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ENERGY FROM WASTEWATER: THE FUTURE OF SUSTAINABLERE SOURCE RECOVERY

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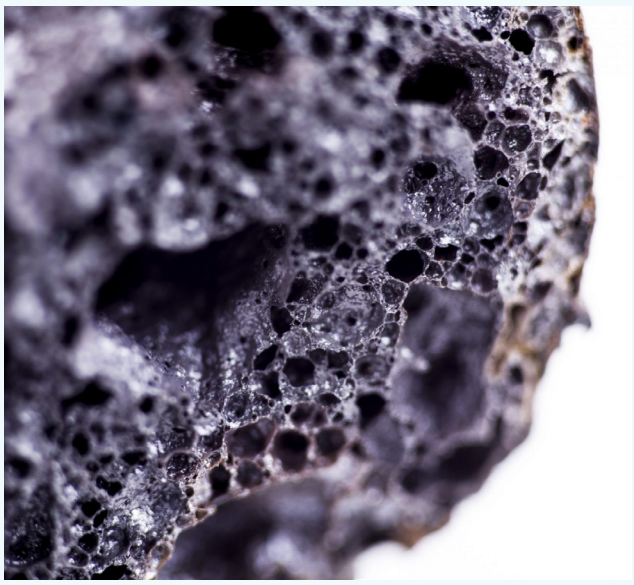

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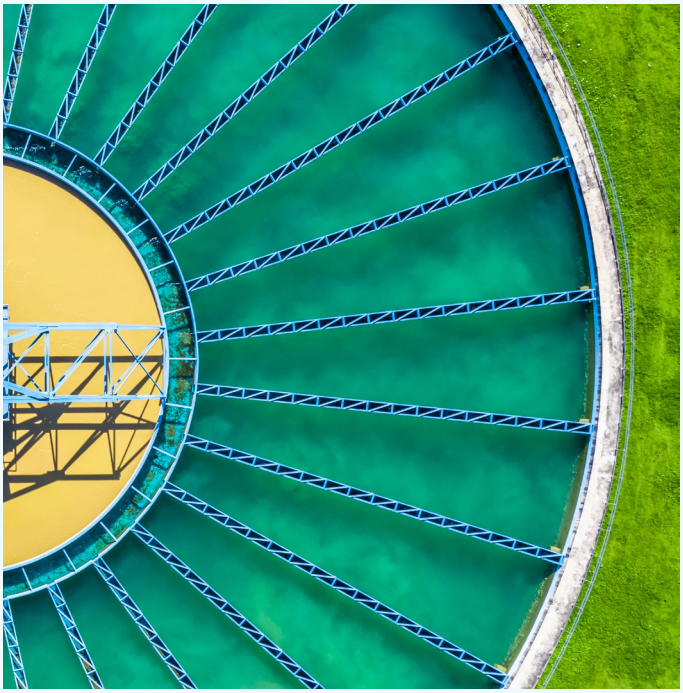

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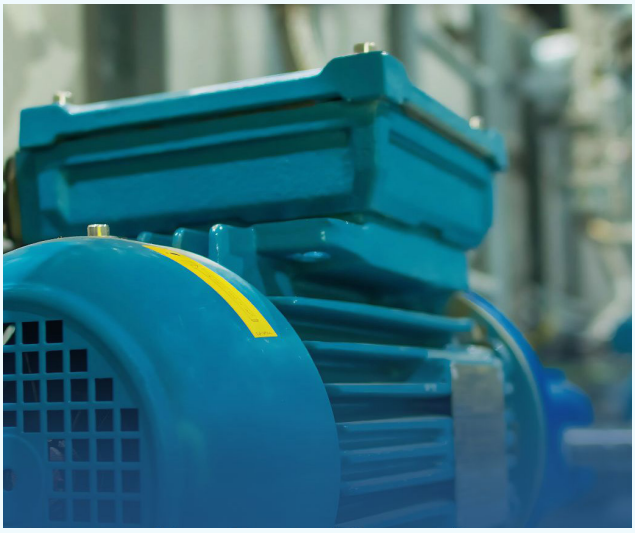

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AQUA ENERGY EXPO TEAM

Magazine Team

Mohamed Khalifa

Founder and CEO

Team leader

Heba Sayed

Design

- Hadeer Omar
- Omnia Gamal
- Nesma Saeed

Content Writers

Water Section

- Hadeer Omar

Energy Section

- Omnia Gamal

Virtual Expo Team

- Heba Taha

Webinars Team

- Hadeer Omar
- Haidy Walid
- Khloud Khaled

Social Media Team

- Shimaa Sayed

Knowledge Hub Team

- Esraa Hany

Marketing Team

- Heba Sayed :heba@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

Welcome to this edition of our magazine, where we explore the pressing challenges and innovative solutions in the realms of water treatment and air purification. As environmental issues escalate globally, the need for effective and sustainable technologies has never been more critical. This issue highlights groundbreaking advancements that not only address these challenges but also pave the way for a cleaner, healthier future.

One of our featured innovations is Filtralite® Air Technology, a remarkable development in biofiltration designed to combat air pollution. Developed by Leca International, Filtralite® Air is a lightweight, porous filter media engineered to enhance microbial activity, effectively breaking down harmful pollutants such as hydrogen sulfide (H_2S), ammonia (NH_3), and volatile organic compounds (VOCs). Its unique structure provides a high surface area and excellent airflow, making it ideal for applications in wastewater treatment plants, agriculture, and industrial settings. By enabling efficient odor control and air purification, Filtralite® Air represents a significant step forward in environmentally friendly air treatment technologies. In addition to air purification, we delve into the transformative potential of wastewater as a renewable energy source. Often viewed merely as waste, wastewater contains valuable organic matter and nutrients that can be harnessed through innovative processes. Techniques like anaerobic digestion and microbial fuel cells (MFCs) allow us to convert wastewater into biogas, a sustainable energy source. The case study of Hamburg Wasser exemplifies the success of energy-positive water treatment plants, demonstrating how advanced systems can achieve self-sufficiency while significantly reducing emissions and energy consumption.

We also spotlight Elreda for Water Treatment and Chemicals, a leader in providing advanced water treatment solutions. With a commitment to sustainability and innovation, Elreda designs and maintains water treatment plants that meet the highest international standards. Their approach emphasizes eco-friendly practices and the efficient use of resources, aligning with global efforts to promote environmental responsibility.

As we navigate the complexities of water resource management and air quality improvement, collaboration among stakeholders is essential. This issue serves as a call to action for investors, researchers, and policymakers to unite in fostering advancements that will secure a sustainable future. Join us as we explore these exciting developments and more. Together, we can champion the technologies that will lead us toward a cleaner, greener planet for generations to come. Dive into the articles that follow and discover how innovation is shaping the future of air and water treatment.

