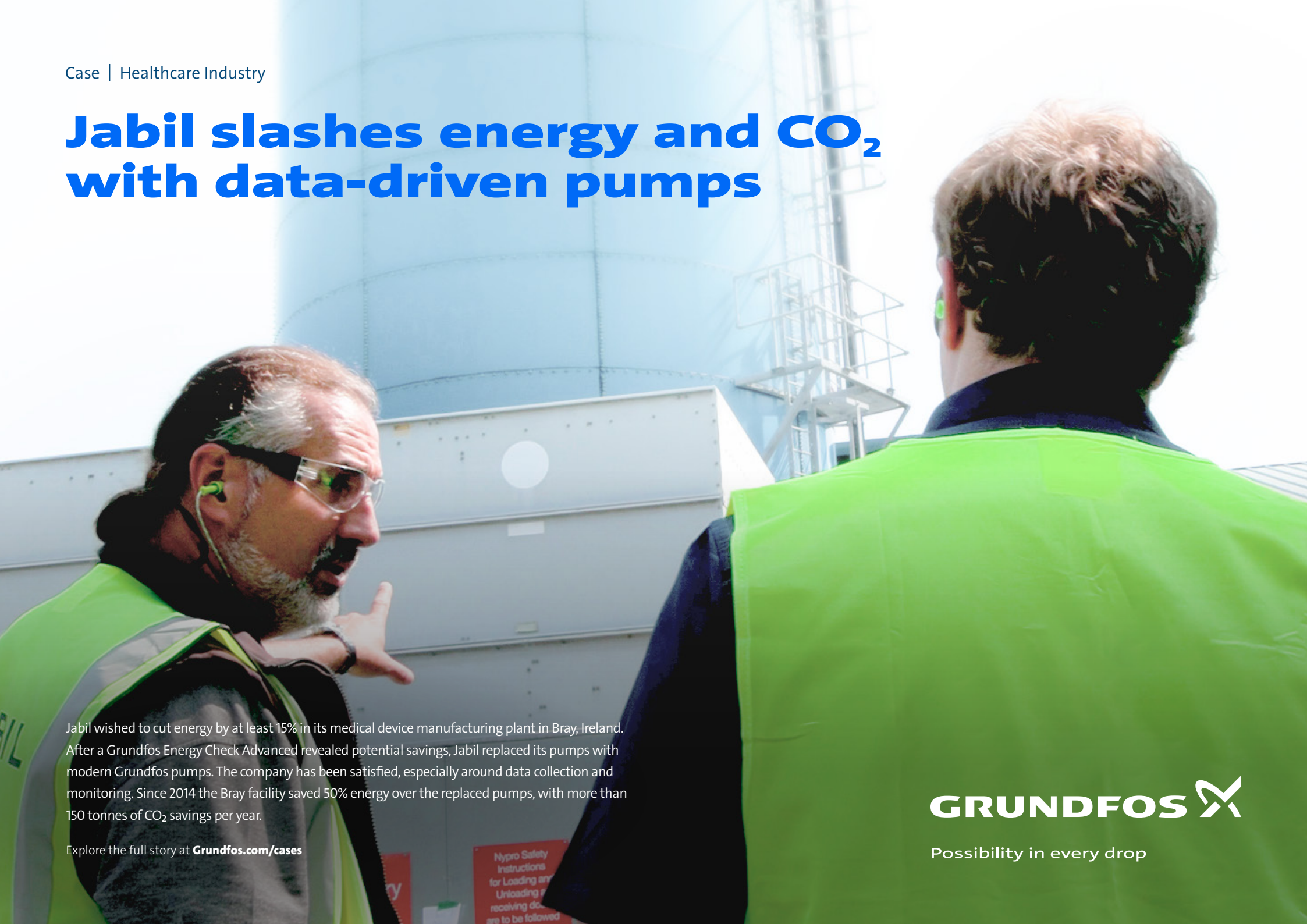
Case | Healthcare Industry

Jabil slashes energy and CO_2 with data-driven pumps



Jabil wished to cut energy by at least 15% in its medical device manufacturing plant in Bray, Ireland. After a Grundfos Energy Check Advanced revealed potential savings, Jabil replaced its pumps with modern Grundfos pumps. The company has been satisfied, especially around data collection and monitoring. Since 2014 the Bray facility saved 50% energy over the replaced pumps, with more than 150 tonnes of CO_2 savings per year.

Explore the full story at **Grundfos.com/cases**

GRUNDFOS

Possibility in every drop

Migdo Natal, Facilities and Industrial Engineering Manager in Bray Ireland

The situation

Jabil is one of the world's largest manufacturing solutions providers in the world with 100 locations in 30 countries. In Bray Ireland, Jabil produces components for the healthcare industry.

