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SULZER

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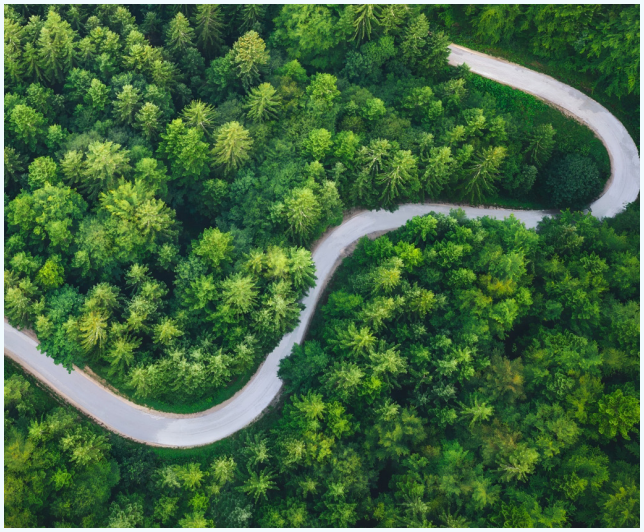

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AQUA ENERGY EXPO TEAM

Magazine Team

Mohamed Khalifa

Founder and CEO

Team leader

Heba Sayed

Design

- Hadeer Omar
- Omnia Gamal
- Nesma Saeed
- Walaa Mohamed

Content Writers

Water Section

- Hadeer Omar
- Mai Sultan

Energy Section

- Omnia Gamal
- Aya Mohsen

Jobs platform

- Mona Nady

IT Support

- Aya Mohsen
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- Fatma Badr

Knowledge Hub Team

- Esraa Hany

Marketing Team

- Heba Sayed :heba@aquaenergyexpo.com
- Rofayda Mohamed (China) : rofayda@aquaenergyexpo.com
- Khloud Khaled (China) : Khloud@aquaenegyexpo.com
- Esraa Hany : Esraa@aquaenergyexpo.com
- Haidy Walid :Haidy@aquaenergyexpo.com

Innovative Solutions to Achieve Sustainability in Water and Energy

From The Editor

In an era marked by escalating environmental challenges and a growing demand for vital resources, the pursuit of innovative and sustainable solutions in water and energy management is paramount. This issue of Aqua Energy Expo Magazine highlights groundbreaking advancements and strategic initiatives shaping a more resilient future for these essential sectors.

We begin with Filtralite®, an advanced filtration media transforming water treatment. Its successful implementation in Barcelona demonstrates its potential to optimize energy use, reduce maintenance costs, and extend filter lifespan, offering valuable lessons for water utilities globally, especially in the Middle East.

Next, we explore FEDCO's variable nozzle turbine generator, a transformative solution for brine energy recovery in low-pressure membrane systems. This technology overcomes traditional limitations, enabling higher efficiency and lower operational costs, crucial for sustainable desalination and reducing energy consumption and emissions.

The focus then shifts to Sulzer's integrated approach to pump optimization. This article emphasizes that cutting energy costs and carbon emissions can be achieved without compromising performance. Sulzer's solutions turn operational burdens into competitive advantages, delivering substantial cost savings, reduced carbon footprints, and lasting resilience for industries facing tightening regulations.

Regionally, Al-Mousa Trading Company in Saudi Arabia leads the nation's water future. Their commitment to quality, innovation, and Saudi Vision 2030 positions them as a trusted partner in developing smart cities, green infrastructure, and water reuse innovations, actively building the future. From Egypt, "Ala El-Ad" inspires us with its national water conservation campaign. By encouraging wise water use, this campaign fosters a more conscious and water-secure society, demonstrating what's possible when governments, communities, and individuals unite to protect shared resources.

Finally, we address the critical topic of cybersecurity in critical infrastructure, particularly in water and electricity. As threats evolve, utility operators must prioritize cybersecurity, identify vulnerabilities, and implement robust response strategies. The stakes are high, and immediate action is needed to safeguard essential services and ensure public safety and economic stability.

These articles collectively showcase a dynamic landscape where innovation, strategic partnerships, and community engagement drive solutions to complex water and energy challenges. We hope this issue provides valuable insights and inspires further collaboration towards a sustainable and secure future for all.

Mohamed Khalifa
Founder and CEO
EMAIL ADDRESS:
Info@aquaenergyexpo.com
LinkedIn: www.linkedin.com

COMPANY:
AQUA ENERGY EXPO LLC
ADDRESS:
(ST. PETERSBURG, FLORIDA USA 33702)
(L23000439864), EIN (61-2116509)

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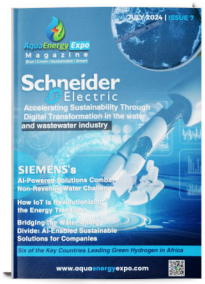

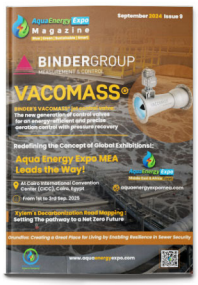

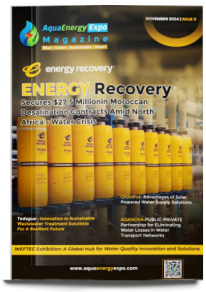

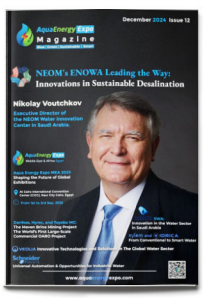

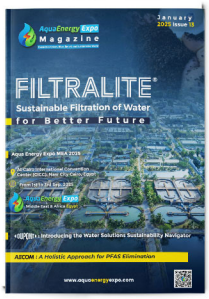

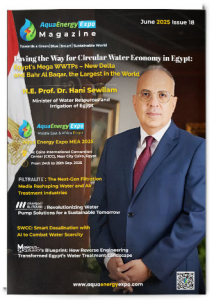

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How Filtralite® Is Transforming Water Treatment in Spain – A Model for the Middle East?

As the Middle East faces growing water scarcity and increasing demands on aging infrastructure, innovative solutions from around the world offer new hope. Spain, a country with a similarly diverse and challenging water landscape, has taken major strides in water treatment and resource management.

At the heart of this progress is Filtralite®, an advanced filtration media developed by Saint-Gobain, made of expanded clay that is commonly used in water treatment and filtration processes, now used at the Llobregat Drinking Water Treatment Plant in Barcelona. Expanded clay is a lightweight aggregate material that is produced by heating natural clay to high temperatures, causing it to expand. Filtralite®, in particular, is known for its high porosity, durability, and efficiency in water filtration applications.

The Plant Manager, Santiago Gonzalez Avellana, was given the possibility to share what he thinks about Filtralite® products and how they help him in his daily work. This interview reveals how Filtralite® is helping optimize energy use, reduce maintenance costs, and extend filter lifespan — lessons that may prove valuable for water utilities across the Arab region.

Can you describe your career and your current role at ATL?

I am an industrial engineer specializing in industrial chemistry and I have been working for 22 years in the drinking water treatment sector.

I became part of the technical team of ATL in 2005 and I have been in charge of the Llobregat Drinking Water Treatment Plant since 2016.

Can you give us some facts and figures about your plant? What solutions did you have for the filtration stage before installing Filtralite®?

The Llobregat Drinking Water Treatment Plant was commissioned around 1978. Currently, it has a maximum production capacity of 3.2 cubic metres per second, and two very different water treatment lines. On the one hand, we have a more conventional treatment that starts with pre-oxidation of the water with potassium permanganate ($KMnO_4$), followed by a pH adjustment with carbon dioxide (CO_2) and a coagulation-flocculation-decantation process. Chlorine dioxide (ClO_2) is then dosed as an oxidant and the water is passed through a double filtration stage, the first with silica sand as a filter bed and the second through a 150 cm bed of activated carbon grains.

> **"To optimize the filter run and reduce washing costs, Filtralite was tested on an industrial scale on one of the 12 filters of the plant."**

> **"The results showed that with the Filtralite® solution, the filtration run times were increased, reducing the number of washes by 66%."**

Finally, much of the filtered water goes through advanced treatment, using reverse electrodialysis membranes, prior to final dis- infection and re-chlorination with sodium hypochlorite (NaClO) at the inlet and outlet of the storage tanks. The initial solution implemented to date for the filtration stage was the original one, that is, sand filtration.

How did you learn about the Filtralite® solution and what made you decide to try this innovative filtration media?

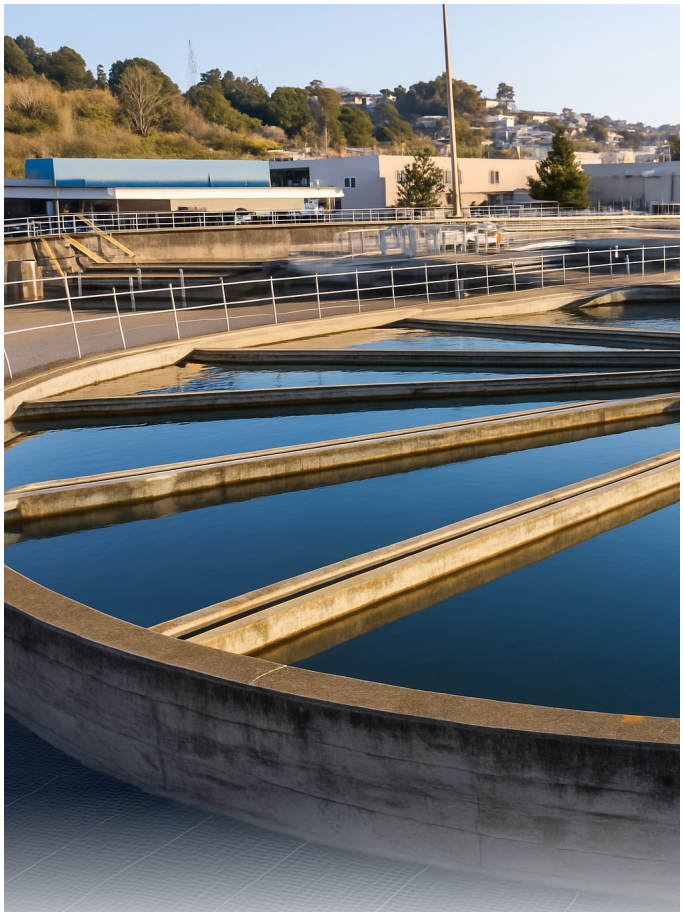
In 2017, and after the involvement of Filtralite® technicians with ATL's re- search, development and innovation department, initial meetings were held to learn about the characteristics and properties of Filtralite® media.

We then assessed the possibility of trying it at the plant, either on a pilot scale or on an industrial scale. In order to optimize the filter run and reduce washing costs, we decided to carry out the test directly on an industrial scale on one of the 12 filters of the plant. Before replacing the existing sand with Filtralite®, it was necessary to adapt the filter by increasing the dis- charge level of the wash water. The performance of Filtralite® was evaluated by operating the filter against a sand filter under equivalent conditions for more than 10 months.

How would you describe the main features of Filtralite® and its advantages compared to your initial solution?

After almost a year of testing, the results obtained showed that with the Filtralite® solution, the filtration run times were in- creased, reducing the number of washes by 66%. This reduction in the number of washes translates into significant economic savings for the operations: savings in the energy consumed while at the same time, the filter operating time increases, thus increasing the treatment capacity. The reduction in the number of procedures with the equipment involved in the washing process reduces the maintenance costs of such equipment and will extend its useful life.

> **"With the Filtralite® solution it was possible to work with higher filtration velocities than with conventional sand, even exceeding 15 m/h."**



Finally, it should be noted that throughout the test it was possible to verify that the water quality obtained using Filtralite® was similar to that provided by sand filters, both in terms of turbidity and in terms of a barrier effect.

Did you encounter any unexpected results, positive or not, during the industrial test performed?

Yes, we did. We were able to verify that with the Filtralite® solution, it was possible to work with higher filtration velocities than with conventional sand, even exceeding 15 m/h while maintaining part of the increase in the filtration runs.

Do you know how much energy you are saving thanks to the Filtralite® solution? What is the estimated return on your investment? Could you give us a more detailed calculation?

In the filter where Filtralite® is installed, we estimate that we are saving about 60% of energy compared to using sand. In addition, by having longer filtration runs, the reduction in the number of washes resulted in a savings of

65% of washing water. Taking these and other aspects into account, we have calculated a return on investment of approximately 2.3 years.

If you had to do it all over again, would you choose Filtralite® again? Would you recommend it to your colleagues?

Yes, indeed. In fact, tests are planned for other ATL production sites to evaluate the performance of this filtering material.

What are the next projects for your plant?

The plant's next projects are aimed at increasing the production capacity of the plant to 4 cubic metres per second. Two more clarifiers will be built and the 12 sand filters and the 15 activated carbon filters will be remodelled. The sand filter remodelling project includes the replacement of the sand filters with Filtralite®.

What are the characteristics of the current water market in Spain, and more specifically around Barcelona and Catalonia?

I sincerely believe that hand in hand with innovation and technological advances we are moving towards more sustainable and efficient water services, and towards treatments that allow us to obtain higher water quality. All this focused on making the best possible use of water resources that are becoming increasingly scarce.

Spain's national government has promised a water resources action plan worth 12 billion euros. How will this plan affect you? What do you consider to be the main areas of development?

I believe that the main areas to be developed are the increase in desalination capacity, the use of reclaimed water and the upgrading of existing treatment plants, as well as heavy investments in the digitalisation of the different processes.

> "Taking into account savings in energy, washing water and other aspects, we have calculated a ROI of approximately 2.3 years."

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- **Website:** www.cairotech.net
- **E-mail:** m.saleh@cairotech.net
  mainoffice@cairotech.net
- **Contact Person:**

- Eng. Mohamed Saleh
CEO
+201004806495
- Mr.Ehab Ibrahim
CFO
+201090033905

FEDCO

FEDCO Leads the Way:

Transforming Brine Energy Recovery in Low-Pressure RO Systems

Reverse osmosis (RO) is a cornerstone of modern desalination and water treatment, but its energy consumption remains a critical challenge. While high-pressure seawater reverse osmosis (SWRO) systems have long incorporated energy recovery devices (ERDs) to improve efficiency, low-pressure membrane systems such as brackish water RO (BWRO) and nanofiltration (NF) have historically lacked cost-effective energy recovery solutions.