Mohamed Khalifa

Founder and CEO

COMPANY:

AQUA ENERGY EXPO LLC

ADDRESS:

(ST. PETERSBURG, FLORIDA USA 33702)
(L23000439864), EIN (61-2116509)

EMAIL ADDRESS:

Info@aquaenergyexpo.com

LinkedIn: www.linkedin.com

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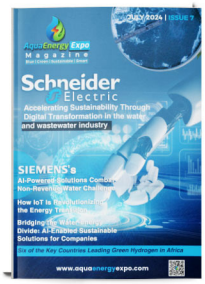

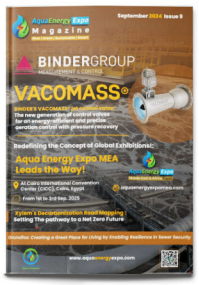

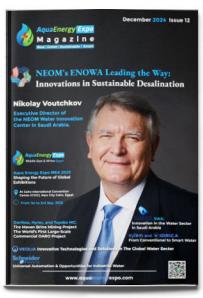

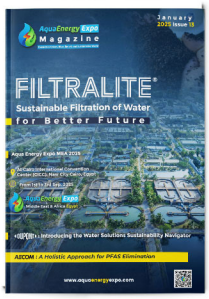

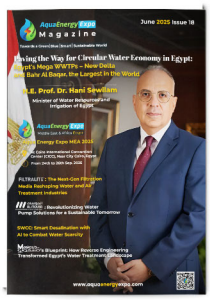

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FILTRALITE®

Filtralite® Air Technology: A Breakthrough in Biofiltration for Odor-Free, Cleaner Air

Air pollution remains one of the most pressing environmental challenges worldwide, especially in urban, industrial, and agricultural settings. Traditional air filtration systems often struggle with high costs, energy consumption, and limited long-term effectiveness. In response, Filtralite® Air emerges as an innovative and sustainable solution for biofiltration of polluted air.

What is Filtralite® Air?

Developed by Leca International, Filtralite® Air is a lightweight, porous filter media made from expanded clay aggregates. It is specifically engineered to support microbial activity that breaks down harmful airborne pollutants like hydrogen sulfide (H_2S), ammonia (NH_3), and volatile organic compounds (VOCs). Its unique structure offers high surface area, excellent airflow, and strong water retention, making it ideal for use in biofilters and biotrickling filters.

By enabling efficient odor control and air purification in wastewater treatment plants, agriculture, industry, and biogas facilities, Filtralite® Air represents a major step forward in the field of environmentally friendly air treatment technologies.

Odours are often results of a complex mixture of chemical compounds and the effect of dilution is different for various compounds, not only quantitatively but also qualitatively. Sources for odour can be manure, waste water plants, industry and waste fillings. Thus, Filtralite® Air is engineered to balance mechanical strength, water retention, and porosity.

Composition and Manufacturing Process

Filtralite® is produced by heating naturally occurring clay at temperatures exceeding 1100°C, causing it to expand and form lightweight granules with a hard outer shell and porous internal structure. Media Chemical Composition is Mainly alumino-silicates, with high structural stability. Moreover, pH Neutrality ensures compatibility with microbial life. This structure supports airflow with minimal resistance while providing a large surface area for biofilm attachment and microbial growth.

How Filtralite® Air Works: Mechanism of Biofiltration

The simple principle of treating odour is to pump the gas through a filter media upstream or downstream with water sprinkling.

- **Upstream System:** Polluted air is pushed upwards through the filter while sprinkling water drip downwards.

- **Downstream System:** Polluted air is pushed downwards through the filter together with sprinkling water.

Here's a breakdown of the process:

• Initial Gas Contact

Polluted air is passed through a bed of moistened Filtralite® Air. The media captures and adsorbs water-soluble gases such as H_2S and NH_3.

• Biofilm Formation

A thin layer of water on the surface of the media supports the growth of bacteria, fungi, and other microbes. These microbes form a biofilm that metabolizes and degrades pollutants.

• Pollutant Degradation

- Hydrogen Sulfide (H_2S) is oxidized to elemental sulfur or sulfate by sulfur-oxidizing bacteria (e.g., Thiobacillus).
- Ammonia (NH_3) is converted to nitrites and nitrates by nitrifying bacteria.
- VOCs are broken down through enzymatic pathways, depending on their structure.

> **"The moisture-retaining properties of Filtralite® ensure long-term stability and activity of the microbial community."**

Physical and Functional Properties of Filtralite® Air

- **Type of Material:** Expanded clay
- **Appearance:** Round particles, smooth surface with micro pores
- **Bulk Density:** 250-360 kg/m³ (lightweight)
- **Particle density:** 430- 650 kg/m³
- **External volumetric air content:** 43%
- **Water Retention:** Porous structure holds water, enhancing trickling efficiency
- **Chemical composition, approx. Values:**

SiO_2	63%
Al_2O_3	17%
Fe_2O_3	7%
K_2O	4%
CaO	2%
Na_2O	2%

- **Stable & Durable:** Natural clay structure that won't collapse – no hazardous or artificial additives.
- **Lightweight:** 5x less pressure on structures than ordinary materials = lower construction and removal costs.
- **Porosity:** highly porous structure
- **Consistent Quality:** Precisely graded for uniform particle size, ensuring predictable and reliable filtration performance.
- **High Surface Area:** Provides an ideal environment for biofilm growth, enhancing biological treatment efficiency.
- **Excellent Permeability:** Promotes smooth airflow with low pressure loss, contributing to energy efficiency and longer media lifespan.
- **Water Retention Capacity:** Porous structure absorbs and holds water, improving trickling efficiency and supporting biofilm hydration.
- **Early Odor Removal:** Possesses natural sorption capacity for hydrogen sulfide (H_2S), allowing odor reduction to begin even before biofilm is fully developed.

Applications and Use Cases

• Wastewater Treatment Plants (WWTPs)

Used in odor control units for sludge handling, aeration tanks, and headworks. Helps reduce community complaints and improve regulatory compliance.

• Industrial and Chemical Plants

Effective in treating exhaust from food processing, fertilizer production, and chemical reactors.

• Composting and Biogas Plants

Filtralite® Air media is used in biofilters to treat gases from organic waste, significantly reducing odor and harmful emissions.

Filtralite® Air in Action: Case Studies and Practical implementations

1. Air purification at Novozymes Fermentation unit in Kalundborg (DK)

Novozymes faced issues with their old filter media: high pressure drops, uneven water distribution, and high energy use. In 2005, engineer Anders P. Jensen found that Filtralite® Air was used successfully at other Danish plants.

They replaced the old media with 350 m³ of Filtralite® Air 4–10, known for its large surface area (580 m²/m³) and low-pressure loss.

To speed up biofilm formation, they mixed in some of the old media containing bacteria. Installation was quick using blower trucks (1 m³/min).

Results:

- Lower, stable pressure drop
- Better humidity control and air purification
- Increased capacity
- Saved 100,000 kWh/month

After 5 years, the media remained effective and stable.

2. Odour treatment filter in Bogense biogas plant (DK)

Leca Danmark A/S supplied 750 m³ of Filtralite® Air 10–20 mm for odor treatment.

- The media's 40–45% porosity allows efficient air distribution and low pressure drop, saving energy.
- Its porous surface supports biofilm growth and effective odor removal without clogging.
- The system treats 40,000 m³ of air per hour, with bacteria forming naturally within weeks to break down odor compounds.

