

Case | JW Marriott Bucharest Grand Hotel, Romania

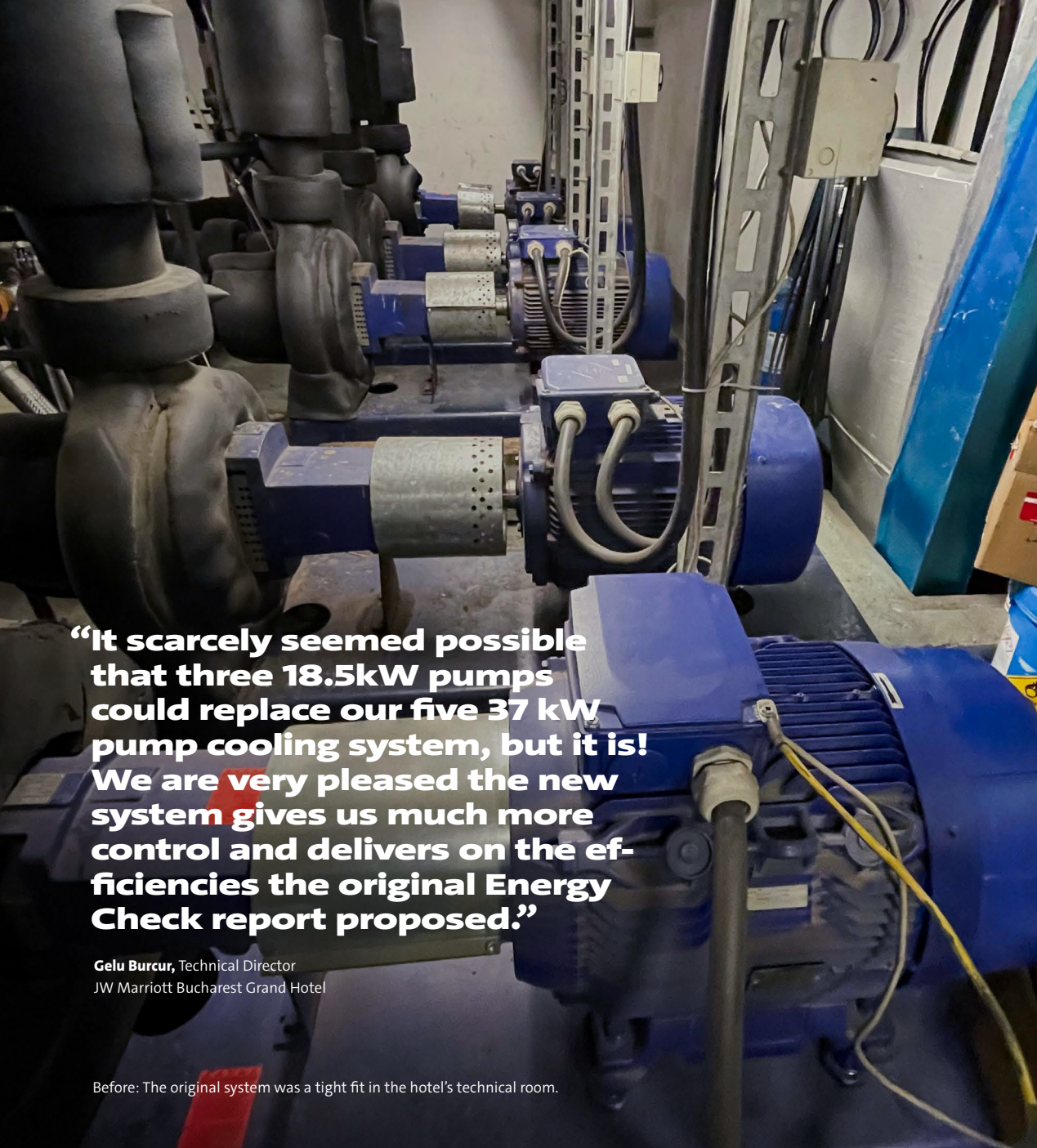
5-star energy optimisation

Energy-efficient replacement of the cooling system reduces costs and emissions for luxury hotel



GRUNDFOS 

Possibility in every drop



“It scarcely seemed possible that three 18.5kW pumps could replace our five 37 kW pump cooling system, but it is! We are very pleased the new system gives us much more control and delivers on the efficiencies the original Energy Check report proposed.”