FEDCO has pioneered innovative technologies to bridge this gap, introducing low-pressure turbine generators with variable geometry nozzles to maximize energy recovery in systems where traditional ERDs are impractical.

This article explores the challenges of low-pressure brine energy recovery, FEDCO's breakthrough solutions, and their transformative impact on plant economics and sustainability.

Challenges with Traditional ERDs

Energy Recovery Devices are crucial in maximizing efficiency in desalination processes. However, traditional ERDs, designed for high-pressure seawater applications, face significant challenges when applied to low-pressure systems:

Economic Constraints:

The high capital costs associated with SWRO ERDs make them economically unfeasible for low-pressure applications. The pressure and material demands of these devices are often disproportionate to the energy recovery potential in low-pressure environments.

Wide Hydraulic Range:

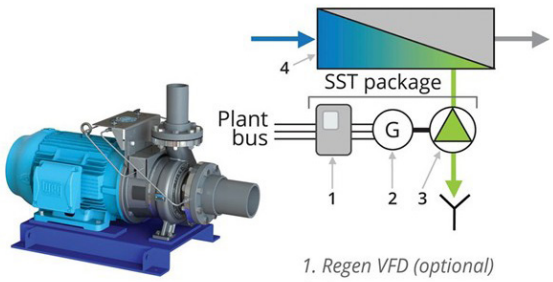
Low-pressure systems typically operate over a broader hydraulic range than their high-pressure counterparts. This variability arises from factors such as feed water salinity, temperature fluctuations, and changes in water demand. As a result, standard ERDs may not be able to accommodate these conditions effectively.

Technical Limitations:

Fixed nozzle and impeller designs in conventional turbine generators limit their hydraulic range and adaptability to varying operational conditions. This necessitates additional components, such as backpressure and bypass valves, which complicate system design and increase costs.

FEDCO's Solution: Variable Nozzle Turbine Generators

The proposed solution is a low-pressure turbine generator that integrates a hydraulically controlled variable geometry turbine nozzle to efficiently recover brine energy. This innovative system employs brine as the hydraulic motive force to control the variable nozzle, eliminating the need for additional hydraulic or air lines. The design features a close-coupled turbine generator that maintains high efficiency across a wide hydraulic range.

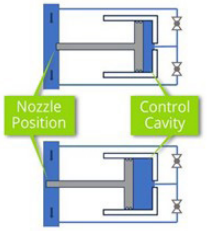


1. Regen VFD (optional)
2. Generator
3. Turbine
4. RO/NF membrane

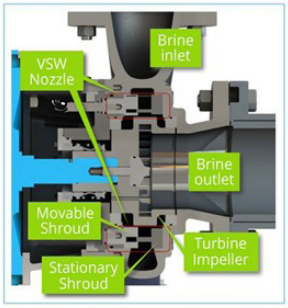
The variable geometry nozzle optimizes efficiency throughout the operating range by eliminating the need for auxiliary valving and effectively controlling the flow coefficient (Cv) across the turbine. This design replaces the traditional function and control philosophy of the brine control valve in low-pressure systems, making it an elegant solution for both retrofits and new installations. The retrofit process is straightforward, requiring only minor modifications to the brine piping, allowing brackish water reverse osmosis (BWRO) plants to implement this solution and significantly reduce operating expenses, with a return on investment projected at two years.

• How It Works

The turbine generator utilizes innovative Variable Sidewall (VSW) technology to adjust the effective nozzle area dynamically. The existing brine pressure actuates the variable sidewall nozzle, enabling changes to the movable shroud's position. This adjustment can be controlled automatically or manually based on site requirements. Once the desired nozzle position is set, the movable shroud is hydraulically locked, requiring no further control until plant conditions change.



Variable Sidewall Control in Open and Closed Position



Variable Sidewall (VSW) Cross Section

• Turbine Performance

With a peak hydraulic efficiency of 86%, the variable nozzle turbine generator presents a cost-effective solution for brine energy recycling in low-pressure membrane systems. The addition of the variable sidewall allows for two key control parameters: shaft speed (RPM) and variable sidewall position. This configuration provides approximately a 4:1 pressure range for a given flow and a 2:1 flow range for a given pressure, enabling optimization of hydraulic efficiency under varying conditions.

• Technology Demonstration

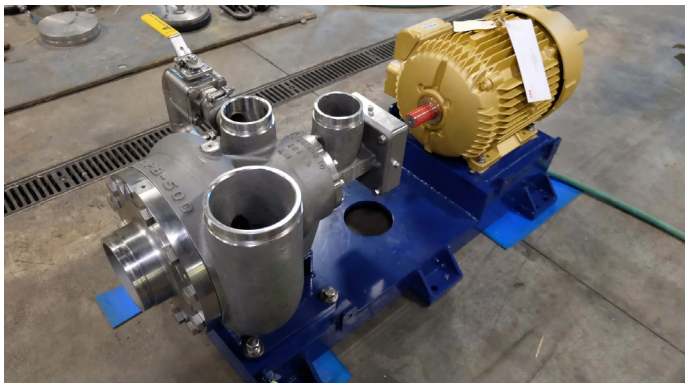
The performance of the variable nozzle turbine generators has been thoroughly modeled and validated through computational fluid dynamics, hydraulic modeling, and bench testing. A demonstration skid has been developed to showcase the equipment's operational simplicity and wide operating range.

The skid features a closed loop with a 250-gallon storage tank, a high-efficiency charge pump, and the variable nozzle turbine generator, all managed by a common electrical cabinet housing a programmable logic controller (PLC), motor and generator variable frequency drives (VFDs), and instrumentation relays.

The World's Most Efficient Turbine-Based Energy Recovery Devices

FEDCO's Energy Recovery Devices (ERDs) transform wasted hydraulic energy typically lost through valves or orifice plates into usable power, reducing operating costs and improving sustainability. With over 8,000 units deployed globally, FEDCO's turbochargers and turbogenerators set industry benchmarks for efficiency and reliability.

Fluid-driven turbochargers and turbogenerators are capable of handling flow rates ranging from 30 gallons per minute (gpm) to 13,000 gpm (7 m^3/h to 3,000 m^3/h) and can operate under pressures from 100 psi to over 2,000 psi (150 bar). Each unit is custom-engineered for optimal efficiency, achieving up to 82%, and is delivered quickly. Super duplex stainless steel is used as the standard material.



How FEDCO Turbochargers Work

In the turbocharger, the high-pressure concentrate or brine stream from the membranes enters the turbine side of the unit. This high-pressure flow spins the turbine impeller of the rotor, converting hydraulic energy into mechanical energy that powers the pump side impeller.

This mechanical energy delivers a pressure boost to the feed stream, decreasing the pressure requirements for the RO system's high-pressure feed pump. The one-piece, custom-engineered rotor features patented Rotor-Flo™ technology, which eliminates the need for external lubrication lines, ensuring maximum reliability and minimal maintenance.

Key Product Offerings

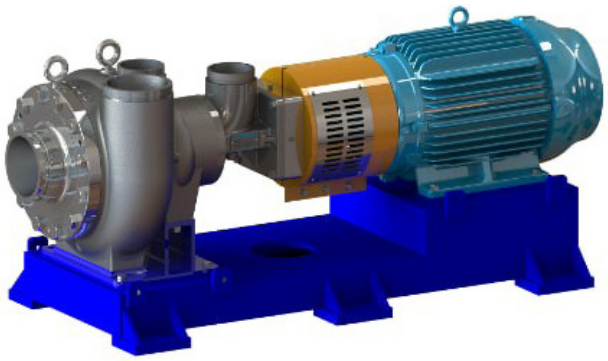
FEDCO offers a variety of turbocharger models tailored to meet specific project requirements:

The Hydraulic Booster (HPB)

FEDCO's Hydraulic Pressure Boosters (HPB) energy recovery turbocharger is a leader in efficiency and reliability within the industry. The HPB™ turbocharger can reduce energy consumption in seawater reverse osmosis (RO) systems by up to 50%. By utilizing the HPB™, more than 80% of the wasted high-pressure brine energy can be recovered, allowing for a smaller high-pressure feed pump and reduced motor electrical consumption.

The Motorized Turbochargers

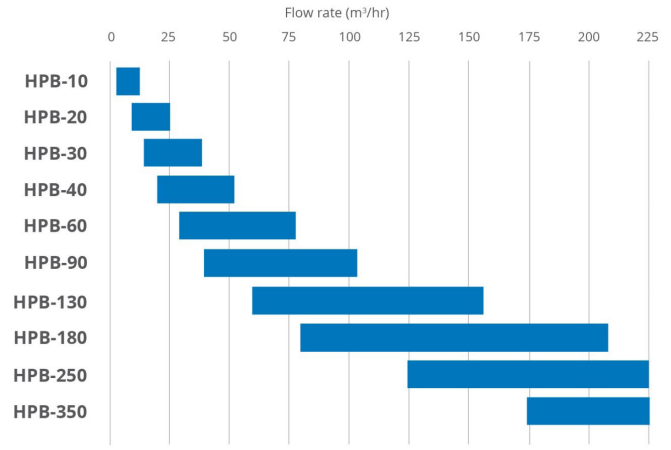
Additionally, the Motorized Turbochargers, specifically the HP-HEMI model, can handle feed flows ranging from 400 to 3,200 m^3/h and operate at pressures up to 83 bar. This model provides precise control over feed and brine flows and pressures, eliminating the need for variable frequency drives (VFD) on the high-pressure pump, leading to energy savings and reduced capital expenditures (CAPEX).



Customization and Delivery - Standard HPB Series

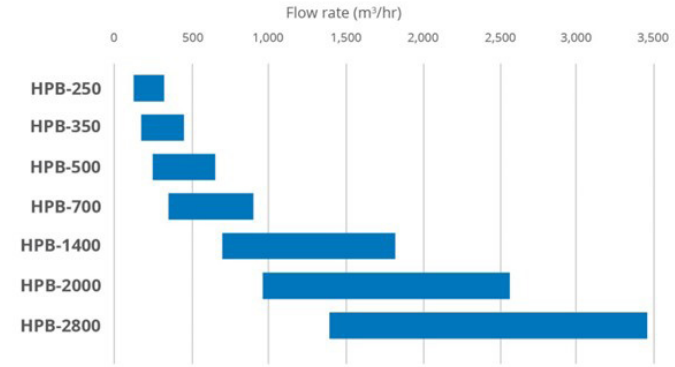
The Standard HPB Series includes ten (10) models, providing an ideal solution for demanding performance, reliability, and project schedule requirements. The standard material of construction (MOC) is Duplex SS 2205, with the option for Super Duplex SS 2507.

Additional features such as brine nozzle valve actuators, flanged connections, and other options are also available. The standard line HPBs are tailored to your flow and pressure specifications and are delivered within three (3) to six (6) weeks in Duplex SS 2205.



Mega System HPB

The Mega System HPB includes six (6) models designed to accommodate the largest current and anticipated seawater reverse osmosis (SWRO) trains. The standard MOC is Duplex SS 2205, with the option for Super Duplex SS 2507. Brine nozzle valve actuators, flanged connections, and other options are available as well.



Key Considerations in Low-Pressure Brine Energy Recovery

Reducing energy consumption in low-pressure membrane processes is a largely overlooked area in our industry. One significant challenge is the limited compatibility of conventional energy recovery devices, which are primarily designed for seawater desalination, with the highly variable hydraulic conditions encountered in low-pressure membrane processes.

To address these traditional challenges and lower the barriers to brine energy recycling in these systems, a turbine generator featuring an integrated brine-controlled variable nozzle geometry can be implemented.

This variable nozzle design simplifies energy recovery with a turbine generator while maximizing efficiency across an expanded hydraulic range, eliminating the need for bypass and backpressure valving. The implementation of a Variable Sidewall (VSW) turbine generator offers a straightforward and elegant solution for integrating brine energy recycling into low-pressure membrane systems, similar to what is commonly done in seawater reverse osmosis (SWRO).

The low-pressure turbine generator provides several advantages:

- Reduced Facility Energy Consumption: It enables electricity generation from brackish water reverse osmosis (RO) and nanofiltration processes.

- Decarbonization: It helps lower greenhouse gas emissions from any process that produces permeate through RO or nanofiltration.

- Straightforward Control: The variable sidewall design allows for a dynamic response to changes in brine flow and pressure.

Future Trends in Energy Recovery

The energy recovery sector for seawater desalination is advancing rapidly, driven by innovations in efficiency and sustainability. **Key trends include:**

- Renewable Energy Integration

Hybrid systems combining solar, hydrogen, or advanced nuclear power with desalination plants are being piloted globally. These reduce fossil fuel dependence, stabilize energy costs, and cut greenhouse gas emissions, making plants more resilient to price volatility.

- Smart Energy Recovery Systems

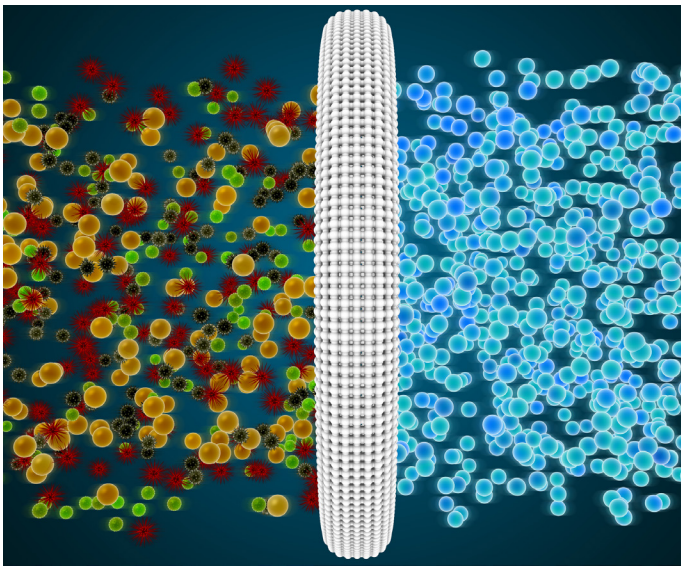
AI-driven sensors and machine learning optimize performance in real time, adjusting to feedwater changes and energy pricing. This dynamic control maximizes efficiency (e.g., adaptive turbocharger operation) and lowers operational expenses.

Next-Gen Membrane Technology

Researchers are also investigating novel membrane materials that could lower the pressure requirements for reverse osmosis (RO), further improving energy recovery effectiveness. A study indicates that next-generation membranes may halve the energy requirements for RO desalination.