Compared to bark-based filters, Filtralite® Air:

- Holds moisture better
- Remains structurally stable
- Saves up to 60% water annually

Lifespan: 8–10 years without replacement.

The Bogense plant produces 10 million m³ of biogas/year, supplying 6,000 homes with heat.

Conclusion

As air pollution continues to impact human health and the environment, the need for effective, sustainable purification technologies has never been greater. Filtralite® Air offers a powerful solution by combining the natural advantages of expanded clay with modern biofiltration principles.

Its high porosity, moisture retention, and microbial support enable efficient removal of harmful gases such as H_2S, NH_3, and VOCs, while its lightweight and stable structure reduces operational and maintenance costs. With proven success in real-world applications—like the Novozymes plant in Denmark and Bogense biogas plant (DK) —Filtralite® Air stands out for its long-term durability, energy efficiency, and odor control performance.

In a world demanding cleaner air and greener technologies, Filtralite® Air is not just a filter media—it's a smart investment in the future of sustainable air purification.

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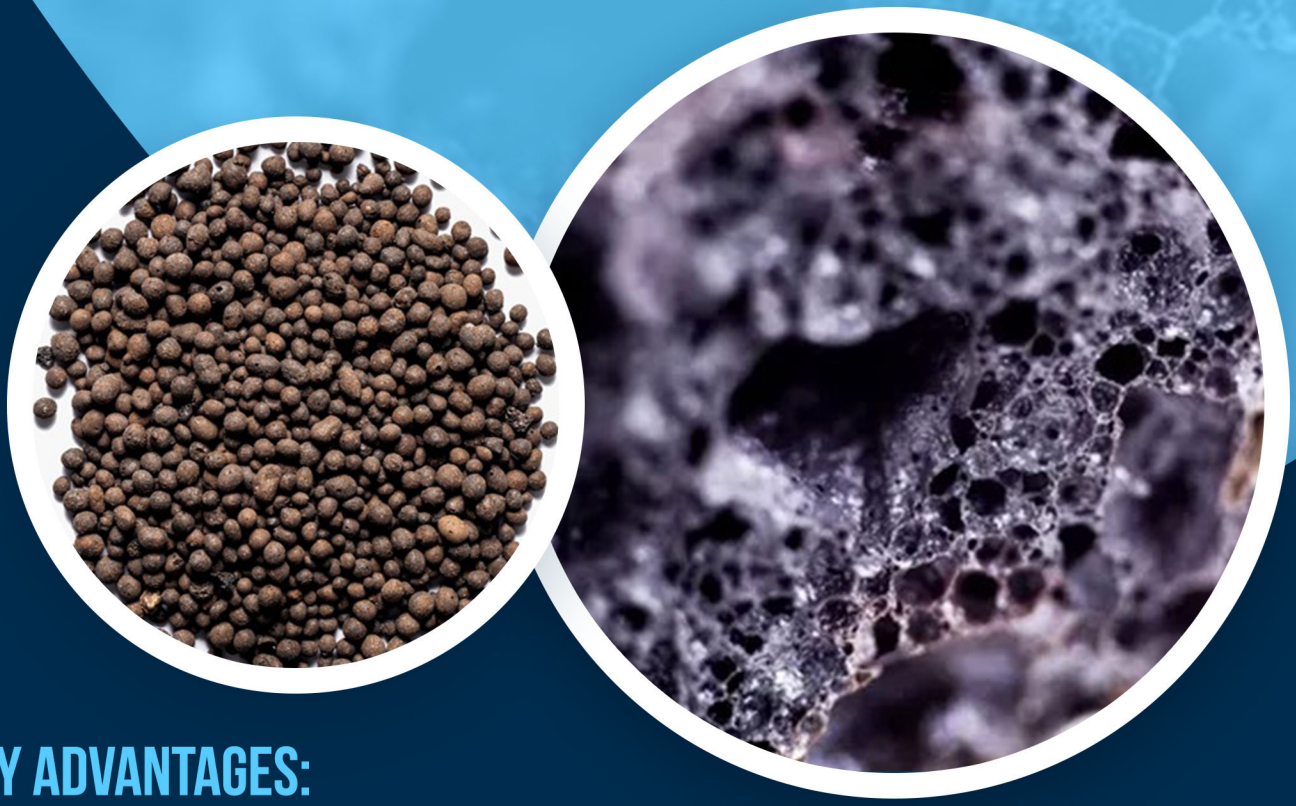
FILTRALITE®

ODOURS FROM INDUSTRY, FARMING, AND WASTEWATER TREATMENT CAN NOW BE PURIFIED WITH BIOFILM IN BIO FILTERS

With its unique porosity, Filtralite® Air Filter Material is conducive to biofilm growth and allows air to flow through the filter bed in order to retain and adsorb more odours. This feature allows for larger volumes of air to be filtered through the same volume as contact area is increased.



KEY ADVANTAGES:

- **Stable structure – does not collapse**
- **Durable and resistant natural clay mineral material without any hazardous or artificial components.**
- **Low weight means reduced construction, filling and removal costs**
- **The horizontal and vertical pressure on walls and structure is 5 times lower than that of ordinary minerals.**
- **Good storage capacity for biofilm and excellent permeability results in low pressure loss and long service life.**
- **Large surface area results in an efficient carrier for biofilm.**
- **Water reservoir – the porous structure absorbs and holds water which improves the efficiency of water trickling.**
- **An adsorbent with good properties will help bio-filtration.**
- **Has sorption capacity towards H2S so the filter will start removing odour even before the biofilm is established.**

Scan to view case studies and more about the products

+971 56 550 3535 mohammed.kastawy@saint-gobain.com https://www.filtralite.com/en

Elreda for Water Treatment and Chemicals: Pioneering Solutions for Water Treatment

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Ireda for Water Treatment and Chemicals is a leading provider of advanced water treatment solutions, specializing in desalination, industrial wastewater treatment, and high-performance water purification equipment. Since our establishment in 2015, we have been committed to delivering innovative, sustainable, and cost-effective water treatment technologies to industries, municipalities, and commercial sectors.

Our expertise spans across designing, installing, and maintaining water treatment plants, along with supplying top-quality chemicals and equipment such as pumps, reverse osmosis (RO) membranes, pressure vessels, filtration media, control valves, ultraviolet (UV) systems, and ozone generators.

Mission and Vision

Mission:

To provide reliable, eco-friendly, and efficient water treatment solutions that ensure clean and safe water for industrial and domestic use.

Vision:

To become a global leader in water treatment technologies by continuously innovating and expanding our reach in emerging markets.

Core Values

Quality & Excellence:

We adhere to the highest industry standards in all our products and services.

Sustainability:

We prioritize environmentally friendly solutions to reduce water wastage and energy consumption.

Customer-Centric Approach:

We tailor our solutions to meet the specific needs of each client.

Innovation:

We invest in cutting-edge research to develop

History and Growth

Founded in 2015, Elreda started as a specialized water treatment company focusing on RO plants and industrial wastewater solutions. Over the years, we have expanded our portfolio to include desalination projects, advanced filtration systems, and chemical treatment solutions.