Gelu Burcur, Technical Director
JW Marriott Bucharest Grand Hotel

Before: The original system was a tight fit in the hotel's technical room.

A Grundfos Energy Check for the JW Marriott Bucharest Grand Hotel proposed that their existing five 37kW pump system could be replaced by just three 18.5kW Grundfos NBE pumps, frequency converters and a smart controller to save significantly on energy, costs and emissions, in a payback time of under a year.

Executive summary

When Grundfos Romania undertook a complimentary Energy Check assessment for the luxury JW Marriott hotel in Bucharest, the report highlighted their existing cooling system of five 37kW pumps could be replaced with just three intelligent, highly efficient 18.5kW Grundfos NBE pumps. The proposal projected a payback time of less than a year, significant annual energy and cost savings, and a considerable reduction in the hotel's carbon emissions. With the go-ahead to proceed, Grundfos provided full project assistance throughout, installing a turnkey solution that is on course to match all projections.

New collaborative energy optimisation projects are now in the pipeline.

The situation

After twenty years, the cooling system installed on the top floor of the JW Marriott Bucharest Grand Hotel, a 5-star luxury hotel in Bucharest, was beginning to show its age.

Not only was the system becoming increasingly difficult to maintain, but with its five 37kW pumps needing diaphragms to reduce flow, it was evident the system was oversized and consuming more energy than was necessary, especially in the context of steeply rising global energy prices.

Having built up a trusting relationship over five years with the ad-hoc supply of individual pumps and consultancy, the hotel agreed to Grundfos' offer of a complimentary Energy Check to investigate in more detail the costs of the existing cooling system and potential savings that could be made with energy-optimised replacement equipment.

“A Grundfos Energy Check can highlight opportunities for significant savings in energy, costs and carbon emissions. We’re delighted the team at JW Marriott Bucharest Grand Hotel trusted us to implement the savings we identified for their cooling system.”

Emil Serban, Senior Aftermarket Sales Engineer
Grundfos



The Grundfos Energy Check highlighted significant energy savings were possible and proposed a replacement system whose payback time was under a year.

- **Energy savings of 180,619 kWh per year**
- **Cost savings of €54,186 per year**
- **Payback time of 0.9 years**
- **Emissions reduction of 61.95 CO₂ t/year**

The solution

Grundfos Energy Check is an assessment of an existing pump system that identifies opportunities to reduce operating costs and increase pump efficiency. Grundfos engineers used data collected from the equipment and information provided by the hotel’s engineers to create a precise overview of the system that presented striking savings opportunities.

The Energy Check investigation found that the cooling system could in fact be run on a system of just three Grundfos 15kW NBE pumps equipped with frequency converters and a CU 352 smart controller unit. The JW Marriott technical team requested 18.5kW pumps, and on this basis, the Energy Check report

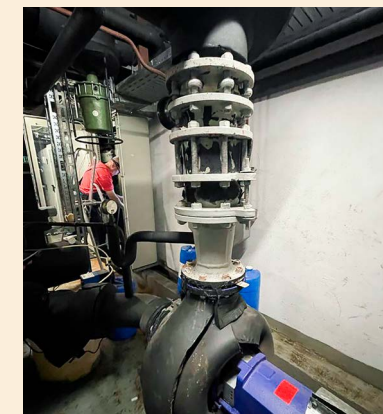
found the hotel could expect:

- Energy savings of 180,619 kWh per year
- Cost savings of €54,186 per year
- Payback time of 0.9 years
- Emissions reduction of 61.95 CO₂ t/year