Such breakthroughs could significantly enhance the energy efficiency and economic viability of desalination, making it a more sustainable solution for addressing water scarcity.

These innovations collectively shrink desalination's carbon footprint while bolstering water security. For instance, "smart" ERDs paired with low-energy membranes may reduce total plant energy use by over 60%, aligning with global sustainability goals.



Conclusion

FEDCO's variable nozzle turbine generator represents a transformative solution for brine energy recovery in low-pressure membrane systems. By overcoming the economic and hydraulic limitations of traditional ERDs, this technology enables higher efficiency, lower operational costs, and sustainable water treatment.

As the industry moves toward smart, renewable-integrated desalination, innovations like FEDCO's turbine generator will play a pivotal role in reducing energy consumption, cutting emissions, and ensuring water security for future generations.

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Sulzer Launches New Pump Energy Optimization Solution to Drive Cost and Carbon Savings

In today's industrial landscape, energy efficiency has become a paramount concern, particularly in sectors that rely heavily on pump systems for fluid transport. Industries such as manufacturing, water treatment, and HVAC are increasingly focusing on pump energy optimization to reduce operational costs and carbon emissions. Pumps account for over 20% of global electrical energy demand, with some industrial facilities relying on them for 25-90% of their total energy consumption. Inefficient pump systems lead to excessive energy use, higher operaoptimization a strategic priority.

Sulzer, a Switzerland-based engineering leader, has developed an advanced pump optimization service that enhances efficiency, reduces costs, and supports sustainability goals. Pillay-Ramsamy, services division president at Sulzer, explained:

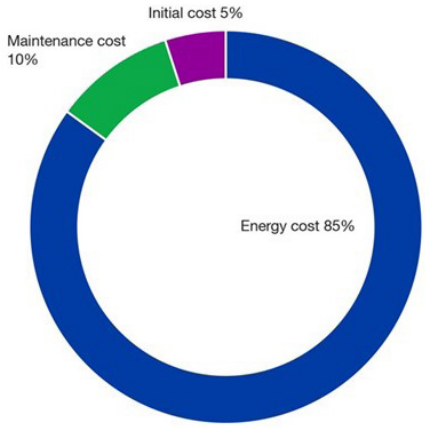
> "For operators who are constantly challenged to do more with less, making energy efficiency improvements is a win-win. With pumps accounting for 20 per cent of the world's electricity demand, we want to offer a streamlined, futureproofed way for customers to improve their energy efficiency regardless of their pump OEM."

The Hidden Cost of Pump Inefficiency

Pumping systems are essential in various industrial and commercial applications, often accounting for a substantial portion of energy costs. A thorough understanding of these costs is vital for organizations aiming to optimize energy consumption and reduce operational expenses.

The primary contributor to these costs is electricity usage, which varies based on pump design, operational conditions, and usage patterns. The life cycle costs of a pumping system can be categorized into three segments:

- Energy Cost (85%): This is the largest component, highlighting that energy consumption is the most significant factor in the overall life cycle cost.
- Maintenance Cost (10%): This portion reflects the importance of maintaining pumping systems to ensure efficiency.
- Initial Cost (5%): This is the smallest segment, indicating that the initial purchase price is relatively low compared to ongoing energy and maintenance expenses.



Life cycle costs of a pumping system

Pumping systems comprise the pump, motor, piping, valves, and instrumentation. Their energy and material usage depend on design and operational factors. Proper matching of these components throughout their life cycle is crucial for minimizing costs.

Electricity costs arise from the continuous operation of pumps, which may run for long periods or cycle frequently due to varying demands. Pump efficiency significantly influences energy costs; inefficient pumps increase consumption and expenses. Regular evaluations of pump systems are essential to ensure they are appropriately sized and operated at optimal efficiency.

Maintenance also affects energy costs. Regular upkeep ensures efficient operation, while neglect can lead to increased wear and higher expenses. Implementing planned maintenance schedules can prevent costly issues.

Overall, effective energy management and strategic investments in pumping systems can significantly lower costs and improve reliability, ultimately benefiting organizational budgets.

Key Strategies for Pump Energy Optimization

Optimizing a pumping system can lead to significant energy savings, primarily achieved through the careful selection of pump technology, proper sizing, and the implementation of advanced control methods. The foundation of effective optimization begins with a comprehensive understanding of the specific application, fluid characteristics, and flow demands.

By matching the appropriate pump construction with the optimal impeller design, organizations can achieve a cost-effective solution that minimizes both initial capital investment and long-term operating costs.

• Importance of Proper Pump Selection and Sizing

The selection of the right pump technology is crucial for maximizing energy efficiency.

High-efficiency pumps can reduce energy consumption by 3% to 20%, and in some cases, even up to 50%.

This substantial reduction underscores the importance of understanding the desired operating conditions and potential future expansion needs. To select the best pump type, size, speed, power requirements, and auxiliary equipment, accurate data on the desired running point is essential. One common mistake during the design phase is oversizing the pump.

Customers often add safety factors to the required head and flow values, resulting in the selection of an oversized pump. This practice leads to inefficient operation,

as the pump may not run within its best efficiency range during normal production, resulting in considerable energy waste. Therefore, ensuring the correct sizing of the pump is a significant economic opportunity for reducing energy consumption.

• Enhancing Performance with Variable Speed Drives (VSD)

Incorporating variable speed drives (VSD) into pumping systems can yield further energy savings and enhance performance. VSDs allow for the adjustment of the pump's rotational speed to match the specific head and flow requirements of the application. Compared to constant-speed driven pumps, VSDs can improve efficiency by up to 10%. Moreover, VSDs can be retrofitted to existing pumps, enabling them to adapt to changing system demands and future expansion plans without the need for a complete pump replacement.

• Eliminating Throttling Valves for Maximum Savings

The layout of the pumping system's pipework and the use of flow control devices can significantly impact overall pumping efficiency. Factors such as pipe diameter, length, surface roughness, and the presence of control valves all contribute to system pressure drops and increased energy consumption.

To optimize energy usage, the reliance on control valves should be minimized.

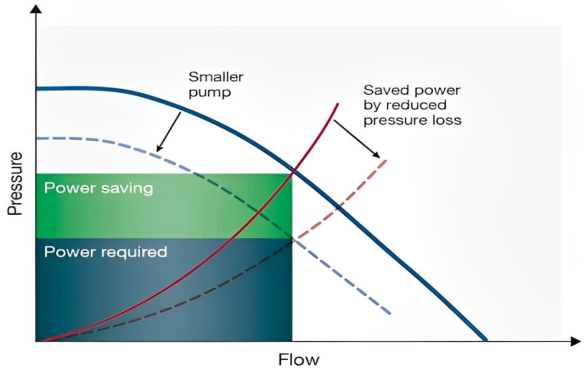
These valves can undermine the efficiency gains achieved through the use of high-efficiency pumps. Instead, utilizing variable speed drives or on-off regulated systems can prevent energy losses and enhance savings. Throttling valves and bypass loops often indicate an unbalanced process or an oversized pump. By replacing an oversized pump with a more appropriately sized model, organizations can realize substantial savings.

Throttling valves and bypass loops often indicate an unbalanced process or an oversized pump. By replacing an oversized pump with a more appropriately sized model, organizations can realize substantial savings. Additionally, modifying existing pumps such as changing to a different impeller design or adding a VSD can also lead to significant energy reductions.

Benefits to Build Upon

The advantages of pump energy optimization extend beyond mere operational improvements. Here are some compelling benefits:

• **Cost Savings:** By adopting energy-efficient technologies, industries can significantly reduce operational expenses. For example, a manufacturing plant reported a 30% decrease in energy costs after integrating a modern pump control system.



• **Reduced Carbon Footprint:** Optimizing pump systems directly contribute to lower greenhouse gas emissions. A study in the water supply sector found that energy optimization led to a reduction of over 50 tons of CO_2 emissions annually.

• **Enhanced System Performance:** Improved operational efficiency results in reliable service delivery, minimizing downtime and boosting productivity. A pharmaceutical company optimized its pump systems, extending equipment lifespan and improving production timelines by 25%.

These quantifiable results underscore the merits of adopting pump energy optimization strategies, aligning with both financial and environmental objectives.

Regulatory and Industry Standards Driving Change

Energy efficiency in pumping systems is driven by global regulatory frameworks and industry standards that set benchmarks, incentivize sustainable practices, and reduce environmental impact.

Key policies like the U.S. Energy Policy Act (EPAct) mandate minimum efficiency levels for pumps and motors, steering manufacturers and users toward optimized designs.

Internationally, standards such as ISO 14001 promote environmental management systems, while certifications like Energy Star label high-efficiency products, enabling cost savings and market competitiveness.

The European Union's ErP (Energy-related Products) regulations exemplify regional rigor, defining strict efficiency thresholds for water pumps to curb energy consumption.

Similar directives are emerging worldwide, reflecting a trend toward stricter greenhouse gas reduction targets. These evolving standards transform energy efficiency from an advantage to a compliance necessity, compelling industries to prioritize t that lower operational costs and carbon footprints. Industry leaders like Sulzer demonstrate proactive compliance. Their SNS process pump series (2015) exceeded regulatory requirements, setting new efficiency benchmarks and maximizing customer savings.

This underscores how standards not only foster compliance but also drive technological advancement. Ultimately, regulations and standards anchored by bodies like ANSI and ISO create a cohesive ecosystem where energy-efficient pumping solutions become integral to sustainability strategies, balancing economic and environmental goals across global markets.

Complete Solution

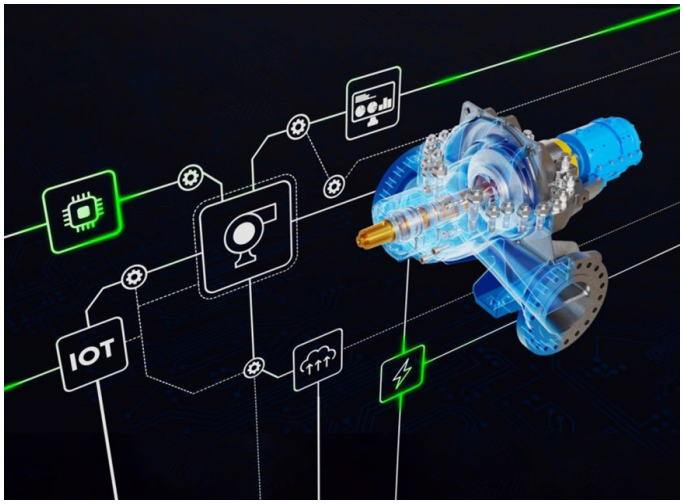
Sulzer's Pump Optimization Program aims to enhance global pump efficiency, with a potential one percent increase capable of saving approximately 59 terawatts of electricity annually equivalent to New Zealand's total power consumption. The program targets efficiency improvements of 20 to 30 percent for various industrial pumps.

> Ravin Pillay-Ramsamy, president of Sulzer's services division, emphasized: Inefficient and unreliable pumps cost operators in the industrial sectors millions of dollars in unnecessary downtime, energy costs and carbon emissions every year. Sulzer Energy Optimization Service offers a comprehensive solution that tackles this inefficiency from identification through to improvement and monitoring.

Leveraging its extensive engineering expertise, Sulzer combines digital analysis, machine learning, and monitoring to reduce carbon emissions, enhance reliability, and lower energy costs.

The optimization process consists of four key steps:

- **Energy Audit:** An initial energy audit is conducted using Sulzer's proprietary PumpWise calculator to identify inefficiencies



and outline potential savings in energy, carbon emissions, and costs.

•**Tailored Proposal:** Sulzer's team generates a customized proposal presenting various options to enhance pump efficiency, considering operational costs, investment, downtime, and efficiency guarantees.

•**Engineered Retrofit:** The selected upgrades are executed through engineered retrofits, utilizing techniques such as hydraulic re-rates, specialized coatings, and precise wear clearances. Since 2010, Sulzer has completed over 4,000 retrofit projects globally.

• **Performance Agreement:** Post-retrofit, Sulzer offers a performance agreement to ensure ongoing reliability and efficiency, including access to Blue Box, their proprietary machine learning technology that converts pump performance data into actionable insights.

Case Study: Reinvigorating a Mothballed Desalination Plant

The service has been used for a number of case studies, including a desalination plant in Spain that had been mothballed for 12 months due to high energy costs of the pumps. The solution was to re-engineer the pumps to achieve optimum efficiency (in this case, 10 per cent efficiency savings), while at the same time reducing the number of filtration stages to lower the demand on the pumps. Other improvements included new pump casings, crack repairs, and a new rotor.

After rigorous testing, all five pumps operated at their best efficiency point with less energy required. Cost savings from the optimised plant will be used to offset some of the costs of a new solar plant that will be used to power the desalination plant.

Annually, the pumps are expected to consume 5 megawatts less power than in their original state, with an associated carbon reduction of 2,345 tonnes. Operational expenses are estimated by the company to reduce by €1 million a year. Water produced by the plant will be used to irrigate 3,000 hectares of agricultural land each year and provide 20 cubic hectometres of water per year to the local population.

CONCLUSION

Pump optimization is no longer optional it's strategic. Sulzer's integrated approach proves that cutting energy costs and carbon emissions can coexist without compromising performance. As industries face tightening regulations and climate pressures, solutions like Sulzer's turn operational burdens into competitive advantages. For every pump upgraded, the payoff is clear: lower costs, lighter footprints, and lasting resilience.

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WATER NEWS BRIEF

July| 2025

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Veolia Launches Breakthrough Drop® Technology in Europe for PFAS Destruction

Veolia has launched its patented Drop technology in Europe, achieving up to 99.9999% destruction of per- and polyfluoroalkyl substances (PFAS), known as "forever chemicals." Developed in Veolia's research centers, this technology utilizes incineration exceeding 900°C for efficient PFAS elimination. The Drop® system is now operational in 20 incineration lines across several European countries. PFAS, used since the 1940s, are challenging to degrade due to their strong carbon-fluorine bonds, raising health and regulatory concerns. Veolia's Drop technology enhances PFAS degradation while reducing environmental impact, marking a significant advancement in hazardous waste management and compliance

NWC began 19 water and sanitation projects in Jazan at SR 1.5+ billion

The National Water Company (NWC) has begun implementing 19 projects in the Jazan region, including the construction of water and sanitation lines and networks exceeding 1,203 kilometers at a cost of over 1.5 billion Saudi Riyals ($400 million). These projects consist of nine water initiatives covering various districts in Jazan city and governorates like Damad, Bish, Sabia, and Abu Arish, with networks totaling 397 kilometers. Additionally, ten sewage projects spanning 806 kilometers are underway, including treatment plants with a capacity of 24,000 cubic meters per day. These efforts aim to enhance water distribution and achieve water security in line with Saudi Vision 2030.