As part of Jabil's goal to reduce its operational greenhouse gas emissions by 50% by 2030, its global sites are committed to reducing energy usage through strategic investments and innovations.

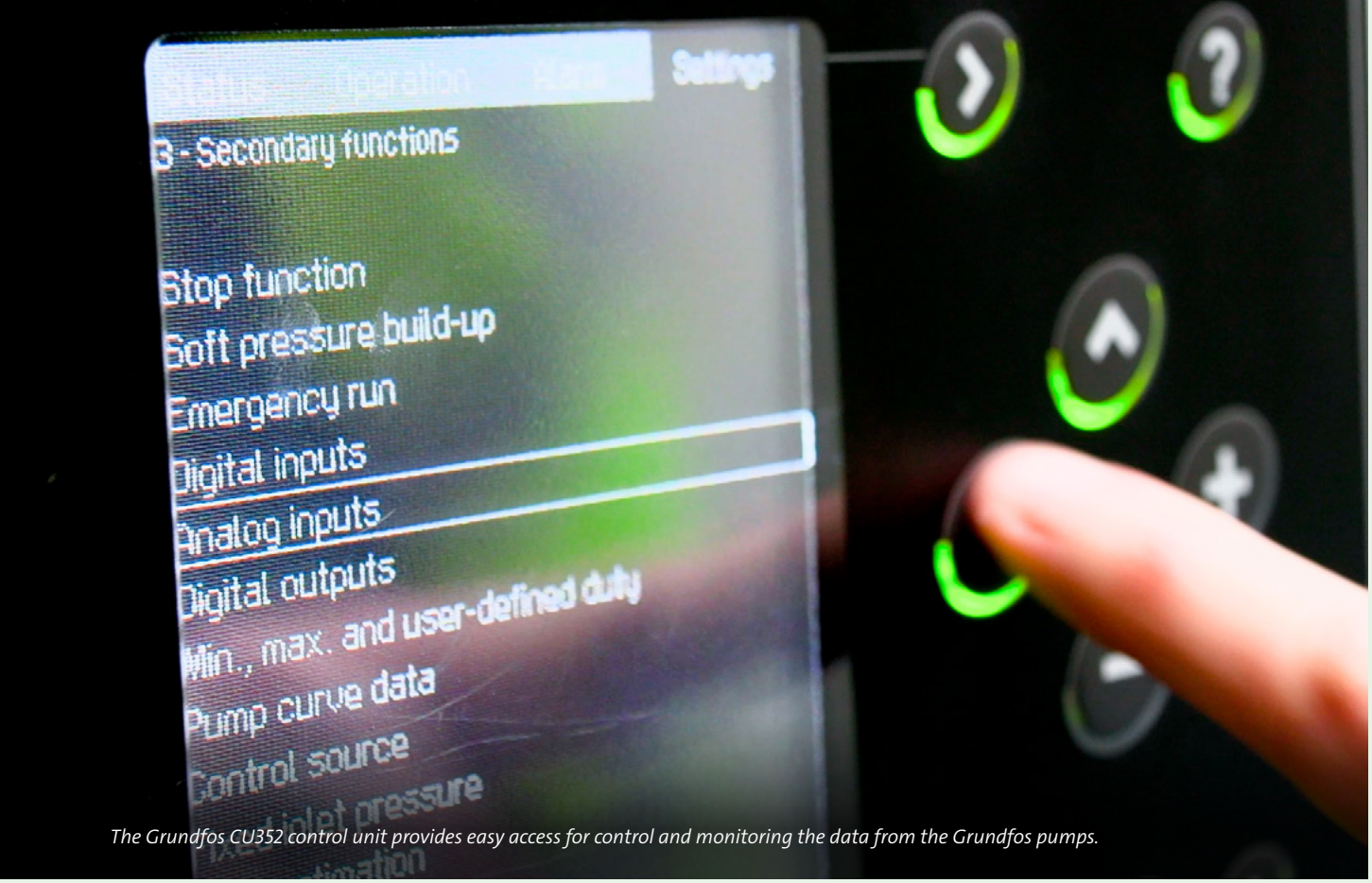
Jabil's Facilities and Industrial Engineering Manager in Bray, Migdo Natal looked for ways to reduce energy at the site. "And one of them was the plant equipment," he says. "And more specifically, the water pumps."

He had several different proposals from pump manufacturers. He most liked the offer from Grundfos. The company's Area Sales Manager Stuart O'Kennedy offered to do an Energy Check Advanced on the facility's pumps. The Grundfos Energy Check Advanced offered a detailed analysis of the site's current pump performance to help identify potential savings in the pumping systems of the following applications: cooling tower, processed chilled water, process cooling tower, condenser and process water.