Today, we serve clients across multiple industries, including:

- Oil & Gas
- Power Plants
- Pharmaceuticals
- Food & Beverage
- Municipal Water Treatment

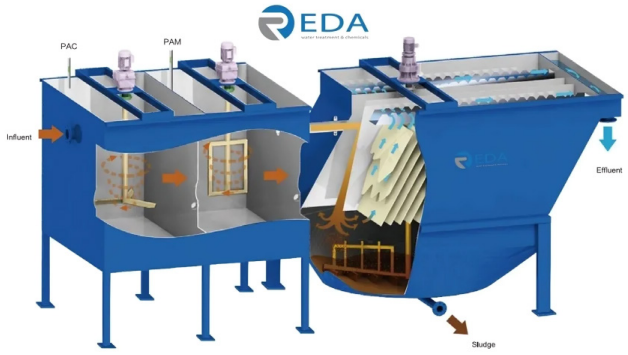
Our success is driven by a highly skilled engineering team, strategic partnerships with global suppliers, and a commitment to continuous improvement.

Projects

Elreda has successfully executed numerous large-scale water treatment projects, demonstrating our expertise in engineering, installation, and maintenance. Below are some of our key project categories:

• Water Treatment Plants

We design and install customized water treatment plants for industries and municipalities, ensuring compliance with international water quality standards (WHO, EPA, ISO).



Products

Elreda offers a comprehensive range of water treatment products, ensuring optimal performance and longevity.

• Pumps & Filtration Systems

We are a formal distributor of CNP pumps in Egypt, focusing on:

- High-pressure RO pumps (vertical multistage Stainless-steel pump, horizontal multistage pump for high-pressure pump for seawater)
- Multistage centrifugal pumps as a booster and feed pump in the RO system
- Dosing pumps for chemical injection

• RO Membranes & Pressure Vessels

- Transfilm RO membranes
- FLUX - FRP (Fiberglass Reinforced Plastic) pressure vessels, membrane and tanks
- Stainless steel housings, filter and membrane

• Instrumentation & Control Systems

We are a formal distributor of (SUNHO and SUPMEA)

- pH/ ORP/ conductivity/ TSS/ free chlorine/ turbidity/ DO/ COD/ TOC/ RO/ etc. controllers
- Flow meters & pressure sensors and level controllers
- PLC-based automation for plant monitoring

• Filter Media & Chemical Solutions

- Activated carbon, anthracite, sand and gravel and iron removal media
- Antiscalants, biocides, coagulants

• UV & Ozone Disinfection Technologies

- Ultraviolet sterilizers for bacteria/virus removal
- Ozone generators for advanced oxidation
- Combined UV-Ozone systems for maximum disinfection

Conclusion

Elreda for Water Treatment and Chemicals is at the forefront of innovative and sustainable water solutions. With our proven expertise in desalination, wastewater treatment, and high-quality equipment supply, we continue to set industry benchmarks.

Our customer-focused approach, cutting-edge technology, and commitment to environmental responsibility make us the preferred partner for industries and municipalities worldwide.

Contact Elreda

Website: www.redawatergroup.com

E-mail: info@redawatergroup.com

Phone: +201099989667

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The Efforts of The Ministry of Water Resources and Irrigation to Achieve Water Security

Throughout the years, Egypt has been keen on preserving its water resources and increasing the area of cultivated land. In the past, it protected and raised the Nile bridges and canals to ward off the dangers of Nile flooding, and it also built dams and bridges to control the distribution of water during periods of Nile drought and water shortages.

It also established many canals to deliver water to reclaim new agricultural lands and increase the cultivated area to about seven million acres after the High Dam was put into operation in 1970.

These strategic actions have contributed to the economic development of society and helped stabilize Egyptian society by achieving water security for the country throughout history.

In line with the same approach regarding the state's policy towards preserving every drop of water and investing it in an ideal manner that contributes to meeting all water needs in various aspects of life, the Ministry of Water Resources and Irrigation's huge efforts have crystallized in achieving sustainable water security, preserving water, rationalizing its use and maximizing its return.

Currently, Egypt's water needs amount to approximately 114 billion cubic meters of water annually to meet the requirements of agriculture, drinking and other uses, while available water resources are estimated at approximately 60 billion cubic meters annually.

In the face of this great challenge, which increases year after year in light of the stability of water resources and the increase in water needs annually to meet the annual population increase in Egypt of approximately 2 million people, the Ministry of Water Resources and Irrigation is dealing with the current deficit through the following:

- Reusing 21 billion cubic meters of agricultural drainage water annually.
- Importing agricultural crops from abroad corresponds to water consumption estimated at approximately 33 billion cubic meters annually.

In light of this, the importance of the second-generation irrigation system in Egypt has become clear in achieving sustainable water security in the country, based on a modern scientific approach and in accordance with mechanisms that contribute to overcoming the ongoing and increasing water deficit, where The system has adopted the latest technology in water management and distribution, in line with the future status of water resources in the country, as well as making use of the previouslacquired experiences and projects that have been completed in the field of water resources over the past decades, and also extracting the lessons learned from them.

The 1st pivot: relates to water treatment and desalination for intensive food production

The Egyptian state has implemented the following:

- Expanding the reuse and treatment of agricultural drainage water by implementing three major projects: the New Delta, Bahr El-Baqar, and El-Mahsama stations for the reuse of agricultural drainage water, with a capacity of up to 4.80 billion cubic meters annually.

- The trend towards desalination for intensive food production 1s one of the future solutions to address the challenges of water and food, as the establishment of a water treatment and desalination unit within the ministry is being studied to be concerned with this issue.

The 2nd pivot: It is represented by the digital transformation, which aims to fill the shortage in some human resources in the ministry, achieve transparency, combat corruption, and provide data to decision-makers

The most important digital transformation steps taken by the Ministry include the following:

- Digitizing data on canals, drains, and water facilities.
- Developing databases for monitoring the condition of canals and drains.
- Creating applications for farmers to identify shift schedules.
- Using drone photography to monitor waterways and crop composition.

The 3rd pivot: smart management through the following:

- Rainfall forecasting models.
- Calculating crop yields using satellite imagery to accurately estimate the required water quota.
- Using canal network models to improve operation and planning.
- Relying on machine learning software to estimate water levels.
- Using the Digital Earth Africa platform to monitor coastal protection efforts in Egypt.

The 4th pivot: includes the rehabilitation of water facilities and canal, through the following:

- The condition of 47,000 facilities has been assessed, and replacement, renovation, rehabilitation, reinforcement, and maintenance work is currently underway, based on the technical condition of each facility.
- 7,800 kilometers of canals have been rehabilitated to date.
- A study is underway on the use of environmentally friendly materials in canal rehabilitation.
- Developing the monitoring and operation system at the High Dam.
- Commencing the project to replace and renew water control gates.
- Implementing projects to replace, rehabilitate, and maintain major water facilities.
- Implementation of end outlets for canals.