KSB announces new submersible motor pumps with axial propeller

The AmaCan P type series is engineered for transporting large volumes of municipal and industrial water, as well as wastewater from stormwater and irrigation systems. With optional corrosion-resistant materials, it can also be used in flood control and seawater aquaculture. The pump features adjustable blade angles for optimal performance and high hydraulic efficiency, utilizing newly developed three-blade impellers. Its self-centring design allows for easy installation without anchoring. Energy-efficient drives include IE3 and IE4 motors. Bi-directional seals prevent water ingress, while intelligent sensors monitor vibrations and temperature for predictive maintenance. The watertight cable gland protects against short circuits, ensuring durability.

Grundfos further strengthens its water treatment offering with new acquisition in North America

Following a series of acquisitions in water treatment, Grundfos has signed an agreement to acquire Newterra, a Pittsburgh-based water and wastewater treatment company. This move strengthens Grundfos' presence in North America, aiming to double its US business by 2030. The company also plans to expand its production with a new plant in Texas. Inge Delobelle, EVP, noted that the acquisition enhances water treatment capabilities. Newterra, with about 280 employees, provides flexible water treatment solutions. The deal is expected to close in the second half of the year, with both companies operating separately until then.

SA Water takes to the skies to tackle greenhouse gas emissionsal

SA Water has successfully trialed a new method for monitoring its environmental impact using advanced sensors and drone technology to measure greenhouse gas emissions at the Christies Beach Wastewater Treatment Plant in Adelaide. Collaborating with SUEZ, the trial involved a drone capturing real-time data on methane and nitrous oxide emissions, enhancing traditional ground-based monitoring. This innovative approach aligns with SA Water's goal of achieving net zero emissions by 2030. The results will inform strategies to further reduce emissions and may be applied to other treatment plants. SA Water also utilizes renewable energy and electric vehicles to support sustainability initiatives.

Qatar: Kahramaa installs over 988,000 smart electricity and water meters

The Qatar General Electricity and Water Corporation (Kahramaa) has reported progress in its Smart Meters Project, with over 988,000 smart electricity and water meters installed nationwide by mid-2025. This includes more than 528,000 smart electricity meters and 460,000 smart water meters. The project aims to replace all traditional meters with digital alternatives, targeting full deployment of smart electricity meters by the end of 2025 and smart water meters by 2027. The smart meters offer features like real-time consumption tracking and automated billing, enhancing data accuracy and supporting Qatar's National Vision 2030 for sustainable development.

Global Water Events

Pump Industry Awards 2025

Date: 13 March 2025
Location: The Hilton at St. George's Park, Burton upon Trent, UK

The Pump Industry Awards is now recognised as one of the leading award ceremonies within the industrial arena. Founded by the BPMA in 2000, the awards programme celebrates the achievements of pump companies and individuals who strive to go the extra mile.

Website: www.pumpindustryawards.com

WateReuse 2025 Symposium

Date: From 16 to 19 March 2025
Location: Tampa, FL, United States

The Annual WateReuse Symposium offers the most extensive learning opportunities in water recycling, addressing topics such as policy, technology, operations, and communications for various applications, including irrigation, potable reuse, onsite systems, and industrial processes. In 2025, we celebrate the 40th anniversary of the WateReuse Symposium, with this year's theme being Turning the Tide Toward Reuse.

Website: watereuse.org

7th International Conference and Exhibition Desalination Latin America

Date: From 19 to 20 March 2025
Location: Santiago, Chile

2 days congress, International investment conference and exhibition is the only business platform to develop effective strategies, share experience, present new investment projects and innovations, consolidate the efforts of governments and businesses to implement desalination projects and increase water reserves throughout Latin America.

Website: desalinationlatinamerica.com

Smart Water Systems Conference

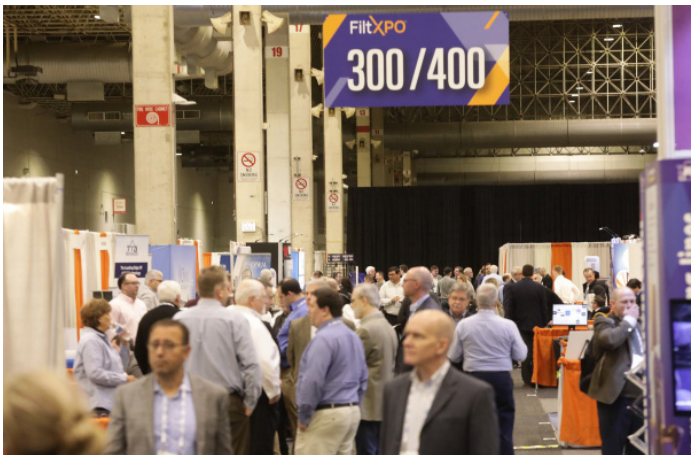
Date: From 15 to 16 April 2025
Location: Hilton London Kensington, London

Smart Water Systems is a two-day conference which aims to assist water utility companies, solution/service providers, government officials and finance/investment companies to collaborate, network and examine new technologies and latest developments to ensure more efficient leakage detection and management.

Website: www.smgconferences.com

FiltXPO 2025

Date: From 29 to 1 May 2025
Location: Tampa, FL, United States



FiltXPO™ 2025 at the Miami Beach Convention Center in Miami Beach, Florida, invites you to explore the future of filtration technologies and innovations. Discover the latest advancements from top-tier exhibitors and gain insights into the factors shaping the filtration market. Stay ahead of the competition by learning from industry leaders and positioning yourself as a key player in the field.

Website: www.filtxpo.com

Global Water Summit

Date: From 4 to 7 March, 2025
Location: West Palm BEeach, Florida

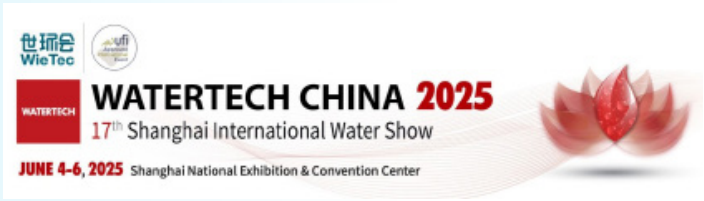
In a world that has crossed the 1.5°C threshold, water security faces unprecedented pressure. The challenge requires an immediate and sharp increase in capital deployment into our sector. At GWS 2025, we're bringing together the leaders who can make this happen.

Website: www.watermeetsmoney.com

Watertech China

Date: From 3 to 5 June 2025
Location: National Exhibition & Conference Center, Shanghai, China

WATERTECH CHINA, a global exhibition platform for water treatment, environmental protection, and energy-saving solutions, returns to the National Exhibition & Convention Center (NECC) in Shanghai, China, from June 3 to 5, 2025.



Website: www.watertechsh.com

IFAT Africa

Date: From 8 to 10 July 2025
Location: Gallagher Convention Centre, Johannesburg, South Africa

IFAT Africa is a three-day trade fair dedicated to presenting cutting-edge technologies and solutions for water, sewage, waste, and recycling tailored to the sub-Saharan African market. Serving as a vital gateway, it connects international companies with the African market and enables African enterprises to access global opportunities. The event brings together key industry players, senior buyers, and decision-makers, fostering collaboration and innovation across the region.

Website: ifat-africa.com

Indo Water Expo & Forum 2025

Date: From 13 to 15 August, 2025
Location: Jakarta International Expo, Kemayoran , Indonesia

Indonesia's water, wastewater and recycling technology event returns with international pavilions, technical product presentations and B2B business matchmaking.

Website: indowater.com

World Water Week

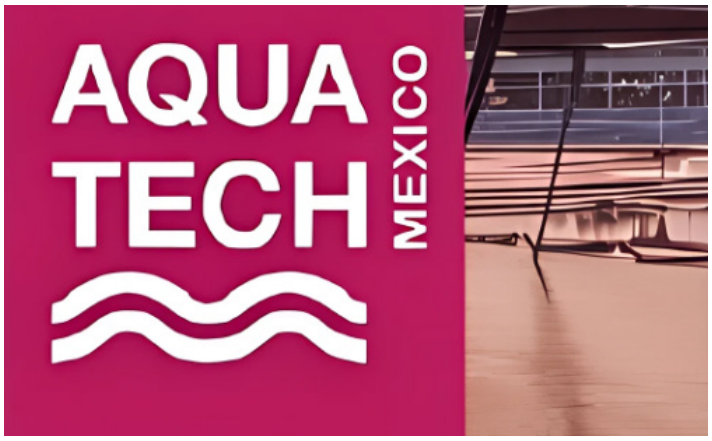
Date: From 24 to 28 August 2025
Location: Stockholm, Sweden

World Water Week is a five-day event on global water issues, organized by Stockholm International Water Institute since 1991. World Water Week is a non-profit event, co-created together with leading organizations. It offers an unusual mix of participants and perspectives, with sessions on a broad array of water-related topics, ranging from food security and health, to agriculture, technology, biodiversity, and the climate crisis.

Website: www.worldwaterweek.org

Aquatech Mexico 2025

Date: From 2 to 4 September 2025
Location: Mexico City, Mexico

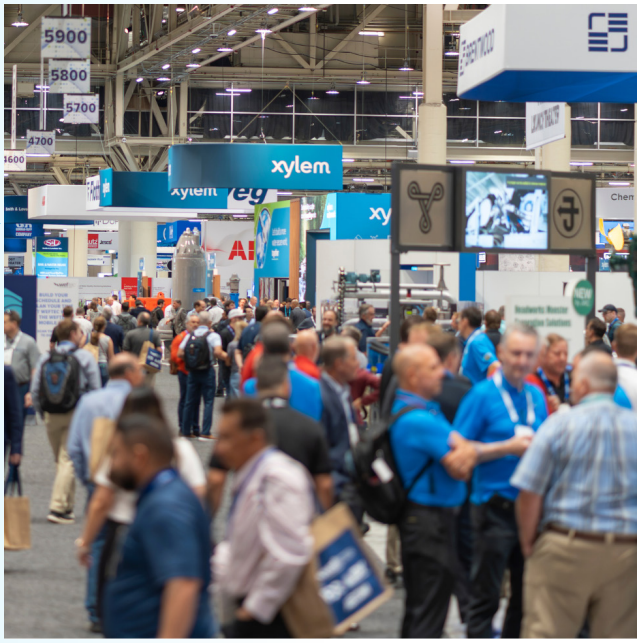


Discover water innovation at Aquatech Mexico 2025, a premier event connecting professionals, experts, and investors across the Americas. Over three intensive days, September 2-4, participants engage in business networking, knowledge exchange, and exploration of regional water technology opportunities. This dynamic platform facilitates valuable partnerships and insights into the Americas' water technology market.

Website: www.aquatechtrade.com

WEFTEC 2025

Date: From 27 September to 1 October, 2025
Location: McCormick Place, Chicago, Illinois, USA



WEFTEC 2025 is the premier water industry event in North America. Connect with over 20,000 water professionals from 100+ countries and 50+ industries, driving solutions and innovations for a sustainable water future.

Website: www.weftec.org

London Climate Technology Show

Date: From 1 to 2 October 2025
Location: ExCeL London, London, UK

The London Climate Technology Show is a two-day event focussing on the climate technology sector. Building on the achievements of previous editions, the event will provide a platform for showcasing disruptive solutions and fostering discussions on effective decarbonisation strategies. The London Climate Technology Show aims to be the largest climate technology exhibition and conference in the world for advancing the global net zero economy transition and shaping a sustainable future with ground breaking and collaborative technologies.

Website: climatetechshow.com

AQUATECH China

Date: From 5 to 7 November 2025
Location: Shanghai New International Exhibition Center (SNIEC), Shanghai, China

Aquatech China is a three-day event that brings together the worlds of water technology and water management, aiming to present integrated solutions and holistic approaches to water challenges that Asia is facing. Aquatech China is the leading water technology trade show in China, covering all aspects of water: drinking water, industrial water, waste water treatment, sludge treatment, smart water solutions and water management.

Website: www.aquatechtrade.com

All Ireland Water & Wastewater Expo

Date: 4 December, 2025
Location: Leopardstown Pavilion, Leopardstown Racecourse, Foxrock, Dublin 18, D18 C9V6, Ireland

The All-Ireland Water & Wastewater Expo is a one-day conference uniting stakeholders to discuss key issues in the water sector. With €6 billion allocated through 2026, investments will enhance infrastructure and treatment facilities. Industries face rising demands for high-quality water, driving investments in efficiency and sustainability initiatives.

Website: www.waterengineering.ie

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- 37k + LinkedIn Subscribers
- 190+ Countries
- 900+ Jobs Offers
- 16 Employees
- 5.1M+ Products Views
- 1200 + Companies
- 15900+ Virtual Expo Products
- 13K+ References Knowledge Hub
- 200+ Webinars and Courses
- 1K+ Articles and News
- 15k+ Trainee

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Flowing Forward: How Al-Mousa Trading Co. is Powering Saudi Arabia's Water Future

In a country where water is both a lifeline and a challenge, infrastructure must be built on more than just pipes and pumps—it must be built on vision, expertise, and innovation. For over two decades, Al-Mousa Trading Company has been doing just that: delivering comprehensive, reliable, and future-ready solutions across the Kingdom's most vital water projects.

With a portfolio that spans residential, commercial, industrial, and governmental sectors, Al-Mousa is not just a supplier—it is a trusted partner in water infrastructure development, known for its commitment to quality, innovation, and Saudi Vision 2030.

What We Do: A Leader in Water Engineering

At its core, Al-Mousa Trading Co. provides end-to-end water solutions—from supply and installation to commissioning, technical support, and lifecycle maintenance.

We support clients across a wide range of sectors including:

- Water Supply & Booster Pumping
- Firefighting Systems
- Sewage & Drainage
- HVAC & Chilled Water Circulation
- Stormwater Management
- Filtration & Water Treatment
- Piping Systems
- Deep Well & Irrigation Pumps

Our role doesn't stop at equipment delivery. Through technical consultation, on-site support, and precision witness testing, we ensure that every system we provide performs with efficiency, safety, and long-term reliability.