The solution

The first pumps to be tested were part of a new heat recovery system. This used (and continues to use) the heat generated by the manufacturing lines' air compressors for heating the offices and production areas.

"We were looking for a very specific pump – a reliable circulator pump – that could monitor the water pressure and also the water temperature. And Grundfos had that pump," says Natal. "Stuart came up with the idea of using that pump. It was a very simple, smart interaction with this pump, very easy to set up, very easy to program."



The Grundfos CU352 control unit provides easy access for control and monitoring the data from the Grundfos pumps.

That pump was a Grundfos "E-pump" (electronically controlled pump). "That was back in 2014, and it has been running 24/7 ever since. We've never had any issues," he continues. "The heat recovery system allows us to cut the gas, so we don't use any gas here on site and that brought us a lot of savings over the years."

Driven by data

The immediate success of the first pump replacements triggered a bigger plan.

"From there is when we started targeting replacing the water pumps – the big industrial pumps that support the plant and the manufacturing machines – delivering chilled water, cooling water and process water into the production lines," says Natal.

Over the past eight years, Jabil Bray has installed Grundfos Hydro MPC sets along with NBE, CRE and TPE E-pumps on six circuits in two buildings, with two more circuits scheduled. The pumps run at variable speed at just the right amount of power – ramping up or down depending on the required loads – saving energy, CO_2 emissions and money over the previous fixed-speed pumps.

Much of the manufacturing happens in ISO-certified clean rooms. "Some of the clean rooms use chilled water, which is coming from the chiller being pumped by the Grundfos pumps," says Natal. "We cannot afford having a pump failure because then we won't achieve the temperature in the room, which means then the cleanroom will be out of spec, and we would have to stop production. This is something that cannot happen. It would have a massive, negative impact on our operations."

The reliability of the Grundfos pumps has been vital to Natal – and he has been particularly happy with the data-driven pump results. "The pumps generate a lot of backup data, saying, 'You need this pump to deliver this, for this amount of water at that temperature.' And that you have that data and those facilities, and that you can actually download this data from the pumps – that is a lifesaver. Because people can say a lot of things, but the facts will be very different. The data don't lie. It is what it is. So based on that data is when we had the trust and confidence in Grundfos pumps and systems."

He adds that the pumps also store all the readings, allowing the users to monitor and trend the flows, enabling continuous improvements on processes. "Once you have all this data, then you know that you are in the right place," Natal says. "If there is an issue, or one of the pumps goes out of spec, we can detect this very quickly – knowing if it is an issue with a pipe, or is an issue with a leakage or an issue with some sort of system within the plant. But again, that is possible only once you have the data and you have the right signals from the system. And Grundfos pumps provide this."

“That's one of the things that I feel really proud about.”

Migdo Natal, Facilities and Industrial Engineering Manager in Bray Ireland

The Jabil facility near Dublin, Ireland

The Outcome

Over nine years, the Grundfos pumps have generated savings at Jabil's Bray facility of nearly 408,000 kWh – a 50% reduction in energy consumption over the replaced pumps, says Migdo Natal. That amounts to more than 150 tonnes of CO_2 savings annually. There are two more pump replacements on the way. When they are installed, Grundfos estimates the yearly savings at more than 542,267 kWh – the equivalent of 205 tonnes of saved CO_2.