The 5th pivot: It is represented by adapting to climate change, through the following:

- Implementing several major projects to protect Egyptian beaches in Alexandria, Damietta, Marsa Matruh, the Rosetta Wall, and other sites protected using traditional methods.
- Implementing the “Enhancing Adaptation to Climate Change in the North Coast and Nile Delta” project, based on environmentally friendly natural materials.
- Implementing 1,631 flood protection facilities in various governorates exposed to floods

(North and South Sinai - Red Sea - Matrouh - Upper Egypt).
- Expanding reliance on solar energy as an alternative to diesel for water pumping, which will reduce carbon emissions.

The 6th pivot: Goverance,which aims to achieve the following:

-Expanding the formation of water user associations, which currently are 6,474, with the election of 188 association secretaries at the district level and 22 association secretaries at the governorate level, leading up to the election of a board of directors for the association's union nationwide.
- Identifying and disseminating successful and distinguished practices of farmers to encourage more farmers to replicate these successful models.

The 7th pivot: includes developing human resources and working to fill the gaps in some jobs, especially among engineers and technicians,through the following:

- Training and capacity building for Ministry employees.
- Providing training courses in innovative and creative fields, such as utilizing water hyacinth plants after drying them using environmentally friendly methods to manufacture handicrafts.

The 8th pivot: represents awareness, whether through the water guidance departments that communicate with farmers, or through the media and various social media

This is done through the "Ala El-Ad" campaign, which we call on all Egyptians to follow and adhere to its goals of rationalizing water and protecting it from pollution.

The 9th pivot: Includes external work within the second generation of the irrigation system. Egypt has led intensive efforts to raise the status of water and place it at the top of the global climate action agenda, through the following:

- Cairo Water Weeks and climate conferences.
- The United Nations Water Conference and the 10'h World Water Forum.
- Egypt's outstanding efforts to serve the African continent during its presidency of the African Ministerial Council on Water (AMCOW).
- Egypt launched the AWARe initiative, which serves African and developing countries in the field of water and climate change adaptation.

Energy from Wastewater: The Future of Sustainable Resource Recovery

Wastewater, while commonly seen as a problem, has significant promise as a renewable energy source. We investigate the benefits and utility of wastewater beyond its usual classification as waste. Wastewater, which is frequently misinterpreted as just waste, contains important organic matter, critical nutrients, and energy-rich molecules. Despite its unfavorable connotation, millions of cubic metres are generated globally every day, representing a massive pool of untapped resources for renewable energy production and resource recovery. Embracing a paradigm shift that views wastewater as a valuable resource rather than a burdensome byproduct not only supports environmental sustainability but also opens up new economic prospects. The transition from a linear model of wastewater management to a circular economy approach holds the promise of a paradigm shift in wastewater treatment.

Transforming Wastewater into Valuable Resources

Wastewater treatment is a critical component of urban infrastructure that protects public health and environmental integrity. Traditional approaches to wastewater treatment, however, frequently have a restricted emphasis, prioritizing the removal of contaminants and pathogens while ignoring the latent wealth of resources buried in wastewater streams. Significant environmental and economic benefits can be gained by shifting the focus from waste management to resource valorization.

The transition from a linear model of wastewater management to a circular economy approach, in which wastewater is considered as a valuable input rather than a throwaway output, holds the potential for a dramatic shift in wastewater treatment techniques. Water utilities may harness the inherent energy, nutrients, and organic matter

in wastewater to create sustainable solutions and promote a regenerative approach to resource utilization by implementing new technology and smart management tactics.

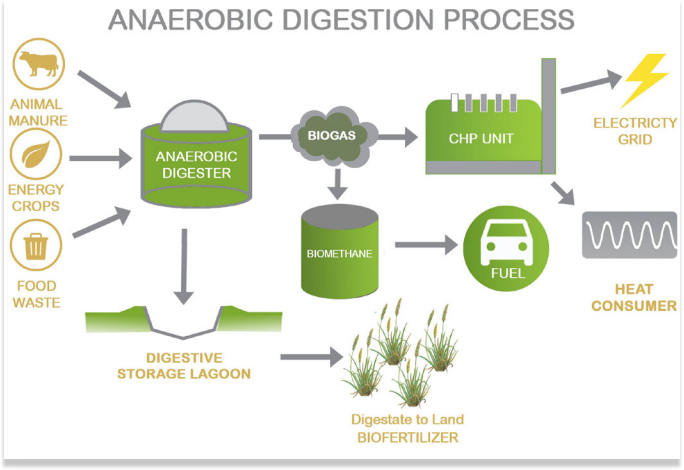
Processes involved in creating energy from wastewater: Anaerobic Digestion

Several processes are employed to harness energy from wastewater, each leveraging different mechanisms to convert organic matter into usable energy. Anaerobic Digestion is a biological process that occurs in an oxygen-deprived environment, where a diverse consortium of microorganisms collaborates in breaking down organic matter present in wastewater. These microorganisms, including bacteria and archaea, orchestrate a complex series of biochemical reactions, transforming complex organic compounds into simpler molecules. The cornerstone of this process lies in the microbial degradation of organic matter, yielding a plethora of by-products, most notably biogas.

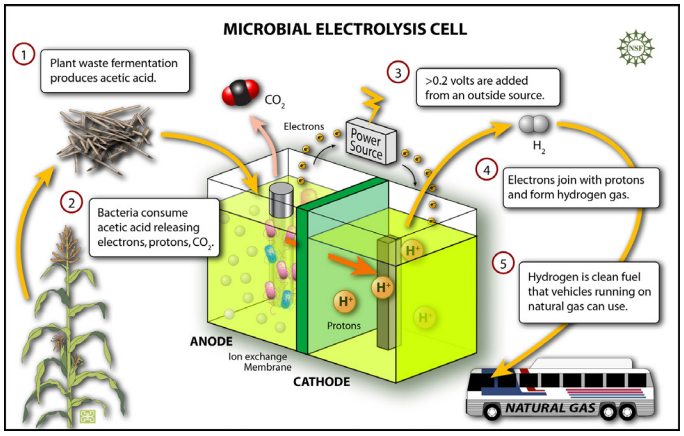
Biogas, the primary product of anaerobic digestion, constitutes a gaseous mixture primarily composed of methane and carbon dioxide, along with trace amounts of other gases such as hydrogen sulfide and nitrogen. This versatile energy source holds immense potential for various applications, serving as a sustainable alternative to conventional fossil fuels. The methane content of biogas, in particular, renders it an excellent candidate for utilization as a fuel for heating purposes, industrial processes, or electricity generation. By harnessing the energy stored within organic matter, anaerobic digestion facilitates the reduction of the volume of solids in wastewater and offers a tangible pathway towards achieving energy self-sufficiency. This transformative process not only mitigates environmental impacts associated with conventional wastewater treatment but also presents a viable means of generating renewable energy in the form of biogas.

Microbial Fuel Cells (MFCs)

MFCs are transforming the landscape of wastewater treatment and energy production. Harnessing the power of microbial communities, these innovative devices convert organic compounds found in wastewater into electricity with remarkable efficiency.



At the core of MFCs lies a symbiotic relationship between microorganisms and electrodes. As microorganisms break down organic matter in wastewater, they release electrons as a natural by-product of their metabolic processes. These electrons are then directed through an external circuit towards an electrode, generating an electrical current.