Innovation That Moves Water Smarter

In a rapidly evolving market, Al-Mousa continues to lead by example—bringing intelligent, energy-efficient, and digitally integrated

systems to clients across Saudi Arabia. Partnering with global technology leaders like Grundfos, SPP Pumps, Peerless, Filtralite and Wilo, **we offer:**

• Smart pump systems with IoT monitoring
• Energy-saving vertical and horizontal multistage pumps
• High-efficiency fire protection sets (UL/FM)
• Advanced filtration media (Filtralite®) for water reuse and sustainability
• Solar-compatible pumps for off-grid applications

Our goal is simple: deliver high-performance water systems that reduce energy usage, minimize downtime, and support smarter infrastructure future.

Data-Driven Design and Deployment

Every water industry project depends on precision engineering. Al-Mousa doesn't just supply pumps—it provides end-to-end solutions including:

• Engineering studies and digital modeling
• Flow simulation and energy audits
• Factory acceptance tests and on-site commissioning
• Post-installation monitoring and service

This integrated approach ensures that water systems are designed not just for today's capacity—but for climate variability, and future integrations.

Expanding Horizons: New Department for Swimming Pool and Water Features.

In 2025, Al-Mousa proudly launched a new division focused on swimming pools, water features, and spa solutions—marking our expansion into luxury, leisure, and wellness infrastructure.

This new department offers:

• Swimming Pool Pumps & Filtration Systems
• Jacuzzis, Saunas & Steam Room Equipment
• Waterfalls, Fountains & Decorative Features
• MEP installations, Civil works

With this addition, we now provide turnkey pool and spa solutions for residential developments, hotels, resorts, and wellness centers—reinforcing our position as a one-stop water solutions provider.

Recent Projects: Engineering Excellence in Action

Our expertise continues to be reflected in landmark projects, including:

• **Masar Makkah Project**: Supplied and commissioned SPP Fire Pump Sets for one of the most strategically significant developments in the Holy City.

• **Dallah Al Arid Health Care Project (Riyadh)**: Delivered a complete pipe fitting and an Acoustic Soil & Waste System for drainage, a system known for its durability, chemical resistance, and performance. ensuring durability, flow efficiency, and code compliance in a high-demand healthcare environment. These achievements are a testament to our engineering precision, client collaboration, and product reliability.

Our Scope of Work at a Glance

- Commercial Building Pumps
- Domestic Boosters & Irrigation
- Submersible & Deep Well Pumps
- Firefighting Systems (UL/FM)
- Piping Systems (PPR, HDPE, PEX, Acoustic)
- Water Treatment & Filtration
- HVAC Circulation & Chilled Water
- Stormwater & Drainage Solutions
- Thermal and Heating Solutions
- Swimming Pool and
- Water Features Solutions.

Every department is supported by technical specialists, trained engineers, and a service team dedicated to ensuring project success from planning to post-installation.

Conclusion

Built on Trust, Powered by Progress

As the Kingdom moves into a new decade of transformation, water will remain a national priority—and a strategic opportunity. Al-Mousa Trading Company, with its proven track record and future-forward mindset, is ready to lead the charge.

Whether it's smart cities, green infrastructure, or water reuse innovations, Al-Mousa is not just adapting to the future it is helping build it.

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المـوسـى AL MOUSA

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AL-MOUSA TRADING COMPANY

We provide innovative water pump solutions for industrial and commercial sectors in Saudi Arabia and beyond, partnering with leading global brands to ensure reliable and efficient pumping systems.

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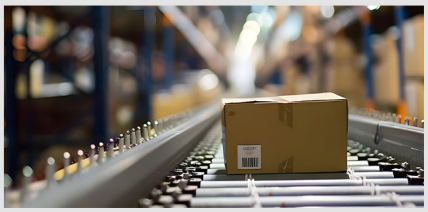

Supplying

Maintenance

Installation and Operation

Testing & Commission

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Carbonera: Sustainable Carbon Solutions

Carbonera is a science-driven startup founded with a clear mission: to transform agricultural waste into high-performance, eco-friendly carbonaceous materials that address modern environmental challenges. Based in Damanhur, Beheira, Egypt, the company was officially launched in Nov. 2024 by a team of young scientists and innovators passionate about bridging the gap between academia and industry.

Since its inception, Carbonera has focused on the development and commercialization of carbon nanomaterials for energy, water treatment, and soil enhancement applications.

The company's core activities revolve around the production of biochar and activated carbon, using customized thermal processing technologies designed to maximize surface area, porosity, and adsorption efficiency.

These materials are derived from renewable agricultural residues, offering a sustainable alternative to conventional, fossil-based products. In addition to manufacturing, Carbonera offers consulting services in environmental management, carbon footprint reduction, and sustainable innovation strategy.

Carbonera's portfolio includes:

• Biochar:

In powder or granulated form, designed for soil improvement and carbon sequestration.

• Activated Carbon:

In multiple grades (powder, granular, pellet), used in water purification, gas adsorption, and industrial emissions control.

• Customized Solutions:

Including carbon modification, and R&D support for partners in academia and the private sector.

What sets Carbonera apart is its scientific rigor, passion for sustainability, and commitment to quality. The production process is guided by international standards and relies on cutting-edge analytical tools including BET surface analysis, Raman spectroscopy, and XRD to ensure material integrity and performance. The team is led by a multidisciplinary group of chemists, engineers, and environmental scientists who blend deep technical knowledge with market awareness.

Contact Carbonera

Website:
www.carbonera-co.com
E-mail:
info@carbonera-co.com
carbonera.egy@gmail.com
Phone:
+201021865040

Carbonera is not just a company, it's a movement toward a cleaner, smarter, and more resilient planet !!

Midwater: Empowering Sustainable Water Solutions Across Egypt and Beyond

IMPACT TOGETHER !!

A Trusted Partner in Sustainable Water Solutions Since 2012

Since its establishment in 2012, Midwater has emerged as a leading vertical systems integrator in Egypt's water and wastewater sector. Headquartered in Cairo and backed by over a decade of experience, Midwater stands out in the Egyptian market for delivering high-quality, sustainable, and technically advanced water treatment systems that balance high recovery rates with low energy consumption—a combination increasingly critical in today's resource-conscious environment.

At the heart of our mission is the pursuit of sustainable innovation. Every Midwater project is designed to address not only current technical and environmental challenges but also to anticipate future demands in the water and wastewater field. Our integrated approach and long-standing technical partnerships allow us to deliver reliable, cost-effective, and energy-efficient systems across a range of sectors—from municipal and industrial water treatment to smart irrigation and environmental protection.

Regional Expansion and International Footprint

While Egypt remains our core market, Midwater is expanding its reach across the MENA region, with successful projects already implemented in Iraq, Libya, and Yemen. These projects reflect our ability to adapt, localize, and deliver water and wastewater systems in challenging environments.

We have also built strong OEM partnerships with water and wastewater solution providers, supplying them with customized system components, automation solutions, and technical consultancy. This model has enabled Midwater to serve both engineering firms and end-user customers, with flexibility and responsiveness.

Filtration System at Iraq

Pre-treatment Filtration System for Foreign Company

Our Integrated Service Portfolio

At the heart of Midwater's services lies a commitment to providing cutting-edge water and wastewater treatment technologies. The company offers integrated solutions for:

High Brackish Reverse Osmosis

Brackish Reverse Osmosis

Dis-Filters System

- Municipal Water and Wastewater Treatment.
- Sewage and municipal wastewater treatment.
- Industrial wastewater Reuse and Recycling.
- Agriculture Drainage water treatment.

Each project is delivered with a commitment to engineering reliability, water conservation, and operational safety. Midwater designs, supplies, and installs complete water treatment units tailored to each client's needs, utilizing high-quality components and advanced technologies to ensure efficiency and reliability.

Chloride Water Treatment Plant for Industrial

Water Softener Plant

Sea Revers Osmosis Plant

Smart Solutions for the Egyptian Market

Midwater is proud to be a pioneer in introducing non-electrical control valve systems in the Egyptian market, through our exclusive partnership with Jkmatic. These smart control valves operate without electricity, helping customers minimize energy consumption, reduce operational risk, and simplify control systems, particularly in remote or energy-sensitive environments.

Multivalve system for Filter

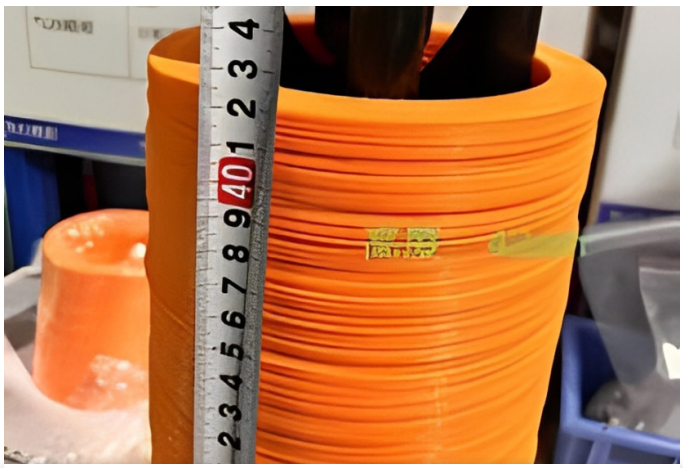
Non Electric control Valve Filter

Non Electoral Control Valve

In addition to this, we are one of the first companies in Egypt to introduce the HydroMid high-flow cartridge filter, a high-performance filtration technology that provides superior throughput and service life for pre-treatment systems. These filters have been widely implemented in reverse osmosis, filtration, and softening systems, allowing clients to achieve higher operational efficiency and reduced downtime.

Our Jkmatic multivalve systems are also now widely adopted in softener, filtration, and deionization processes, supporting both industrial and commercial applications with a compact, scalable, and cost-effective solution.

Jkmatic Multivalve Products



Jkmatic Disc-Filter Units

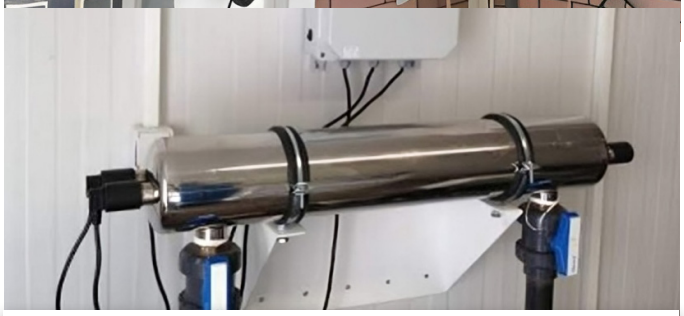
Furthermore, in collaboration with Jkmatic, we offer advanced disc filters suitable for both industrial and irrigation sectors. These systems are specially engineered to handle challenging suspended solid loads with minimal maintenance and clogging issues, which makes them ideal for diverse water sources, including surface water, canal water, and treated effluent reuse.

Unique Product Lines & Exclusive Technologies

Midwater leads the Egyptian market in introducing smart, non-conventional technologies that solve real-world problems. Through strategic alliances with global leaders and in-house innovation, we provide a growing portfolio of high-performance equipment:

- **Hydromid High-Flow Cartridge Filters:** Robust microfiltration units for high capacity, long life, and low pressure drop and high performance.
- **Aqualine Systems (Esli-PWG Partnership):** UV and cartridge systems for drinking and industrial applications.
- **Automatic Disc-Filters:** Fully automatic filtration for irrigation and industrial water.
- **Jkmatic Multi-Valve Systems:** Smart valves for sand, carbon, iron filtration, softening, deionization systems.

Aqualine Centrifugal Separator



Aqualine Ultraviolet Unit

- **Aqualine Centrifugal Separators:** Effective solid separation for industrial wastewater.
- **Non-Electrical Control Valves:** Energy-independent operation ideal for remote locations.

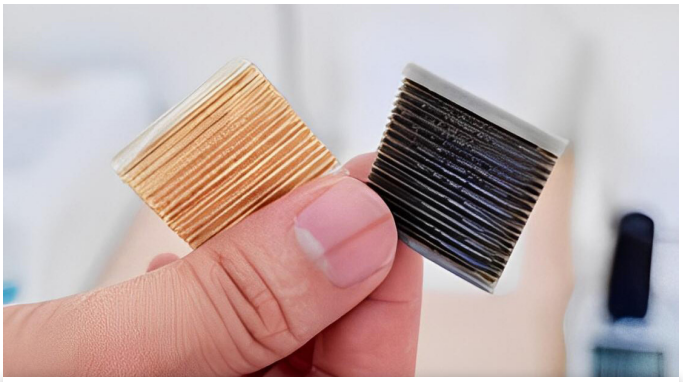
Omni-Filtration with Multivalve System

Duplex Water Softener with Multivalve System

Exclusive Technology in Wastewater Treatment

In wastewater treatment, Midwater has introduced an innovative, patented MBBR (Moving Bed Biofilm Reactor) carrier technology—engineered to eliminate clogging problems that are common in traditional biofilm systems. Our carrier ensures stable performance and lower maintenance, making it an ideal choice for compact and decentralized wastewater treatment facilities, especially in residential compounds, remote industrial sites, and infrastructure-limited regions.

MBBR Sewage Treatment Plant



Smart Patent MBBR Carries

Chemical Treatment Solutions

As the official representative of Kurita Europe GmbH in Egypt, Midwater supplies premium specialty chemicals for:

- Reverse osmosis systems.
- Cooling towers.
- Boilers and chillers.

These products enhance asset longevity and optimize water treatment performance.

RO Clearing Chemical and Biocide Solution

Multivalve Components

Small Kurtia RO Chemical Projection Program

Project Highlights

Midwater has successfully delivered a wide portfolio of water projects, both nationally and internationally, serving sectors including agriculture, government, research, and industry.

IWWTP Plant for Food Industries

Sulfate Ground Water RO Plant

National Infrastructure Projects

- **Bahe El Bakr Agricultural Drainage Project:** Midwater played a vital role in this 5.6 million m³/day project, supplying locally manufactured equipment and materials for the biggest gas chlorination plant in the world.

