

Case | Grupo Wasser Mexico

Raising the bar for water and energy optimisation

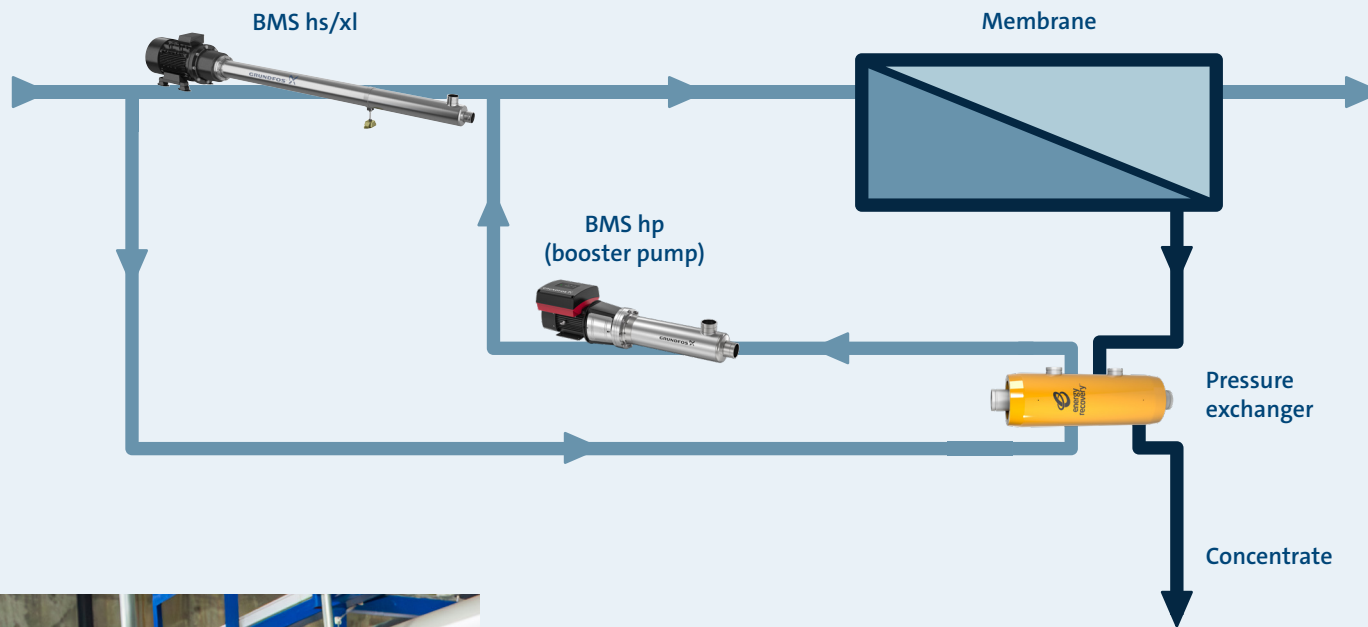
Improved water stewardship, energy efficiency and operational resilience for a seawater reverse osmosis plant at a coastal hotel in Mexico

When a customer in the hospitality industry faced high and variable water demand across multiple operating conditions, they turned to Grupo Wasser, an engineering firm dedicated to responsible water stewardship. Through their engineering firm Bio Saving Energy, they worked with Grundfos to ensure stable system pressure, low lifecycle energy use and reliable water quality at the customer's coastal hotel. Specifically, Grundfos supplied high pressure BMS booster pumps and other equipment for the seawater reverse osmosis plant, and the customer made the buying decision following the expert consultancy from Grundfos.

Grupo Wasser is a Mexican-owned company, who through their engineering firm Bio Saving Energy S.A.P.I. de C.V., delivers end-to-end water treatment solutions. While Bio Saving Energy works directly with Grundfos to ensure the optimal solution and builds the reverse osmosis plant skid, their parent company Grupo Wasser provides the full solution with skid, engineering, maintenance and operation.



Size your
BMS system



The situation

In the new installation, achieving hydraulic balance without oversizing equipment was critical to avoid excessive energy consumption, pressure fluctuations and maintenance burdens.

Bio Saving Energy Mexico leveraged their engineering toolkit to design a high-efficiency, VFD-controlled booster solution using Grundfos technology. Specifically, the company looked at demand profiling, hydraulic modelling and pump selection optimised for wire-to-water efficiency.

