more widely known for the purposes of marketing communications."

**Emphasising energy efficiency**

The plant's energy management team plays a key role in the management system, by drawing up annual energy-saving plans and meeting monthly to review progress. The team is headed by the plant's energy champion **Anna-Kaisa Hiekka**.

"My work as energy champion involves monitoring, analysing and understanding our energy use in detail, and informing our personnel about energy issues through meetings and our special Energy Newsletter," says Hiekka. E-mailed four times yearly to all of the 104 people working on the site, this newsletter reviews the plant's latest energy figures, describes new projects, and gives practical energy-saving tips.

Ozimek emphasises that awareness of energy issues is high within the organisation, though spreading the message on the shop floor is sometimes challenging. "The average age of our employees is 53, and it can sometimes be difficult to bend old trees," he laughs. "But at the same time we often



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get good energy-saving ideas from our workers. Our managers' doors are always open!"

"We also have a special suggestions box where employees can pass on their energy observations. Most suggest small but worthwhile energy-savings related to lighting and waste heat, but we've also received some promising bigger ideas related to the plant's processes, which we're now investigating."

**Regular detailed energy audits**

Ozimek explains that energy audits conducted on three levels play a vital role in Saint-Gobain's energy management system.

"Every month our own energy management team audits one of twelve different areas of our operations. Then members of Saint-Gobain's global energy team come once a year to conduct a 'semi-internal' audit," he says. "We get very useful ideas from global benchmarking and exchanges of information and best practices across Saint-Gobain's global gypsum operations, which include more than 100 production sites."

"Additionally, every five years major external audits are conducted by external certifiers as part of our involvement in TEM's voluntary energy efficiency agreement scheme."

Ozimek values this scheme, which subsidises energy audits and offers grants for investments that use new technologies or promote renewable energy. Saint-Gobain have started exploring potential for bioenergy and windpower to reduce the Kirkkonummi plant's use of gas and purchased electricity.

**Real time energy monitoring**

To complement regular audits, Saint-Gobain's plant uses a real time industrial energy monitoring and control system to keep a constant close eye on the energy consumption of the key calcination and drying processes, and the plant as a whole.

"This system is a very useful tool for monitoring our energy use and production process online in real time. Minute-by-minute data facilitates our detailed analyses. The system also sends automatic

**Top energy management tips**

The energy management team from Saint-Gobain Construction Products' Gyproc plant in Kirkkonummi highlights five useful tools for energy-intensive industrial plants to find ways to cut their energy consumption and costs.

- Designate an energy champion with overall responsibility for energy issues, as well as a wider-based energy team that can meet regularly to review progress and plan new projects.
- Invest in an automatic online energy monitoring system to get a detailed picture of your plant's energy use in real time, enabling immediate reaction to changes.
- Carry out regular energy audits both within the company and externally, taking advantage of TEM's voluntary energy efficiency agreement scheme.
- Conduct benchmarking and exchange best practices with other similar production plants.
- Engage all personnel in the task of saving energy through in-house communications such as energy newsletters, and by being open to suggestions from the shop floor.

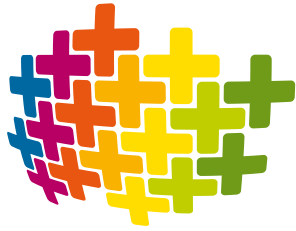
alerts when energy use limits are exceeded, which I can get even when I'm travelling," says Ozimek. "I've warmly recommended such systems to Saint-Gobain plants elsewhere."

**A never-ending task**

Several major energy-saving actions have already been implemented to address losses identified within Saint-Gobain's energy management system.

"After audits revealed how much waste heat we were losing from our dryers, we made significant investments in heat exchange and automation systems. This enabled us to turn off the plant's main gas boiler, which is now only on stand-by for exceptional situations such as stoppages during the winter," says Ozimek.

Investments in newly designed combustion chambers and insulation for the factory's calcination plant have also saved significant amounts of energy.



## ENERGY EFFICIENCY agreements

Voluntary Energy Efficiency Agreements are an important means of furthering energy efficiency in Finland. The Energy Efficiency Agreements 2008–2016 comprehensively cover the industrial (industry, energy sector, service sector), municipal, property and building, oil (oil-heated properties and transport of heating and transport fuels), goods and public transport, and agricultural sectors. The agreement parties are ministries, industry associations, companies and communities. Hundreds of companies and communities with their thousands of sites have signed up.

[www.energyefficiencyagreements.fi](http://www.energyefficiencyagreements.fi)

“Then we found that covering over our gypsum storage area help to keep the gypsum moisture content low, leading to considerable energy savings,” adds Ozimek.

Ozimek emphasises that improving energy efficiency is a never-ending task. The energy management team is always looking for new ways to cut energy costs. Parts of Saint-Gobain’s Kirkkonummi premises are 40 years old. Improvements in insulation and other measures to reduce heating costs will be realised as they are renovated.

Saint-Gobain has also been working with a Finnish energy company to examine opportunities to use waste heat from the plant locally.

### Benefits for customers

Saint-Gobain Construction Products’ energy work also makes the company eligible for product ecolabelling schemes. It is becoming more important for manufacturers of construction solutions to obtain energy certification and ecolabelling, since energy ratings are increasingly required for new and renovated buildings.

“In January 2013 we were granted rights to use the Vitality Leaf, an independently verified Type 1 eco-label,” says Ozimek. This scheme’s criteria have been developed in Russia using a product lifecycle approach in line with the ISO 14024 standard.

“We believe such certification gives value to our customers by confirming that we fulfil Saint-Gobain’s environmental targets. We’re also considering applying for Nordic Swan ecolabelling rights for our products,” adds Ozimek.



Anna-Kaisa Hiekka works as an energy champion in Saint-Gobain’s Kirkkonummi plant. Her work involves monitoring, analysing and understanding energy use in detail, and informing personnel about energy issues.

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