Gas Chlorination at Bahr El Bakar Project

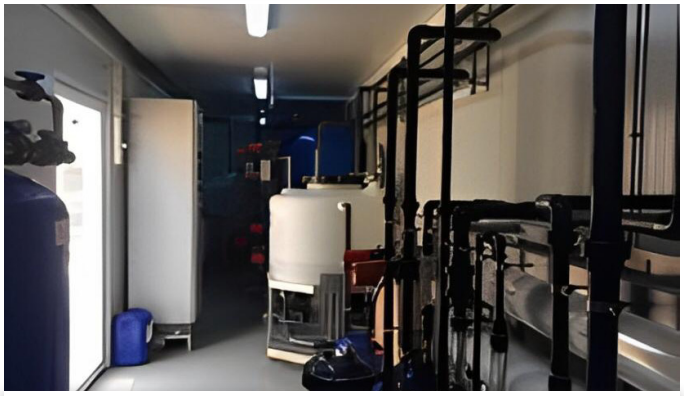
• **JICA-Funded Drainage Treatment Projects in Kafr El-Sheikh:** Midwater provided electromechanical works for five water treatment stations with capacities ranging from 500 to 1,000 liters per second, enabling effective reuse of drainage water for irrigation.

JICA- ADW Control treatment at Kafer El-Sheikh

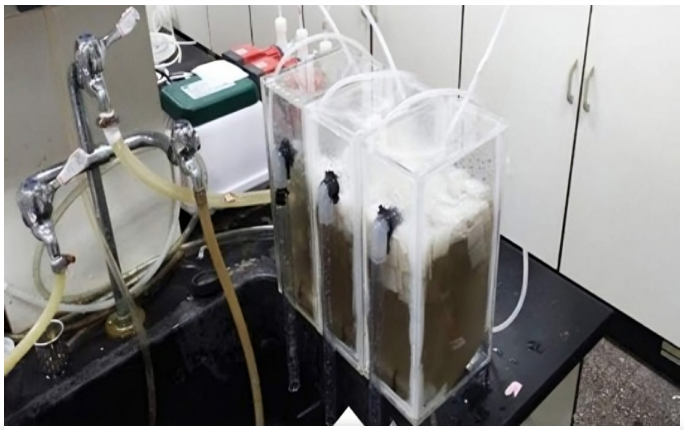
Research and Academic Collaboration

Midwater actively supports research institutions such as the Egyptian Research Center (ERC) and several universities by contributing to innovative water treatment pilot projects and field applications.

Small RO for UN- BUE University



BWRO for EJUST University



MBBR Pilot Unit for Research

Industrial and Remote Area Projects

Midwater has implemented tailored water purification systems for car and glass manufacturing facilities, as well as reverse osmosis systems for drinking water in remote areas of Sinai, ensuring safe and reliable water supply in challenging environments.

Containerizing BWRO for Drinking

Deionized Unit with Multivalve

Deaerator System for Bottling

Let's Shape the Future Together

MidWater is more than a water treatment company—we are a technology partner, a sustainability advocate, and a regional leader in smart water solutions. We welcome collaboration opportunities that align with our vision of creating accessible, energy-efficient, and resilient water systems for Egypt and beyond.

MidWater seeks collaboration with:

- Global Technology Providers
- Egyptian Municipal and Private Sector Utilities
- OEMs & Engineering Firms
- Agricultural and Industrial Clients

We believe in solving water challenges efficiently and sustainably—together.

We Deliver DynaSand Filtration Media

Test UF Unit Before Deliver

Essam Tantawy
Technical and Marketing Director

Contact Midwater

• **Tel /Fax:**
(+202 24475419/18) (+202 24475420)
• **Company Adress:**
Me'raj Al sufly-7th Mujawra,bldg. # 7217, Autostrad Road – Maadi ,11742, Cairo, Egypt
• **Website :**
www.midwatersolve.com
• **Company email:**
info@midwatersolve.com
• **Contact Persons :**
» Yasser Nagah
Managing Director
Mobiles: +20100 8500 106
E-mails : YN@midwatersolve.com
» Essam Tantawy
Technical and Marketing Director
Mobiles : +20100 8500 105
E-mails : Et@midwatersolve.com

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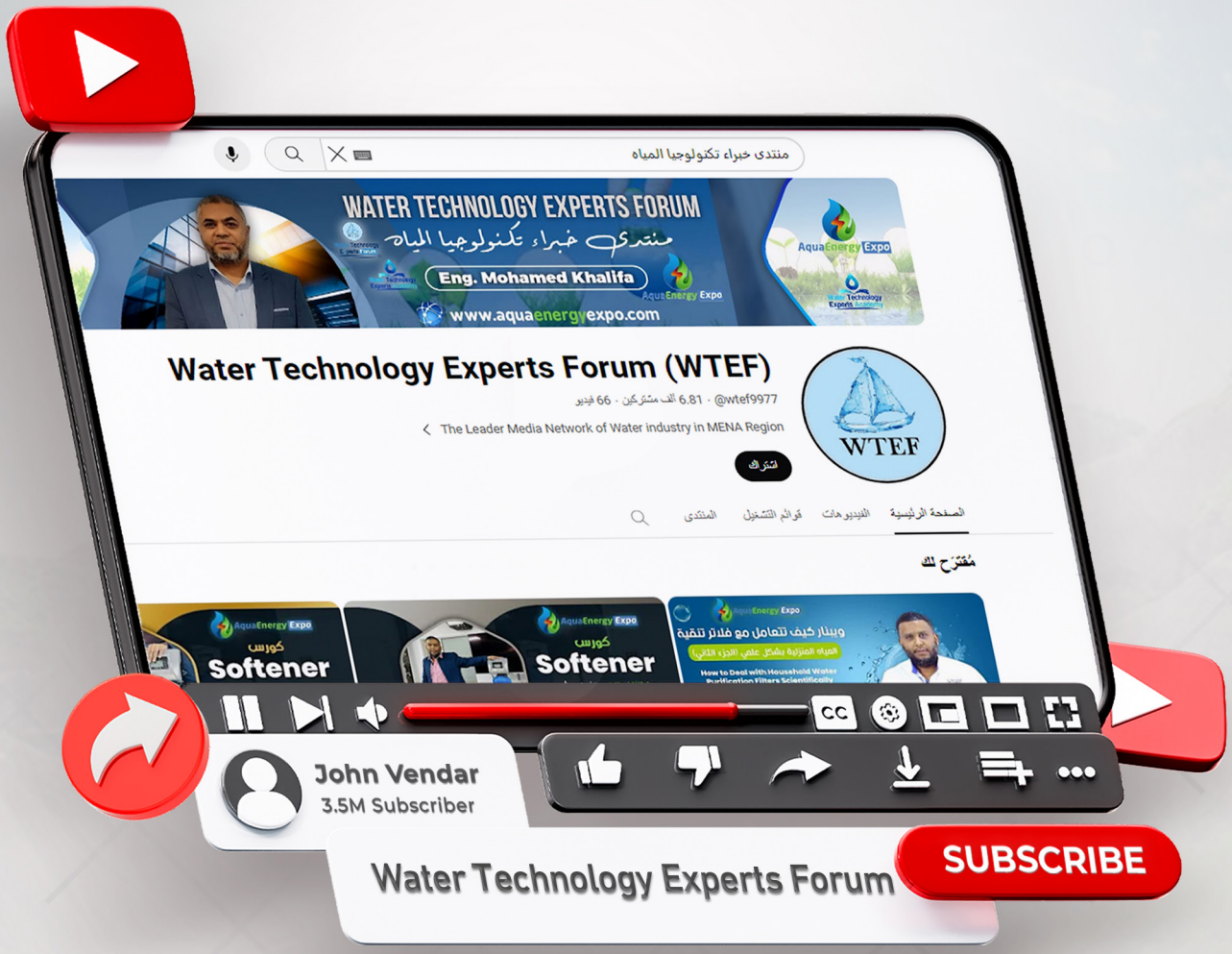

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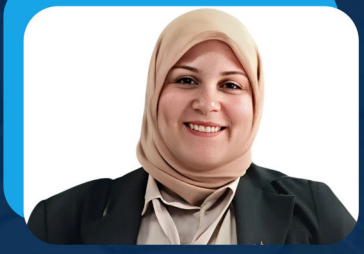


ADVANCING WATER SUSTAINABILITY WITH CARBONERA COMPANY

Dr. Maha Elattar

Founder and CEO of Carbonera

Date: Friday, July 4th

Time: From 06:00 to 08:00 PM (Saudi Arabia Time)

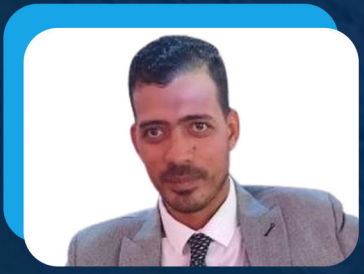
WATER TREATMENT APPLICATIONS (BIOPOLYMER- NANO MATERIALS)

Dr. Sawsan Dacrory Mohamed

Founder and CEO of Carbonera

Date: Saturday, July 5th

Time: From 07:00 to 08:00 PM (Saudi Arabia Time)



FACILITY MANAGEMENT V.S FACILITY MAINTENANCE.

Eng. Salah Ghourab

Date: Friday, July 11th

Time: From 08:00 to 10:00 PM (Saudi Arabia Time)

PRACTICAL EXPERIMENTS FOR EVALUATING RAPID SAND FILTERS IN DRINKING WATER TREATMENT PLANTS

Dr. Abu-Alhassan Abd-Elshafi

Date: Saturday, July 12th

Time: From 08:00 to 10:00 PM (Saudi Arabia Time)

ENVIRONMENTAL MANAGEMENT AND ENVIRONMENTAL IMPACT ASSESSMENT OF WATER PROJECTS

Prof. Dr. Jalal Halwani

Date: Friday, July 25th

Time: From 08:00 to 10:00 PM (Saudi Arabia Time)

USING NANOTECHNOLOGY IN WASTEWATER TREATMENT

Chemist / Mohamed Younes Abdul Fattah Hassan

Date: Saturday, July 26th

Time: From 09:00 to 10:00 PM (Saudi Arabia Time)

“Ala El-Ad”: Egypt’s National Water Conservation Campaign Transforming Awareness into Action

Water is the essence of life, a finite resource underpinning all human, environmental, and economic activity. Yet, across the globe, water scarcity is reaching alarming levels due to rapid population growth, climate change, pollution, and inefficient consumption. In Egypt, where the Nile is the lifeline for over 100 million people, managing water resources is not just a development issue, it is a matter of national security.

In response to this critical challenge, Egypt launched the national water conservation campaign **"Ala El-Ad"**, an Arabic phrase that translates to 'Just Enough.' This campaign, spearheaded by the Ministry of Water Resources and Irrigation in collaboration with UNICEF, Ministry of Endowments, Ministry of Education and Technical Education, Ministry of Culture, Ministry of Transportation, Misr El Kheir, was officially launched during Cairo Water Week 2023 under the patronage of H.E. Prof. Dr. Hani Sewilam, Minister of Water Resources and Irrigation.

Designed to raise awareness, shift mindsets, and promote behavioral change at scale, **"Ala El-Ad"** has become a central component of Egypt's national strategy for sustainable water management. By harnessing the power of communication, education, and community engagement, it is turning individual actions into collective impact.

Why Water Conservation Is Urgent for Egypt

Egypt receives almost 98% of its freshwater from the Nile River. However, with a fixed annual share of 55.5 billion cubic meters and growing demand across agriculture, industry, and domestic use, the country is already facing a significant water deficit, estimated to be over 20 billion cubic meters per year. Climate change adds another layer of complexity, with rising temperatures, unpredictable rainfall, and upstream challenges affecting Nile water flow.

At the same time, Egypt's population continues to grow, placing further strain on limited resources. The challenge is clear: while infrastructure investment and policy reform are vital, they must be matched by public awareness and behavioral change. This is where **"Ala El-Ad"** comes in.

The Campaign Philosophy: Small Actions, Big Impact

The name **"Ala El-Ad"** reflects the campaign's central message: use only what you need, not more, not less. It promotes a culture of moderation and responsibility in daily water use, encouraging Egyptians to re-evaluate habits at home, work, and in public spaces.

Rather than framing conservation in terms of scarcity or sacrifice, the campaign highlights the positive role individuals can play. It empowers people by showing that even

small actions, like turning off taps while brushing teeth, fixing leaks, or using a bucket instead of a hose, can help protect Egypt's water future.This behavioral approach draws from global best practices in public communication campaigns, where simplicity, cultural relevance, and emotional connection drive change more effectively than data alone.

Multi-Platform Messaging: Reaching People Where They Are

One of the campaign's standout features is its strategic use of diverse media platforms to reach different segments of society. Recognizing that people consume information differently based on age, location, and lifestyle, **"Ala El-Ad"** used an integrated communication approach to deliver its messages:

- **Radio:** Audio spots were broadcast on almost all stations, especially during peak commuting hours, to target drivers and workers. The content was concise, catchy, and repeated frequently for maximum recall.
- **Metro Stations:** Messaging in metro stations and inside train cars reached millions of Egyptians who use public transportation daily. This allowed the campaign to connect with a broad audience in high-footfall areas.
- **National Television:** Short videos and public service announcements aired on Egyptian TV channels helped bring the campaign into households across urban and rural areas. Visual storytelling made the message accessible for all generations.
- **Social Media:** Platforms like Facebook, Instagram, Twitter and LinkedIn were used to engage youth through posts, videos, and public figures partnerships. This digital presence helped make water conservation feel relatable and modern. By adapting the message to suit each platform, **"Ala El-Ad"** ensured both breadth of reach and depth of engagement; a crucial factor in influencing behavior at scale.

Community Engagement: Taking the Message Offline

Beyond media outreach, the campaign placed strong emphasis on community activation. Recognizing that face-to-face interaction builds trust and lasting impact, **"Ala El-Ad"** organized:

- **School Engagements:** Interactive workshops, games, and contests were held in schools to teach children the value of water and encourage them to become ambassadors of change at home.
- **Farmer Dialogues:** Special efforts were made to reach agricultural communities, where water usage is highest.

Farmers were encouraged to adopt modern irrigation methods and understand the link between sustainable practices and long-term productivity.This on-groundwork brought the campaign to life, ensuring it was not just seen or heard, but experienced.

A Government-Led, Stakeholder-Powered Model

The success of **"Ala El-Ad"** lies in its collaborative framework. While led by the Ministry of Water Resources and Irrigation, the campaign drew support from a wide network of partners:

UNICEF provided technical guidance, behavioral insights, and co-branded communication materials, ensuring that the campaign aligned with global standards for impactful public education.