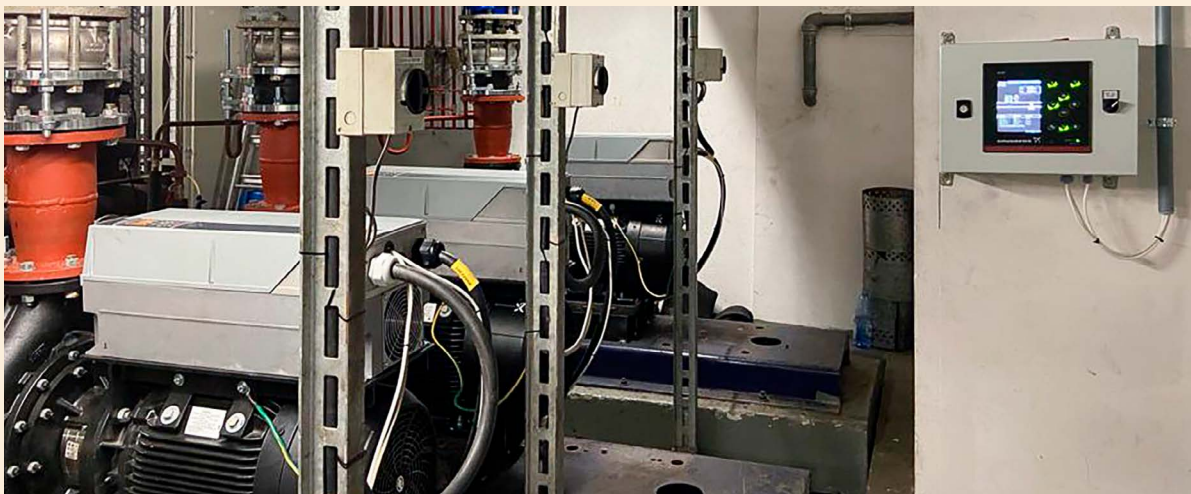
After continual dialogue with Grundfos and thoroughly scrutinising of the final report, the hotel gave the go-ahead to take the first steps in implementing the proposed solution. The first step was a physical proof of concept. Working closely with Grundfos’ key account manager as a project liaison, the combined hotel and Grundfos engineering team, working at night to ensure the HVAC system remained operational during the day, emptied the pipes and replaced the existing

valves to test and ensure the project proposal could work as planned.

After successful testing, full implementation of the pump replacement project commenced.



During: The Grundfos team worked at night replacing the existing valves, to test and ensure the Energy Check project proposal would work as planned.



After: Replacing the five original pumps with three Grundfos NBE pumps and MPC controller brought a new level of efficiency to the cooling system.

The outcome

Grundfos delivered a turnkey solution, taking responsibility for all stages from the initial measurement and technical proposal, the dismantling of existing pumps and components, to the installing and commissioning of the fully energy-optimised system of new pumps, hydraulic accessories and control cabinet.

The frequency converters are controlled by a smart pump controller unit for maximum efficiency, ensuring the newly-operational system is, in its first year, running according to the Energy Check's projected energy and cost savings.

In addition, the smart pumps and controllers add a new level of intelligence, not only transmitting data to the BMS, but controllable from there as well, making the system operation more straightforward for the customer.

After a successful project implementation, the JW Marriott and Grundfos teams are looking forward to future close collaboration. Work has already begun on a new maintenance project, with a programme of ongoing pump replacements agreed and two new pumps ordered. There are opportunities for Energy Check investiga-

tions into the hotel's other water systems.

Grundfos supplied

- 3 x Grundfos NBE end-suction close-coupled EN733 standard pumps
92960886 – NBE
125-315/275AXEF2AESBQQEPW3
- 1 x Control MPC Series 2000 controller
96781413 – 3 pump variant.
- 1 x Differential pressure sensor
96611527 – DPI/--0-6.0b/1/G/
D.900-B/V-5/-B/02B/SD-1

“Grundfos has helped us bring in a new, energy-optimised system that delivers considerable savings and helps us meet the environmental goals of our business. Our collaboration has been a great success and we look forward to working together on future projects.”

Sorin Carstian, Chief Engineer
JW Marriott Bucharest Grand Hotel

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