> **Surplus energy is sufficient to meet the energy needs of the entire water cycle.**

This electron flow, facilitated by specialized mediators or conductive materials, serves as the foundation for electricity generation in MFCs. The result? Clean and renewable energy that can be utilized for a myriad of applications, from powering small-scale electronics to supplementing grid electricity.

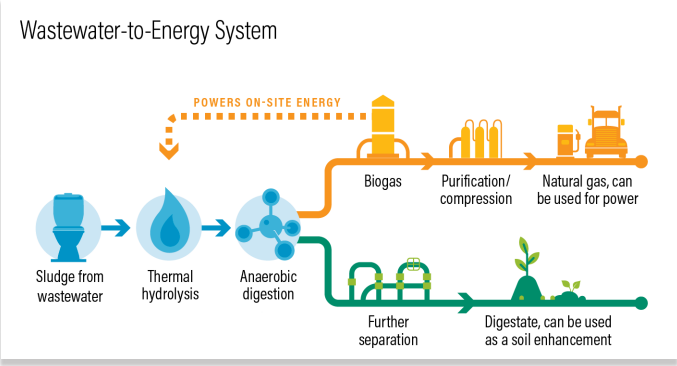
But the impact of MFCs goes beyond traditional wastewater treatment plants. These versatile devices offer promising solutions for decentralized wastewater treatment systems and off-grid energy production. In remote or resource-constrained areas lacking centralized infrastructure,

MFCs provide a sustainable approach to both wastewater management and energy generation. By tapping into the energy potential inherent in wastewater, MFCs empower communities to address sanitation needs while simultaneously producing clean electricity.

Thermal Hydrolysis

Thermal Hydrolysis is helping to unlock unprecedented energy recovery from organic matter in wastewater. Organic compounds in wastewater are subjected to high temperatures and pressures, triggering hydrolysis reactions that break down complex molecules into simpler forms. Thermal decomposition primes the organic matter for efficient microbial degradation in subsequent treatment stages. By jumpstarting the breakdown of organic matter, thermal hydrolysis turbocharges downstream processes like anaerobic digestion.

The result? Increased bioavailability of sludge, leading to higher biogas production rates and maximum energy extraction from wastewater. Thermal hydrolysis also has the potential to slash sludge volume and boost overall process efficiency. By breaking down stubborn compounds, it eases operational challenges and enhances the sustainability of wastewater treatment systems.



How energy-positive water treatment plants operate

Energy-positive water treatment plants generate electricity using a combination of self-generating and renewable energy sources, such as solar power, wind turbines, or hydroelectricity. They use modern and energy-saving technologies in their treatment operations, including as high-efficiency pumps, motors, and filtering systems. Furthermore, some plants use anaerobic digestion to degrade organic materials such as sewage sludge, resulting in biogas that can be recovered and used as a renewable energy resource.

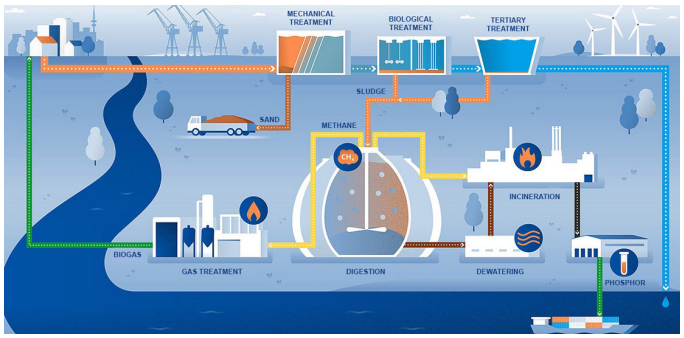
> **These initiatives have collectively reduced power consumption by approximately 1 GWh per year.**

Combined Heat and Power (CHP) systems are frequently combined to generate electricity and heat from the same fuel source, hence increasing energy efficiency. These facilities may also include technologies for recovering energy from wastewater, such as micro-hydro turbines, which generate power while wastewater flows through pipelines. Sophisticated monitoring and control systems are used to continuously monitor energy use and production, allowing operators to identify opportunities for improvement and maximize energy efficiency.

Case study
Leading Utilities: Hamburg Wasser

Meanwhile, Hamburg Wasser, a German utility, has made tremendous progress in using wastewater to generate energy. By using innovative anaerobic digestion technologies and effective sludge treatment processes, the utility reduces energy usage while increasing energy recovery. The use of renewable energy sources like biogas and solar electricity improves the sustainability of wastewater treatment operations. Hamburg Wasser's innovative ways separate three independent wastewater streams: black water from toilets, grey water from showers and washing, and rainwater. These streams are collected and treated independently, with an emphasis on black water treatment as the principal component. Nathalie Leroy, MD of Hamburg Wasser, said,

> **This approach not only reduces CO_2 emissions but also achieves self-sufficiency in energy provision for the neighbourhood it operates in.**



Conclusion

Wastewater, often seen as a challenge, holds significant potential as a renewable energy source. It contains organic matter, nutrients, and energy-rich compounds that can be harnessed through innovative processes like anaerobic digestion, microbial fuel cells (MFCs), and thermal hydrolysis. Anaerobic digestion converts organic waste into biogas, a sustainable fuel for electricity and heat. MFCs use microbes to generate electricity directly from wastewater, while thermal hydrolysis enhances energy recovery by breaking down complex molecules. Energy-positive treatment plants combine these technologies with renewables like solar and wind, reducing energy consumption and emissions. Case studies, such as Hamburg Wasser, demonstrate how advanced systems can achieve energy self-sufficiency, transforming wastewater into a valuable resource.

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JANUARY 2025

Buyers Guide for Water and Renewable Energy Companies

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RO-TEC: Your Partner in Advanced Desalination Technology

RO-TEC رو-تك
لخدمات معالجة المياه
Water Purification Systems

RO-TEC is a specialized company in the field of water desalination and treatment, operating since 2013. With over a decade of experience, we have established a strong presence in the Egyptian market through delivering efficient, high-quality water solutions.

We provide comprehensive services for the supply, installation, and commissioning of desalination plants with various production capacities. Our expertise covers different water sources including municipal water, well water, brackish water, high brackish water, and seawater.

In addition to our technical services, RO-TEC is also an importer of high-quality spare parts and essential components for desalination and water treatment systems, ensuring long-term reliability and seamless operation for all projects. At RO-TEC, we believe that every drop matters, and we are committed to delivering smart, sustainable water solutions tailored to our clients' needs.

Our Vision

To be a trusted leader in water desalination and treatment solutions, driving sustainability and innovation across all sectors.

Our Mission

To deliver efficient, reliable, and sustainable water treatment systems by combining advanced technology, engineering expertise, and customer-focused service.

Our Clients

We proudly serve a diverse range of sectors, including industrial facilities, pharmaceutical companies, hospitals, agricultural farms, fish farms, and residential compounds, providing tailored water treatment solutions to meet each client's unique needs.

Imported Products

RO-TEC is a leading importer and supplier of high-quality components and spare parts for water desalination and treatment systems. We are committed to providing original, certified products from trusted international brands, ensuring high performance and long-term operational reliability.