Media agencies helped craft messages and produce high-quality, culturally relevant content.Local NGOs helped extend the campaign's reach to underserved and remote areas.All other ministries were invited to co-create content, or promote water-saving practices within their operations. This multi-stakeholder approach amplified the campaign's visibility and sustainability, transforming it from a government directive into a national movement.

Results So Far: Impact and Insights

Though still ongoing, the **"Ala El-Ad"** campaign has already demonstrated tangible outcomes:

- **Millions Reached:** With TV, radio, and metro coverage, along with digital impressions, the campaign has ensured near-universal exposure in key urban areas.
- **Public Recognition:** Surveys conducted by the ministry and partners showed a significant increase in public awareness about water-saving practices among those exposed to the campaign.
- **Behavioral Shifts:** While changing long-term habits takes time, early indicators, such as reduced water usage in pilot communities and increased public reporting of leaks, suggest that the campaign's messages are making a difference.
- **Institutional Integration:** **"Ala El-Ad"** has been incorporated into the broader national dialogue on water resource management, including school curricula and government policy discussions.

Challenges and Lessons Learned

Like any national campaign, **"Ala El-Ad"** faced several challenges:

- **Sustaining Engagement:** Maintaining momentum beyond the launch phase required constant innovation in content and approach.
- **Rural Access:** Reaching remote communities with limited media access required additional planning and fieldwork.

• **Cultural Resistance:** Ingrained habits take time to change, particularly in areas where water is seen as abundant or where the link between individual behavior and national water supply is unclear.

However, these challenges provided critical lessons in audience segmentation, message framing, and community-based strategy. They will guide future phases of the campaign and inform other public initiatives in Egypt and beyond.

The Way Forward: Toward a Water-Smart Generation

"Ala El-Ad" is not a one-off event it is the beginning of a long-term cultural transformation. As Egypt continues to lead in regional water diplomacy, research, and innovation, this campaign adds a human dimension to the national strategy: one that prioritizes citizens as active participants in water stewardship. Looking ahead, the Ministry of Water Resources and Irrigation plans to:

• Expand the campaign geographically, reaching new cities and governorates through local partnerships.
• Deepen impact among schools, embedding water conservation practically into national education programs.
• Leverage technology to monitor behavior change and measure campaign effectiveness.
• Mobilize the private sector to adopt and promote water-saving practices in their operations and among their employees.

In the future, **"Ala El-Ad"** could serve as a model for other environmental campaigns, such as energy conservation, recycling, and climate adaptation, building a culture of sustainability from the ground up

Conclusion

In an age of environmental uncertainty, campaigns like "Ala El-Ad" remind us that the greatest solutions often begin with the simplest actions. By encouraging Egyptians to use water wisely "just enough" the campaign plants the seeds of a more conscious, resilient, and water-secure society.

As it continues to evolve, "Ala El-Ad" stands as a beacon of what is possible when governments, communities, and individuals come together to protect a shared resource. For Egypt, and for many other water-stressed nations, it offers a blueprint for turning awareness into action, and action into impact.

For more information about the campaign and its initiatives, visit: https://www.mwri.gov.eg
And follow us on our social media channels.

The State of Critical Infrastructure Resilience: Evaluating Cyber Threats to Water and Electric Utilities

Water and electricity are the lifeblood of modern society. Yet, as recent environmental disasters, human errors, and cyberattacks demonstrate, these services are increasingly vulnerable. A 2025 survey by cybersecurity firm Semperis, covering 350 water and electric utilities across the U.S. and U.K., reveals alarming trends: 62% of utilities faced cyberattacks in the past year, with 80% of those attacked multiple times. Nation-state actors particularly China, Russia, Iran, and North Korea are the primary perpetrators, exploiting weak defenses to disrupt, corrupt, or steal critical data. This article dissects the escalating threats, their impacts, and the urgent need for a resilience mindset to safeguard public safety.

The Rising Tide of Attacks

In recent years, cyber threats targeting utility operators have surged dramatically, particularly with the rise of ransomware attacks known for their ability to disrupt operations and extort payments. Several notable incidents highlight this alarming trend. In March 2025, it was revealed that Volt Typhoon, a Chinese state-sponsored group, had infiltrated the Littleton Electric Light and Water Departments, remaining undetected for almost a year. In October 2024, American Water Works , the largest water and wastewater utility in the US, detected unauthorized activity within its network, leading to significant disruptions in customer service and billing for 14 million people.

In March 2024, the US Environmental Protection Agency and the Cybersecurity Infrastructure Security Agency issued warnings to governors about a widespread vulnerability affecting water and wastewater digital systems. In January 2024, Southern Water in England discovered that the Black Basta group had accessed its network, compromising the personal information of millions of customers and employees.

In November 2023, pro-Iranian attackers breached the Municipal Water Authority of Aliquippa in Pennsylvania, exploiting programmable controllers. These incidents reflect a broader strategic shift, positioning critical infrastructure as a central battleground for geopolitical conflict and criminal profit. As Ciaran Martin, CB, the Founding CEO of the UK's National Cyber Security Centre, emphasizes:

> **"Ransomware criminals tend to target locally and municipally operated critical infrastructure. With operators facing tight IT and security budgets, threat actors hold the advantage."**

Inside the Threat Landscape

The Semperis survey, which included responses from 350 water treatment plants and electricity operators in the United States and the United Kingdom, revealed several critical insights:

• Prevalence of Attacks:

A significant majority of respondents (62%) reported being targeted by cyberattacks, with 80% of those experiencing multiple incidents.

• Nation-State Involvement:

Over half (59%) of the respondents confirmed that nation-state actors were behind the attacks, with advanced persistent threats from countries such as China, Russia, Iran, and North Korea being particularly concerning.

• Operational Disruption:

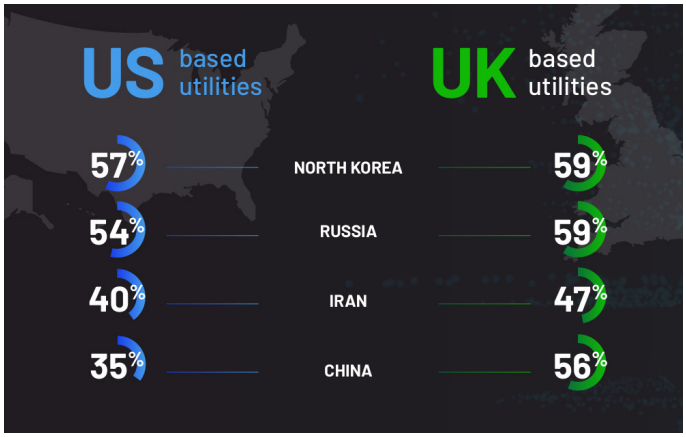
More than half (57%) of the respondents experienced disruptions to normal operations due to cyberattacks, with 54% suffering permanent data corruption or system destruction.

• Identity System Vulnerabilities:

A staggering 82% of attacks compromised Tier 0 identity systems, including critical platforms like Active Directory, Entra ID, and Okta, which are essential for managing access to resources and services.

These findings paint a troubling picture of the current state of cybersecurity in the utility sector, emphasizing the urgent need for enhanced resilience measures. Simon Hodgkinson, former bp CISO, cautions:

> **"What we're seeing now is likely a precursor to future, more severe disruptions."**



Impacts on Public Infrastructure

The consequences of losing access to electricity, heat, or clean water, even for a short duration, can be severe. A recent study indicates that utility customers in the US and UK have been relatively fortunate thus far, with over half of those reporting cyberattacks experiencing operational disruptions (57%), theft of data, intellectual property, or personal identifiable information (55%), and permanent data corruption or system destruction (54%).

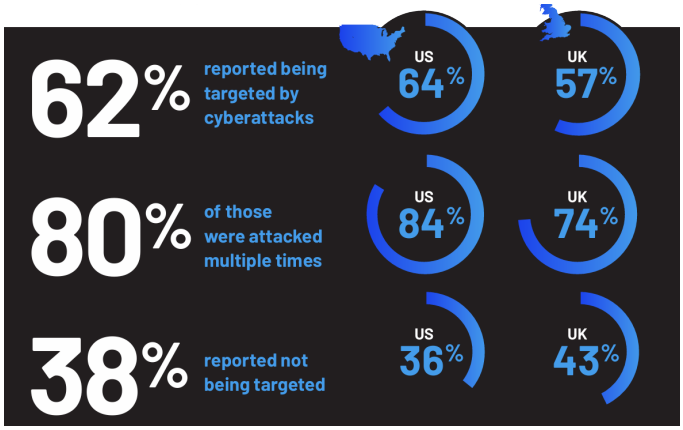
The consequences of cyberattacks on utilities extend beyond immediate operational disruptions. The potential impacts include:

• Public Safety Risks:

Loss of access to clean water and electricity can endanger public health and safety. For instance, a water treatment facility compromised by a cyberattack may be unable to ensure safe drinking water, leading to health crises.

• Economic Consequences:

Disruptions can lead to significant economic losses for both utilities and the communities they serve. For example, a prolonged power outage can halt production lines, disrupt supply chains, and lead to financial losses for businesses.



• Data Integrity Issues:

Cyberattacks can result in the theft or corruption of sensitive data, impacting customer trust and regulatory compliance. Utilities must safeguard customer information and operational data to maintain their reputation and avoid legal repercussions.

The Semperis survey revealed that while many utilities were able to restore services within 24 hours after an attack, the long-term implications of data breaches and operational disruptions can linger, potentially leading to reputational damage and financial losses.

Barriers to Resilience

A recent study reveals that critical identity systems, including Microsoft Active Directory, Entra ID, and Okta, were compromised in 67% of cyberattacks, with an additional 15% of respondents uncertain about the impact on these systems.

U.S. utilities experienced a nearly 20% higher likelihood of breaches, particularly among larger operators, whose complex identity environments are harder to manage and audit. Smaller utilities are particularly exposed.

With limited resources, they often lack capabilities to detect stealthy threats like China's Volt Typhoon, which operates silently for months before striking. Previous research by Semperis indicates that many organizations are unprepared for effective hybrid Active Directory recovery, posing significant risks for those in critical infrastructure. Mickey Bresman, CEO of Semperis, states that identity systems are frequently targeted, with 90% of breaches involving successful compromises.

Despite this, only about one-third of respondents identified identity system compromise as a top cybersecurity risk. Given Active Directory's central role in most cyberattacks, its security is crucial for managing access to users, groups, applications, and resources. Ciaran Martin, U.K. National Cyber Security Centre founder, stresses

> **"Cyber resilience is about people, processes, and decisive action. Leadership must prioritize it."**

Utility operators face systemic barriers to cyber resilience:

Top Challenges	U.S. Utilities	UK Utilities
Lack of Leadership Support	34%	47%
Budget Constraints	30%	40%
Inadequate Employee Training	34%	38%
Poor Identity Recovery Plans	29%	34%

Enhancing Resilience in Utilities

Adopting a Resilience Mindset

To effectively combat cyber threats, utility operators must adopt a resilience mindset. This involves recognizing that cyberattacks are not a matter of "if" but "when." By accepting this reality, organizations can better prepare for potential incidents and implement strategies to mitigate their impact. Bresman says:

> **"Cyber resilience isn't just about technology , it's about people, processes, and the ability to act decisively when everything is on the line, Response times to cyberthreats will be faster if organizations assume that adversaries are already in their networks and have a documented and tested recovery and resilience plan that is ready to deploy at a moment's notice."**

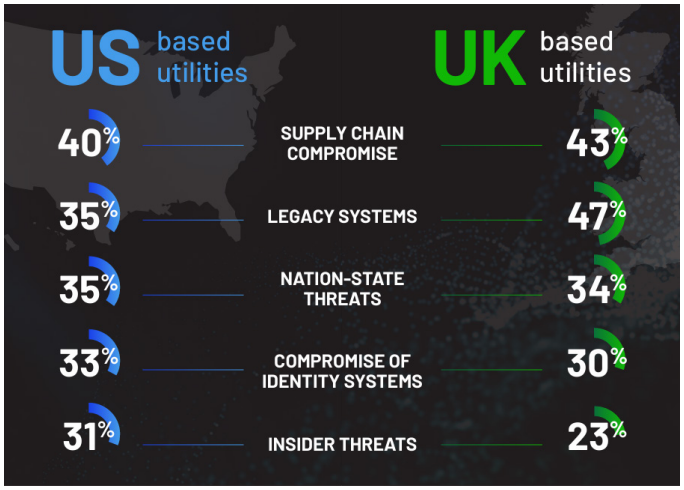
Key Strategies for Improvement

• Identify Critical Infrastructure:

Utilities should identify Tier 0 infrastructure components essential for recovery from cyberattacks. This prioritization allows for focused resources and attention on the most critical systems.

• Incident Response Planning:

Developing and documenting incident response and recovery processes is crucial. Regularly practicing these plans through real-world scenario exercises can enhance organizational readiness.



• Secure Recovery Practices:

Emphasizing secure recovery is vital, as attackers often target backups to maintain persistence. Implementing solutions that ensure both speed and security during recovery efforts can minimize the risk of re-infection.

• Invest in Training and Awareness:

Employee training and awareness programs are essential for fostering a culture of cybersecurity within organizations. Ensuring that all staff members understand their role in maintaining security can significantly reduce vulnerabilities.

• Leverage Technology:

Utilizing advanced technologies such as identity forensics and incident response capabilities can enhance operational resilience. These tools provide visibility into potential threats and streamline response efforts.