“To minimise constant set-point pressure across diverse load profiles while minimising kWh/m³ consumption, the project rested on disciplined engineering: We looked to ensure the correct sizing of each component, matching pump curves to the duty point and integrating intelligent controls to deliver performance, reliability and measurable energy savings,” explains Francisco Mendez, Head of desalination projects, Bio Saving Energy Mexico.

As the global leader in pumping and intelligent water solutions, Grundfos partnered closely with Bio Saving Energy Mexico to right-size the system and present fit-for-purpose booster pump options precisely aligned to the project’s operating profile.

The approach to design, build, commissioning and service is grounded in sustainability and operational excellence, and their programs integrate proven eco-technologies to reduce resource consumption, lower total cost of ownership and minimise environmental impact.

“Our multidisciplinary team is continuously trained on state-of-the-art methods and best available technologies,” says Hector A. Mingramm, Founder Emeritus, Bio Saving Energy Mexico. *“We cultivate a culture of innovation and rigorous engineering, partnering with leading global manufacturers to integrate high-efficiency, environmentally responsible systems that help our customers meet performance targets while mitigating the effects of climate change.”*

“Our multidisciplinary team is continuously trained on state-of-the-art methods and best available technologies,”

Hector A. Mingramm,
Founder Emeritus, Bio Saving Energy Mexico.



An employee from Grupo Wasser inspects the desalination plant



The solution

Drawing on extensive experience in comparable installations, Grundfos helped to select the bespoke configuration that balanced high efficiency, energy savings and functional reliability. Specifically, the recommended solution consisted of MS6000 submersible motors, Level Controllers, wastewater pumps, and BMS high differential pressure (hs) and high inlet pressure (hp) boosters together with a pressure exchanger, the PX® Pressure Exchanger® energy recovery device. The BMS pumps combine state-of-the-art technology that results in a solution that prioritises wire-to-water performance, long service life and water stewardship. Specifically, the very low and predictable maintenance costs, because regular maintenance is not required, is where Grundfos beats competing solutions.

The booster installation was for a seawater reverse osmosis (SWRO) plant for **≈36,000 ppm TDS feedwater**, configured in two production trains with a **combined capacity of 1,500 m³/day (90 million liters per month)**. In line with the property's sustainability goals, the SWRO trains are equipped with energy-recovery devices (ERDs) to minimise specific energy consumption and improve wire-to-water efficiency.

The technical support and expertise provided by Jesus Ayala, Senior Sales Engineer at Grundfos Mexico, along with the energy efficiency of the BMS, were fundamental for the hotel to decide that the best supplier was Grupo Wasser.

“We integrated proven hydraulics with intelligent control and monitoring in the agreed solution to deliver a stable set-point operation with lower specific energy consumption, while preserving maintainability and uptime,” explains Jesus Ayala, Grundfos. *“Our BMS pressure boosters are an essential part of a tailored, future-ready system that meets the customer's needs today and protects total cost of ownership over time.”*

“Our approach applies and develops engineering, technology and innovation for the extraction, supply and distribution of drinking water with low energy consumption, as well as in its management and treatment.”

Ana E. Argote,
Chief Engineering Officer, Bio Saving Energy Mexico.

Complementing desalination, the project includes rainwater harvesting, filtration and a sanitation system to enable onsite reuse and further reduce potable demand. Both systems are fully automated with telemetry and SCADA, smart controllers, and an intuitive web platform that supports an 'Audit-check' operating methodology, allowing rapid performance review, exception handling and continuous improvement across the asset lifecycle.

“Our approach applies and develops engineering, technology and innovation for the extraction, supply and distribution of drinking water with low energy consumption, as well as in its management and treatment,” says Ana E. Argote, Chief Engineering Officer, Bio Saving Energy Mexico. *“We ensure compliance with NOMS, the Mexican Official Standards, and with fully automated systems and telemetry to monitor the aquifer, the hotel can monitor and quantify all parameters at all times to make decisions for the efficient use of this valuable resource.”*

The outcome

In the first 6 months, energy consumption decreased by 9,543 kWh, or 33%. The project demonstrates replicable, data-proven wire-to-water efficiency in a demanding coastal environment, and how Grundfos water technology leads. It pairs right-sized pumping, ERDs and VFD control with SCADA-driven operations to deliver lower kWh/m³, stable set-points and measurable TCO gains.

