

# Tyre factory creates energy savings of 50% and gives a hearty boost to its green profile

In late 2009, Tsumoru Yamashita, Sales Office Manager at Grundfos Japan, visited Yokohama Rubber's factory in Shinshiro. The company's Chief Engineer, Kenichi Hattori met with Mr Yamashita, to explore the possibility of finding ways to optimise energy consumption and reduce greenhouse emissions at the plant.

The first area they investigated was the production line's cooling system. Essential to operations, it relies on water circulation to ensure an optimal and safe temperature is maintained. But would it offer anything significant in the way of saving energy and reducing & CO2 emissions? To find out, they decided to run an analysis on the system.

Too good to be true?

Surprisingly to Mr Hattori, the analysis indicated that Yokohama could potentially make energy savings of 51 per cent, simply by replacing the 30-year-old pumps that were used to move the water around the cooling system. Halving energy consumption seemed an extraordinary reduction to Yokohama Rubber's Chief Engineer, but he agreed to switch the pumps to new, energy efficient pumps.

"I have two budgets," says Kencichi Hattori. "The larger budget is for repairing and replacing, but I also have funds for replacement in order to realise energy savings. This is not my first priority – reliability is the most important factor for us. But after analysing the cooling system's pumps, I decided to go ahead with the replacement."

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**TOPIC:**

Yokohama Rubber was surprised to discover that a small change in its production line's cooling system could potentially result in energy savings of over 50 per cent and enhance their green profile. Through an unlikely source, that prediction became reality.

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**LOCATION:**

Shinshiro, Japan

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**COMPANY:**

Yokohama Rubber

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An overlooked opportunity is realised

In the first year, the pump replacements saved Yokohama Rubber more than JPY 4 million (around €40,000).

“Our data reports potential energy savings, and for customers that translates directly into saving money,” says Grundfos Service Manager, Hiroki Inoue. “We did another audit for Yokohama Rubber after we installed the first four high efficiency pumps, and we achieved the predicted result: we reduced their energy consumption by 51 per cent.”

So effective was the upgrade to energy efficient pumps that the company’s operations in Shinshiro decided to conduct one as well.

With the new pumps delivering significant savings at Yokohama Rubber, Kenichi Hattori and Shinshiro plant general manager, Masaki Noro, searched for more opportunities to upgrade and increase efficiency. In August 2011, they bought five more pumps for the Shinshiro plant, delivering savings of 52 per cent in one installation and 39 per cent in another.

“Today, over two years after we installed the first pumps, I am convinced Yamashita-san was not lying to me,” he jokes, prompting a quiet smile from Yamashita.

Kenichi Hattori shared the results with other Yokohama plants. Engineers in Hiratsuka bought and installed a Grundfos high efficiency pump, which paid for itself in one year. This was achieved in part because Grundfos engineers calculated that a much smaller pump motor could do the job of the existing oversized pump.

Yamashita believes Grundfos is well-positioned to further help Yokohama Rubber cut costs and energy.

“The first pumps we installed delivered 51 per cent energy savings, but that was actually the lowest efficiency improvement we recorded in all our installations,” he says. “Our next installation reduced the pumps’ energy consumption by 54 per cent, and the third one came in at 53 per cent.”

Good for the bottom line

The Shinshiro plant aims to reduce energy consumption roughly three per cent per year.

“I’m responsible for ensuring that we continually improve our environmental management policies and results,” says Masaki Noro. “We have targets for reducing our CO2 emissions, and energy consumption has a direct impact on that. We have a basic plan for replacement and renewal of our equipment, but the potential savings shown by the pump audit moved these systems to the head of the queue.”

The initial installation of Grundfos pumps and their control systems paid for itself within 18 months through reduced energy costs. Payback time at the Hiratsuka plant was one year, and the second Shinshiro installation was paid back within 15 months.

And then there is the even bigger picture.

The Japanese electricity saving movement

While the new pumps have bolstered Yokohama Rubber’s bottom line, they have also helped the company contribute to Japan’s national setsuden (electricity-saving) movement. The federal program began as a result from the meltdowns of several nuclear reactors at the Fukushima Daiichi Nuclear Power Plant following the earthquake and tsunami in early 2011.

Noro notes his responsibility to meet the company’s waste-emission and energy-conservation targets: “We reduced greenhouse gas emissions by more than 13 per cent in less than 20 years, and we need to continue to find ways to improve. The pump audit opened our eyes to significant energy savings that could be realised in an important area of our operations, and I’m sure we can continue to make gains in this area.”