We are official agents and distributors for several reputable brands in the industry, including:

- **Stefano and Torino Pumps:**
High-pressure and performance pumps for desalination systems.
- **Solenoid Valves & Low Pressure Switches:**
For precise control of water flow and pressure.
- **Turbo Flow Meters:**
High-accuracy flow measurement devices.
- **Turbo Membranes:**
For maximum efficiency in salt and mineral separation.
- **FRB Turbo Housings:**
Durable membrane housings with industrial-grade strength.

- **Bromo Carbon:**
Imported activated carbon for removing impurities and enhancing water quality.
- **Activated Carbon:**
For effective removal of chlorine, organic matter, and odors.
- **T-Tech Pressure Vessels:**
High-quality, durable vessels designed to withstand demanding conditions.

We provide all products with detailed technical specifications and certified warranties, along with fast and reliable supply of spare parts at any time.

Our Products

RO-TEC offers a comprehensive range of specialized products in the field of water desalination and treatment, including:

- Water desalination plants of all production capacities (from small-scale to industrial systems).
- Water treatment systems for factories, hospitals, farms, and residential compounds.
- Multi-stage water filtration systems (sand filters, carbon filters, micron filters).
- Water softener units.
- UV sterilization units and ozone treatment systems.
- Measurement and control devices (TDS meters, pressure gauges, flow meters, etc.).
- Water storage tanks in various capacities and materials.
- High-quality water pumps and high-pressure pumps.
- Original spare parts and components for desalination systems (RO membranes, housings, flanges, valves, etc.).

We are committed to supplying imported, high-quality products that meet global standards, ensuring efficiency, sustainability, and long operational life.

Contact RO-TEC

Phone / WhatsApp:

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+20 114 826 9995
+20 114 826 9997
+20 112 221 8980

Location:

Qalyubia - Banha - Villas - before El Fahs Bridge


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Al Mousa Trading – Supplying Pumps & Mechanical Solutions from Around the World to Build Saudi Infrastructure
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spp
FILTRALITE
Aquaterra
Polypropylene Pipes and Fittings
UNIDELTA
ROHA REGIONAL
Plastic Solutions
wilo
BALMORAL
STALWART
aliaxis
PENTAIR
ASTRALPOOL
Oase
HAYWARD

Saudi Arabia's development is moving at an unprecedented pace. Cities are expanding, industries are growing, and infrastructure demands are evolving. At the heart of this transformation lies one of the nation's most valuable resources - water. Managing it efficiently is not just an engineering task; it's a national priority.

For over two decades, Al Mousa Trading Co. has been more than a supplier of water systems - we have been a trusted partner in designing, delivering, and supporting solutions that help shape the Kingdom's water future.

Delivering Performance Across Every Drop

In the dynamic infrastructure landscape of Saudi Arabia, delivering water and mechanical systems requires more than just selling equipment. It demands engineering expertise, reliable technology, and long-term operational support. At **Al Mousa Trading Co.**, our product portfolio is built to serve this vision - ensuring that every system we supply is optimized for performance, energy efficiency, and durability in the Kingdom's unique operating conditions.

Beyond Supply: Engineering Value in Every System

Since our establishment, we have understood that projects - whether they are high-rise commercial towers, industrial facilities, hospitals, or mega developments - require fully integrated solutions, not isolated components.

That's why we combine equipment supply with technical consultation, design review, installation oversight, and after-sales service.

Our approach ensures that every pump, pipe, or filtration unit becomes part of a seamlessly engineered system that meets the highest technical, environmental, and operational standards.

Core Product Categories

1. Booster & Submersible Pumps – Grundfos Excellence

"We deliver Grundfos booster systems that provide stable water pressure and optimized flow, meeting the needs of residential, commercial, and municipal projects. Submersible pumps are engineered to handle deep wells, sewage, and stormwater applications with unmatched reliability."

2. Firefighting Pump Systems – Safety Meets Compliance

As an authorized partner for SPP and Peerless (UL/FM), we supply firefighting systems that meet global safety benchmarks and Saudi Civil Defense requirements. Designed for uninterrupted emergency performance, these systems protect critical infrastructure when it matters most.

3. Piping Systems – Strength and Reliability

From HDPE and PPR to Fittings and Acoustic Soil & Waste Systems, we offer piping solutions for potable water, industrial lines, and noise-reducing drainage. Each material is selected for its durability, chemical resistance, and compliance with local standards.

4. Water Treatment & Filtration Technologies

Our portfolio includes multimedia filters, copper-silver ionization units, and filtration media that improve water quality, reduce chemical dependency, and ensure compliance with environmental regulations.

5. Thermal & Heating Solutions

From boilers and calorifiers to heat pumps and solar thermal systems, our heating solutions combine efficiency with long-term reliability, serving hospitality, healthcare, and industrial sectors.

Our Approach to Engineering Reliability

Reliability at Al Mousa Trading Co. is the result of:

1. Proven Technology

We partner with world-leading brands including Grundfos, Wilo, SPP Pumps, Peerless, dBlue, and Filtralite and many more companies known for their engineering excellence and rigorous quality standards.

- Pumping Systems: Designed to handle high demand, harsh environmental conditions, and extended operating cycles.
- Filtration & Treatment: Advanced technologies that maintain water quality and protect downstream systems.
- Piping Systems: Materials selected for durability, chemical resistance, and low maintenance.

By sourcing from these trusted manufacturers, we ensure that our solutions start with the highest-quality components available in the market.

2. Engineering Expertise

Supplying a pump or a pipe is one thing; integrating it into a fully functioning system is another. Our technical team provides:

- Design Review & Consultation: Ensuring the system meets capacity, pressure, and flow requirements without overloading equipment.
- Site Supervision: Overseeing installation to guarantee compliance with design specifications.
- Testing & Commissioning: Conducting factory acceptance tests and site acceptance tests) to verify performance before handover.

This approach ensures that every system operates exactly as intended from day one.

3. Long-Term Support

Reliability doesn't end at commissioning - it must be maintained throughout the system's lifecycle. We provide:

- Preventive Maintenance Programs: Scheduled inspections and servicing to prevent breakdowns.
- Rapid Response Service: Quick respond and parts replacement to minimize downtime.
- Upgrades & Retrofits: Modernizing existing systems with newer, more efficient technologies.

Our after-sales service ensures that clients are never left without support.

Technology + Local Expertise = Long-Term Performance

As an authorized partner of world-leading brands, we bring global innovations into the Saudi market - but our value lies in adapting these technologies to local water conditions, municipal requirements, and climate challenges. With hands-on experience across hundreds of projects, our team ensures that every product performs at its peak from commissioning to years of operation.

Comprehensive Range of Water & Mechanical Solutions

Al Mousa Trading success comes from its comprehensive approach in supplying and supporting water and mechanical systems across residential, commercial, industrial, and municipal sectors. The company's portfolio includes:

- Water supply & pressure boosting systems
- Firefighting pump sets (UL/FM approved)
- HVAC & chilled water circulation
- Submersible & deep well pumping
- Stormwater and sewage management
- Water treatment & filtration technologies
- Thermal & heating solutions
- Specialized piping systems (HDPE, PPR, PEX, Acoustic)
- Swimming Pool & water features.