Critically, the reverse osmosis plant specified for this project provides unusually high capacity for the hospitality sector while maintaining continuous trouble-free operation. Material selection and construction withstand hydrogen sulphide (H₂S) in the feed without performance degradation.

"This validates our emphasis on application-appropriate hydraulics,

corrosion resistant materials and lifecycle reliability," says Jesús Ayala, Grundfos. *"Our distributors can confidently scale this approach across resorts and coastal communities; resulting in future-ready efficiency, resilience to local water chemistry and proven maintainability backed by Grundfos and end-to-end water treatment solutions providers like Grupo Wasser".*

"This project showed how we could resolve three problems at once: reliability, cost and sustainability," concludes Karla Argote, Chief Commercial Officer, Bio Saving Energy Mexico. *"In partnership with Grundfos as a water technology supplier, we turned complex water challenges into efficient, reliable and sustainable systems in one of the world's most demanding environments while benefitting the customer and their business."*

"This project showed how we could resolve three problems at once: reliability, cost and sustainability."

Karla Argote,
Chief Commercial Officer, Bio Saving Energy Mexico



Grundfos supplied:

Pressure boosters:

- 2 x BMS 77-3HP-A-C-P-A-A 18.5 98872112
- 2 x BMS 30-26 HS-B-C-P-A-A 99022848

Submersible motors:

- 2 x MS6000REST40 3x400/50 460/60 40hpw/c pac

Level controllers:

- 7 x LC 241 2x8-32 DOL 3x208/230/460PO
- 1 x LC 241 2x1-5 DOL 3x208/230/460PO

Wastewater pumps:

- 6 x SL1.30. A30.100. EX.4. 61R.C
- 6 x SL1.30. A40.175.2.52S.EX.61R.A
- 2 x SE. A40.300.2.52S.EX.61R.A
- 2 x SE. A40.175.2.52S.EX.61R.A
- 2 x SEG.A15.20. R2.2.60H



Adding value to the customer's business:

Reliable supply in a tough environment:

A dual-train SWRO sized for $\approx 36,000$ ppm TDS plus VFD-driven boosting delivers stable set-points across peak and off-peak demand, reducing unplanned downtime.

Lower operating cost:

Energy-recovery devices and right-sized pumping cut kWh/m³ and soften mechanical stress, translating into tangible TCO savings (energy, maintenance and avoided interruptions).

Quiet back-of-house operation:

Guest comfort and staff safety is critical for hotels and this is ensured by the low acoustic footprint from VFD soft-ramping, optimal pump selection at partial load and enclosure/room treatments minimise noise and vibration.

Operational transparency:

Full telemetry/SCADA and an audit-and-check workflow give the owner clear KPIs (pressure stability, availability, energy intensity) and faster decision-making.

Sustainability with business value:

Pairing desalination with rainwater reuse, reduces freshwater withdrawals and aligns the resort's ESG commitments with day-to-day operations.

Scalable and serviceable:

Standardised architecture using Grundfos technology, with local engineering and lifecycle support from Grupo Wasser.



Scalable and replicable approach to holistic optimisation that builds operational resilience

For Grundfos, this case shows how intelligent pumping combined with disciplined engineering can turn a high-salinity, variable-demand challenge into a repeatable, low-energy and high-reliability solution.

Proof of wire-to-water efficiency:

A dual-train SWRO with energy-recovery and VFD-driven boosters demonstrates measurable reductions in kWh/m³ without compromising set-point stability or uptime.

Replicable blueprint:

The architecture (right-sized pumping, ERDs, intelligent control, SCADA) is a template the Grundfos distributor network can scale across hotels, resorts, and coastal communities facing high TDS, variable demand and rising energy costs.

Total cost of ownership leadership:

Lower energy, fewer transients, and smarter maintenance translate into documented TCO savings, exactly the value proposition Grundfos promises the market.

Data-driven reliability:

Full telemetry and an audit-and-check operating model enable predictive service and KPI transparency (pressure stability, availability, kWh/m³) as part of the strong service offering.

Sustainability at core:

Pairing desalination with onsite rainwater reuse advances customers' water-stewardship and decarbonisation goals, aligning with the energy efficiency and holistic optimisation focus from Grundfos and partners such as Grupo Wasser.



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

GRUNDFOS 