• Leadership Engagement:

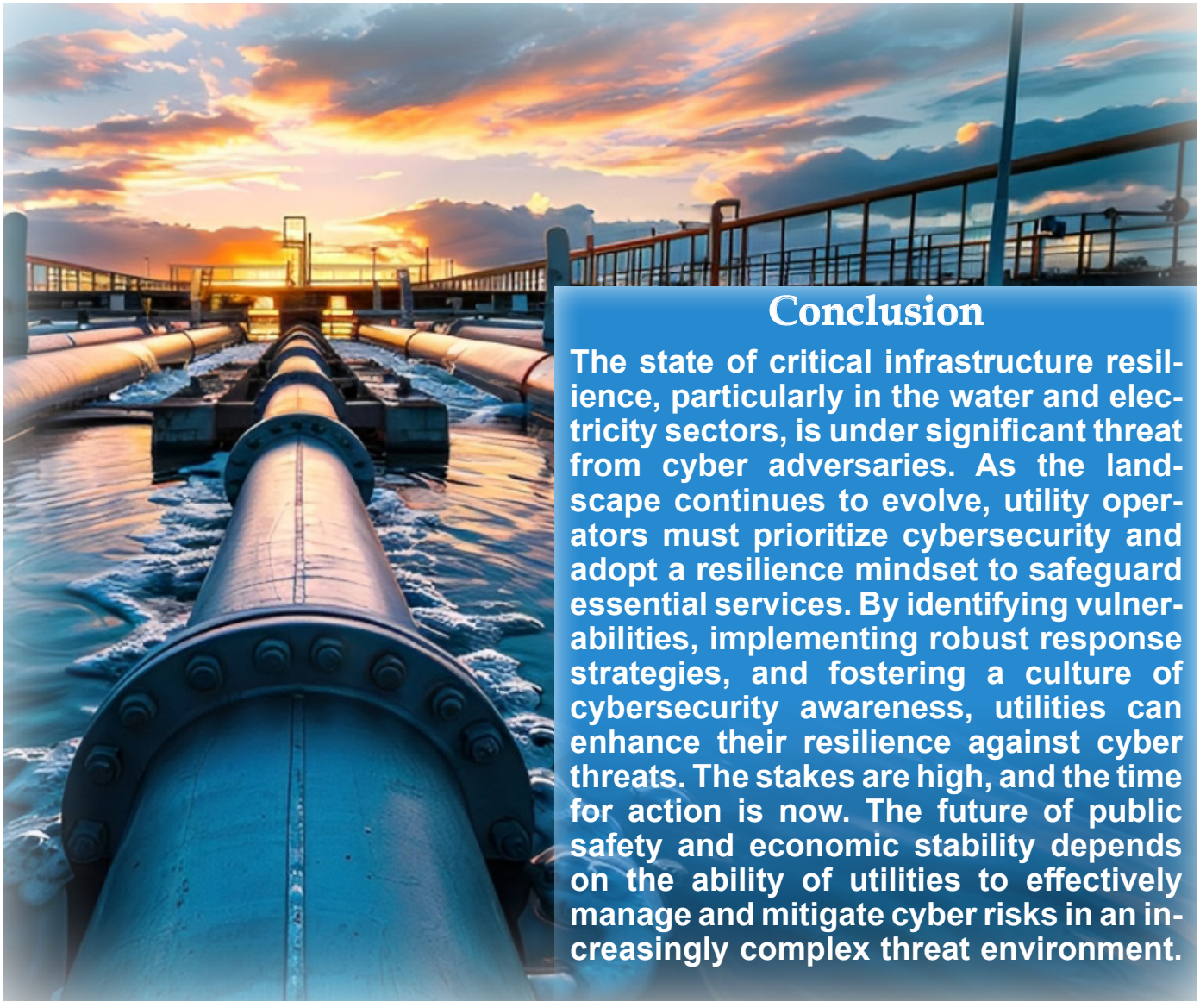
Strong leadership support is critical for driving cybersecurity initiatives. When organizational leaders prioritize resilience, it fosters a culture of security and encourages investment in necessary resources.

The Role of Government and Industry Standards

Government agencies play a crucial role in establishing cybersecurity standards and guidelines for critical infrastructure. Initiatives such as the Cybersecurity Framework developed by the National Institute of Standards and Technology (NIST) provide a structured approach for organizations to manage and reduce cybersecurity risks.

Industry organizations, such as the American Water Works Association (AWWA) and the Edison Electric Institute (EEI), also contribute to the development of best practices and resources for utilities. By aligning with these standards, utilities can enhance their security posture and demonstrate their commitment to safeguarding critical infrastructure.

"Embracing an assume-breach mindset is crucial for rapid recovery from cyberattacks. At the same time, implementing identity forensics and incident response (IFIR) capabilities enhances operational resilience, ensuring that identity systems remain secure against evolving threats. In an environment where regulations like DORA, GDPR, and NIST mandate robust identity protection and swift breach response, IFIR provides a proactive, structured framework that helps minimize business disruptions and safeguard critical infrastructure from compromise."



Conclusion

The state of critical infrastructure resilience, particularly in the water and electricity sectors, is under significant threat from cyber adversaries. As the landscape continues to evolve, utility operators must prioritize cybersecurity and adopt a resilience mindset to safeguard essential services. By identifying vulnerabilities, implementing robust response strategies, and fostering a culture of cybersecurity awareness, utilities can enhance their resilience against cyber threats. The stakes are high, and the time for action is now. The future of public safety and economic stability depends on the ability of utilities to effectively manage and mitigate cyber risks in an increasingly complex threat environment.

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ENERGY NEWS BRIEF

July| 2025

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LONGi joins Rafiqui to promote solar panel recycling in Mexico

LONGi, a leading manufacturer of photovoltaic technology, has partnered with Rafiqui, a Mexican non-profit focused on recycling decommissioned solar modules. This collaboration aims to develop solar panel recycling infrastructure in Mexico, addressing a critical industry need and enhancing sustainability efforts. Currently, options for recycling photovoltaic modules in Mexico are limited, posing challenges for solar developers and installers. LONGi is the first solar module manufacturer to take part in this initiative, promoting responsible end-of-life management for panels. This project aligns with LONGi's global sustainability goals and reflects its commitment to environmental best practices and the circular economy.

Entering the Smart String Grid Forming ESS Era with Huawei

As global renewable energy adoption accelerates, countries are encountering various challenges in power system infrastructure. Energy storage systems (ESS) are increasingly being implemented to address these needs. Huawei FusionSolar's Grid-Forming ESS solution, launched at the Red Sea, is the world's largest 100% renewable PV-plus-ESS microgrid, featuring 400 MW of solar PV and 1.3 GWh of ESS. Operating for over 21 months, it has delivered over 1 billion kWh of clean electricity. Huawei's next-generation platform integrates "4T technologies" and focuses on all-scenario grid forming, cell-to-grid safety, and AI-powered management to support diverse energy business models globally.

Sinopec Launches Its First Offshore Floating Solar Power Project, Pioneering Renewable Energy Innovation

China Petroleum & Chemical Corporation (Sinopec), alongside the Shandong Provincial Government and Qingdao Municipality, has unveiled the world's first commercial-scale offshore floating photovoltaic (PV) power project. Covering 60,000 square meters, this facility has a capacity of 7.5 megawatts and is expected to produce around 16.7 million kilowatt-hours of renewable energy annually, reducing carbon emissions by 14,000 tons. Specifically designed for coastal areas, it efficiently uses sea surface space and adapts to tidal movements. The project incorporates corrosion-resistant materials, a strong anchoring system, and streamlined maintenance access, supporting Sinopec's sustainable energy goals and plans to expand capacity to 23 megawatts.

Iberdrola launches niba, the first neo-energy company on the Spanish market

Iberdrola has launched niba, a 100% digital corporate start-up focused on agility, artificial intelligence, and customer orientation. Designed to meet evolving market needs, niba aims to transform the energy experience similar to how neobanks revolutionized finance. Managing Director Mariola Martínez stated that niba offers hyper-personalization and data-driven insights for users. The platform enables customers to manage products via an app, ensuring premium service through a skilled, autonomous customer support team. With a freemium model and commitment to providing the best available prices, niba will initially offer electricity plans with 100% green energy, expanding its services in the future.

DEWA receives high-level delegation from Brazil

The Dubai Electricity and Water Authority (DEWA) recently hosted a high-level Brazilian delegation, including governors and vice-governors from northeastern states. The visit focused on Dubai's advancements in clean and renewable energy, featuring presentations on DEWA's flagship projects, such as the Mohammed bin Rashid Al Maktoum Solar Park and the Green Hydrogen Project. Dr. Aaesha Alnuaimi highlighted DEWA's alignment with national strategies for sustainability. DEWA emphasized its role as a global platform for public-private partnerships and investment in clean technologies, earning praise from the delegation for its innovative approach and commitment to a low-carbon future.

Tata Power Renewables commissions record 752 MW of solar projects in Q1 FY26

Tata Power Renewable Energy Ltd. (TPREL), a subsidiary of Tata Power, commissioned 752 MW of solar projects in Q1 FY26, its highest quarterly addition, representing a 112% increase from 354 MW in Q1 FY25. This achievement highlights TPREL's commitment to efficient execution, disciplined project management, and high-quality standards. With advanced engineering and strong vendor partnerships, the company successfully delivers complex projects while optimizing costs. TPREL's total operational renewable capacity now stands at 5.6 GW, including 4.6 GW of solar and 1 GW of wind. The company aims for a total capacity of 7.3 GW by FY26, supporting India's clean energy goals.

Global Energy Events

Energy Storage Summit USA

Date: From 26 to 27 March, 2025
Location: Renaissance Dallas Addison Hotel, Dallas Texas

2025 is set to unleash a new wave of opportunity with a strong demand momentum of 62 GW of projected storage additions deployed by 2024 and a record number of projects coming online. California has now well-surpassed 13GW of grid-scale energy storage installations, ERCOT continues to go from strength to strength and notable markets in the Midwest and the Southeast are opening up to new deployment opportunities.

Website: storageusa.solarenergyevents.com

The 13th Energy Storage International Conference and Expo 2025 (ESIE 2025)

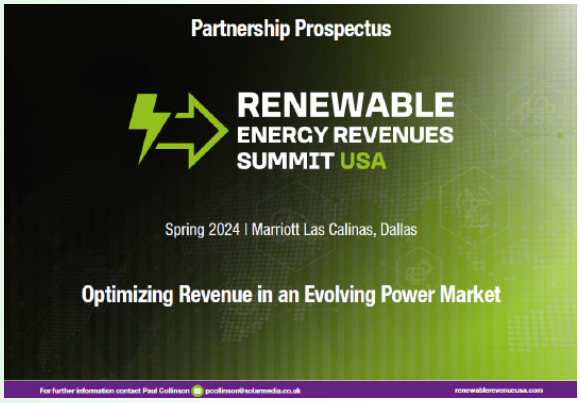
Date: From 10 to 12 April , 2025
Location: Beijine – New China International Exhibition center phase 2

Developed in 2012 by the nation's leading energy storage industry organization, the China Energy Storage Alliance (CNESA), the 13th ESIE in 2025 is the largest, most professional, and international energy storage event in China, acclaimed as the barometer and indicator for the development of the industry.

Website: my.esexpo.org

Renewable Energy Revenues Summit USA 2025

Date: From 23 to 24 April, 2025
Location: Dallas, Texas, USA



To bring buyers and sellers of power together, the Renewable Energy Revenues Summit USA will cover strategies to optimize renewable energy trading, procurement, and offtake structures across U.S. markets.

Website: renewablerevenueusa.com

Large Scale Solar USA 2025

Date: From 29 to 30 April, 2025
Location: Marriott Dallas Las Colinas, Dallas, Texas, USA

Nestled in Dallas, Texas, Large Scale Solar USA Summit is the nexus for project developers, capital providers, utilities, asset managers, and policymakers. Dive deep into the solar industry's transformative growth, learn from the best, and discover strategies to boost utility-scale solar deployment nationwide.

Website: lssusa.solarenergyevents.com

Intersolar Europe 2025

Date: From 7 to 9 May, 2025
Location: ICM München, Munich, Germany

As the world's leading exhibition for the solar industry, Intersolar Europe demonstrates the enormous vitality of the solar market. For more than 30 years, it has been providing a networking opportunity for the key players – from manufacturers, suppliers and distributors to installers, service providers, project developers, planners and start-ups – all under the motto "Connecting Solar Business". It focuses on the latest trends, developments and business models.

Website: www.intersolar.de

Renewables Procurement and Revenue Summit

Date: From 21 to 22 May, 2025
Location: Hilton London Tower Bridge, UK

Revenues Summit serves as the European platform for connecting renewable energy suppliers to the future of energy demand. This includes bringing together a community of European off-takers, renewable generators, utilities, asset owners, and financiers.

Website: renewablerevenue.co.uk

The Battery Show Europe 2025

Date: From 3 to 5 June, 2025
Location: Messe Stuttgart Stuttgart, Germany

Meet battery manufacturers, suppliers, engineers, thought leaders and decision-makers for a conference and battery tech expo focused on the latest developments in the advanced battery and automotive industries.

Website: www.thebatteryshow.eu

PV ModuleTech USA 2025

Date: From 17 to 18 June, 2025
Location: Napa, USA

The event will gather the key stakeholders from solar developers, solar asset owners and investors, PV manufacturing, policy-making and and all interested downstream channels and third-party entities. The goal is simple: to map out the PV module supply channels to the U.S. out to 2026 and beyond.

Website: www.pvtechconferences.com/pv-moduletech-usa

UK Solar Summit 2025

Date: From 1 to 2 July, 2025
Location: Leonardo Royal Hotel London Tower Bridge, London

UK Solar Summit 2025 will look at the role solar currently plays in the energy mix, how this will change over the coming years and how this aligns with net-zero and other government targets.

Website: uss.solarenergyevents.com

Large Scale Solar Southern Europe

Date: From 16 to 17 September, 2025
Location: Athens, Greece

The Southern European solar market has entered a transformative phase, with Greece leading ambitious expansion through its 2030 target of 15GW solar capacity, while Turkey has emerged as a manufacturing powerhouse for solar components.

Website: lssse.solarenergyevents.com

Green Hydrogen Summit USA 2025

Date: From 30 September to 1 October, 2025
Location: The Westin Hotel, Seattle, USA

The hydrogen industry is at a pivotal moment in its evolution. The groundbreaking policy advancements of 2023, including the introduction of 45V tax credits under the Inflation Reduction Act (IRA) and the allocation of $7 billion for regional clean hydrogen hubs through the Bipartisan Infrastructure Law, have set new benchmarks for the sector.

Website: greenhydrogenusa.solarenergyevents.com

Future Energy Asia

Date: From 2 to 3 December, 2025
Location: Rome, Italy

Our 2025 edition will focus on three core themes: Revenue & Trading, the Lifecycle of the Battery, and Optimization Tools for Success. 2025 will see markets such as the Nordics, Iberia, Italy, Germany, UK & Ireland, and the Benelux region, all with market deep dives, helping you to understand how you can position yourself as the front runner with all things Battery Asset Management.

Website: batteryeurope.solarenergyevents.com

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