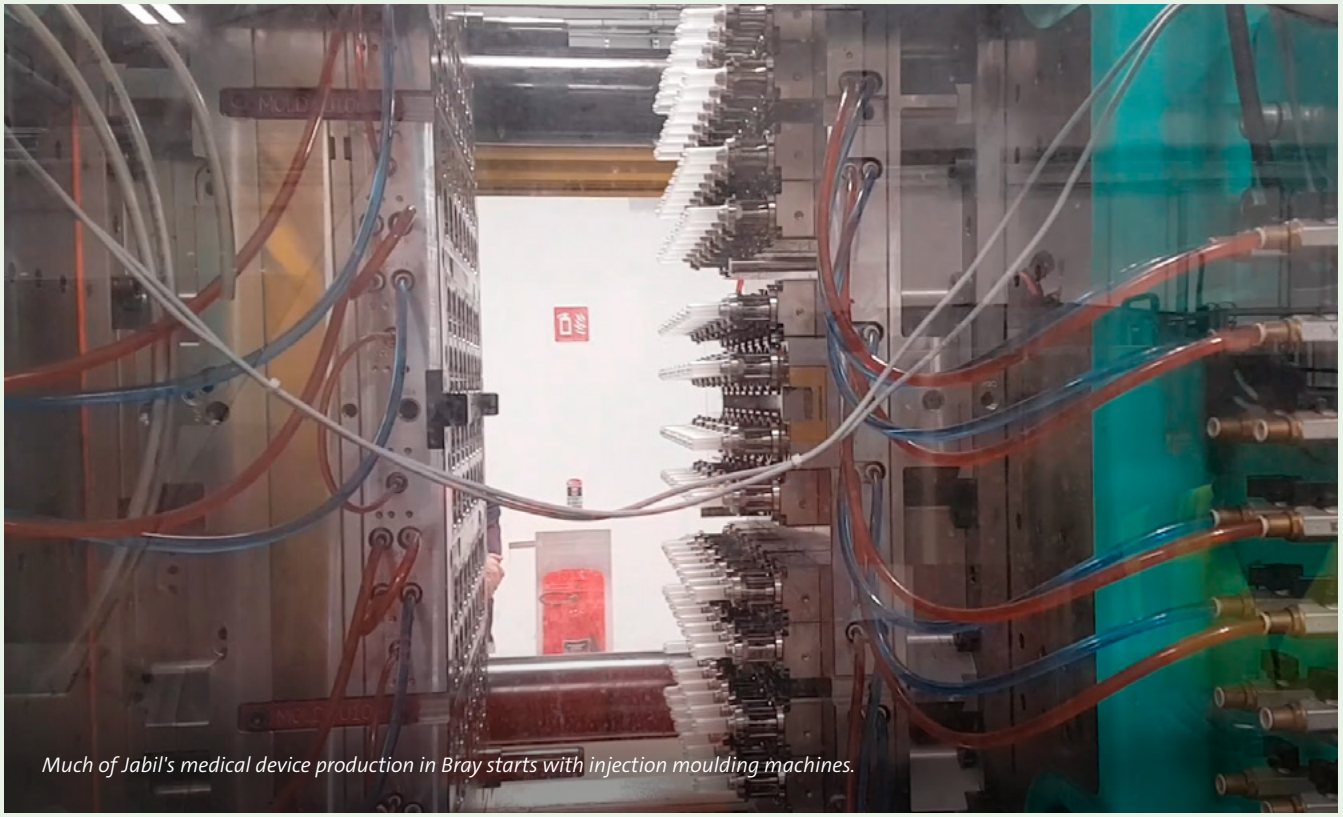
And beyond the pumps, the facility has implemented many other energy-saving projects. “We used to be in the region of 20 gigawatts of consumption a year,” Natal says. “That’s 10 years ago. Today we’re down to 12-13 GW. So that’s 7-8 GW a year of electricity reduced – with millions of euros in savings as well.”

The company has been recognized both locally in Dublin, nationally in Ireland and globally within Jabil for its level of engagement in saving energy and CO_2. The company has applied for – and received – several energy-saving project grants from the Sustainable Energy Authority of Ireland (SEAI). Natal says, “Bear in mind, the SEAI doesn’t give grants like this very easy. Grundfos has been helping us and providing all the data. And the way Grundfos is presenting these data, basically, we don't have to do anything. We just receive it from Grundfos and give it to the national authorities, and they give us a grant.”

He continues: “When you look back and you look at the savings and the big positive imprint – not only for the site on energy savings and the money that that represents – but also for the planet and for the environment, by reducing the carbon footprint, and making our factory more leaner and cleaner and greener as well. So that's one of the things that I feel really, really proud about. And knowing that I had a good input on this.”

Jabil Migdo Natal and Grundfos’s Stuart O’Kennedy

Energy savings at Jabil's Bray, Ireland, facility with Grundfos pump replacements				
		Annual energy savings (in kWh)	**% savings**	**Yearly CO_2 savings (in tonnes)**
Building 1:	Process Chilled Water Pumps	102,492	55.5%	38.74
	Process Cooling Tower Water Pumps	73,670	33.6%	27.83
Building 2:	Process Chilled Water Pumps	44,588	63.8%	16.85
	Cooling Tower Pumps	86,023	84.2%	32.70
	Condenser Pumps	33,288	49.6%	12.58
	Process Water Pumps	68,300	46.4%	25.80
	Total annual savings:	**408,361**	**49.0%**	**154.50**



Much of Jabil's medical device production in Bray starts with injection moulding machines.

Topic: Industrial energy optimization
Location: Bray, Ireland
Customer: Jabil

Grundfos supplied:

Grundfos has supplied its Energy Check Advanced for Jabil's facility in Bray. This has resulted in a supply of several sets of Grundfos E-pumps, including Hydro MPC, CRE, TPE and NBE skids in two buildings. Applications include chilled water primary, process chilled water, cooling tower, the condenser and process water. Read more about Grundfos E-pumps for Industry **here.**

Grundfos Holding A/S
Poul Due Jensens Vej 7
DK-8850 Bjerringbro
Tel: +45 87 50 14 00
www.grundfos.com

Sources: *The facts in this story come from interviews on site at the Jabil facility in Bray (Dublin), Ireland, June 15-16, 2023.*