Commitment to Vision 2030

As Saudi Arabia works toward **Vision 2030**, water security and sustainability are central goals. Our commitment is clear:

- Provide solutions that save energy and resources.
- Support national projects with global technologies adapted to local needs.
- Build infrastructure that can serve communities for generations.

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الموسى
AL MOUSA
AL MOUSA TRADING CO. شركة الموسى للتجارة

Al Mousa Trading Co. – Your Partner in Integrated Water & Mechanical Solutions

AL-MOUSA TRADING CO. PORTFOLIO INCLUDES

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- Firefighting pump sets (UL/FM approved)
- HVAC & chilled water circulation
- Submersible & deep well pumping
- Stormwater and sewage management
- Water treatment & filtration technologies
- Thermal & heating solutions
- Specialized piping systems (HDPE, PPR, PEX,Acoustic)
- Swimming Pool & water features.

Supplying solutions from global brands including:

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Aquaterra GIDELTA DOHA REGIONAL Plastic Solutions PENTAIR ASTRALPOOL Oase HAYWARD

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WATER NEWS BRIEF

September| 2025

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Xylem Reports Second Quarter 2025 Results

Xylem Inc. reported strong Q2 2025 results, with revenue of $2.3 billion, up 6% year-over-year. EPS rose 16% to $0.93, while adjusted EPS increased to $1.26. The company achieved a record adjusted EBITDA margin of 21.8%, driven by productivity gains and pricing improvements. Net income reached $226 million, with a 9.8% margin. Based on solid performance and resilient demand, Xylem raised its full-year guidance, now expecting revenue of $8.9–$9.0 billion and adjusted EPS of $4.70–$4.85. Adjusted EBITDA margin is projected at 21.3–21.8%. CEO Matthew Pine emphasized continued momentum, operational improvements, and confidence in long-term value creation.

Veolia reports strong first-half 2025 results

Veolia reported strong H1 2025 results, with revenue up +3.8% like-for-like to €22.05 billion, driven by growth in water technologies and hazardous waste. EBITDA rose +5.5% organically to €3.37 billion, and current net income grew +4.3% to €762 million (+12.5% excluding 2024's exceptional gains). The company invested €2.2 billion, including full ownership of Water Technologies Services and €300 million in hazardous waste acquisitions. Despite this, net debt remained stable at €20.76 billion. CEO Estelle Brachlianoff highlighted the GreenUp plan's relevance amid global uncertainty.

AMEA Power Joins Second Phase of the Agadir Desalination Project in Morocco and Uses its Wind Farm in Laayoune to Generate 150MW of Green Energy

AMEA Power has joined the second phase of the Agadir desalination project in Morocco, marking its first venture into North Africa's water sector. The expanded facility, to be powered by AMEA Power's 150 MW wind farm in Laayoune, will reach a capacity of 400,000 m^3/day, becoming one of Africa's largest desalination plants. This phase follows a joint venture agreement signed in May 2025 with Spanish company Cox, which developed the initial phase. The €250 million project aims to integrate renewable energy and water infrastructure, with the desalination plant operational by end-2026 and the wind farm launching in 2027.

Alkhorayef Water and Power Technologies awarded $57 million sewage network contract

Alkhorayef Water and Power Technologies Co. has secured a contract from the National Water Company (NWC) to implement the seventh phase of sewage networks in Al-Kharj Governorate. The deal is valued at 215 million Saudi riyals (around $57.3 million), according to a disclosure by the company to the Saudi stock exchange. The project is planned to be completed within 36 months. Alkhorayef noted that this contract will contribute positively to its financial performance, with the impact expected to appear in the fourth quarter of 2025. The agreement reflects the company's growing role in water and wastewater infrastructure development.

الخريّف لتقنية المياه والطاقة
Alkhorayef Water & Power Technologies

ACWA Power and Gulf Investment Corporation Consortium Sign Letter Agreement for Az-Zour North 2 & 3 IWPP in Kuwait

ACWA Power, the world's largest private water desalination company and a leader in green hydrogen, alongside Gulf Investment Corporation (GIC), has signed a Letter Agreement with Kuwait's KAPP and MEWRE to develop the Az-Zour North Phase 2 & 3 IWPP in southern Kuwait. Valued at over USD 4 billion, the project will deliver 2,700 MW of power and 120 MIGD of desalinated water, strengthening Kuwait's electricity and water security. Developed under a 25-year BOT agreement, the consortium will hold 40% of the project company, with KAPP retaining 60% and later allocating 50% for public subscription upon operation in 2029.

Southern Water appoints Horizon Water Infrastructure for water meter upgrade rollout

Southern Water has appointed Horizon Water Infrastructure (HWI) to lead a major five-year programme to replace one million water meters, marking a significant step in modernising infrastructure and driving digital transformation. The initiative will enhance customer engagement, improve water efficiency, optimise network performance, and support sustainability. Delivered by the HWI Southern Water Alliance—comprising HWI, SUEZ, and M Group Water—the programme will introduce advanced metering technologies to enable accurate billing, leak detection, and long-term resource management. Southern Water's Antonia Barton highlighted the customer and environmental benefits, while HWI's Daniel Reilly emphasised the project's role in setting a new industry benchmark.

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.

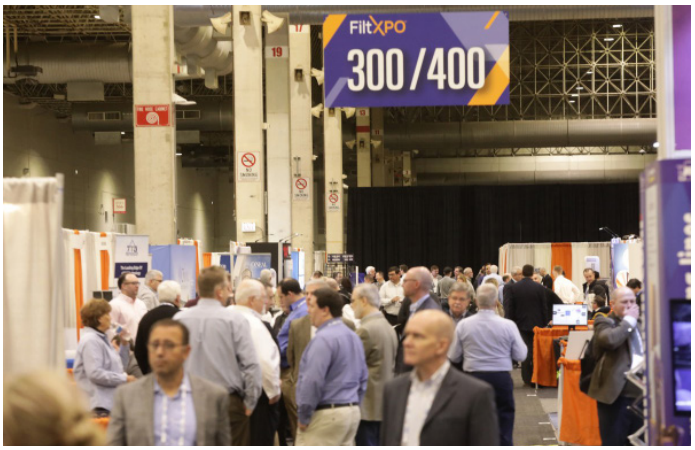
Website: www.smgconferences.com

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

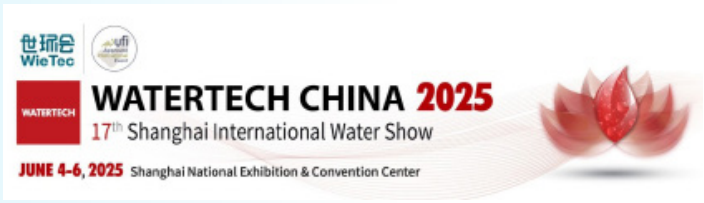
In a world that has crossed the 1.5°C threshold, water security faces unprecedented pressure. The challenge requires an immediate and sharp increase in capital deployment into our sector. At GWS 2025, we're bringing together the leaders who can make this happen.

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.

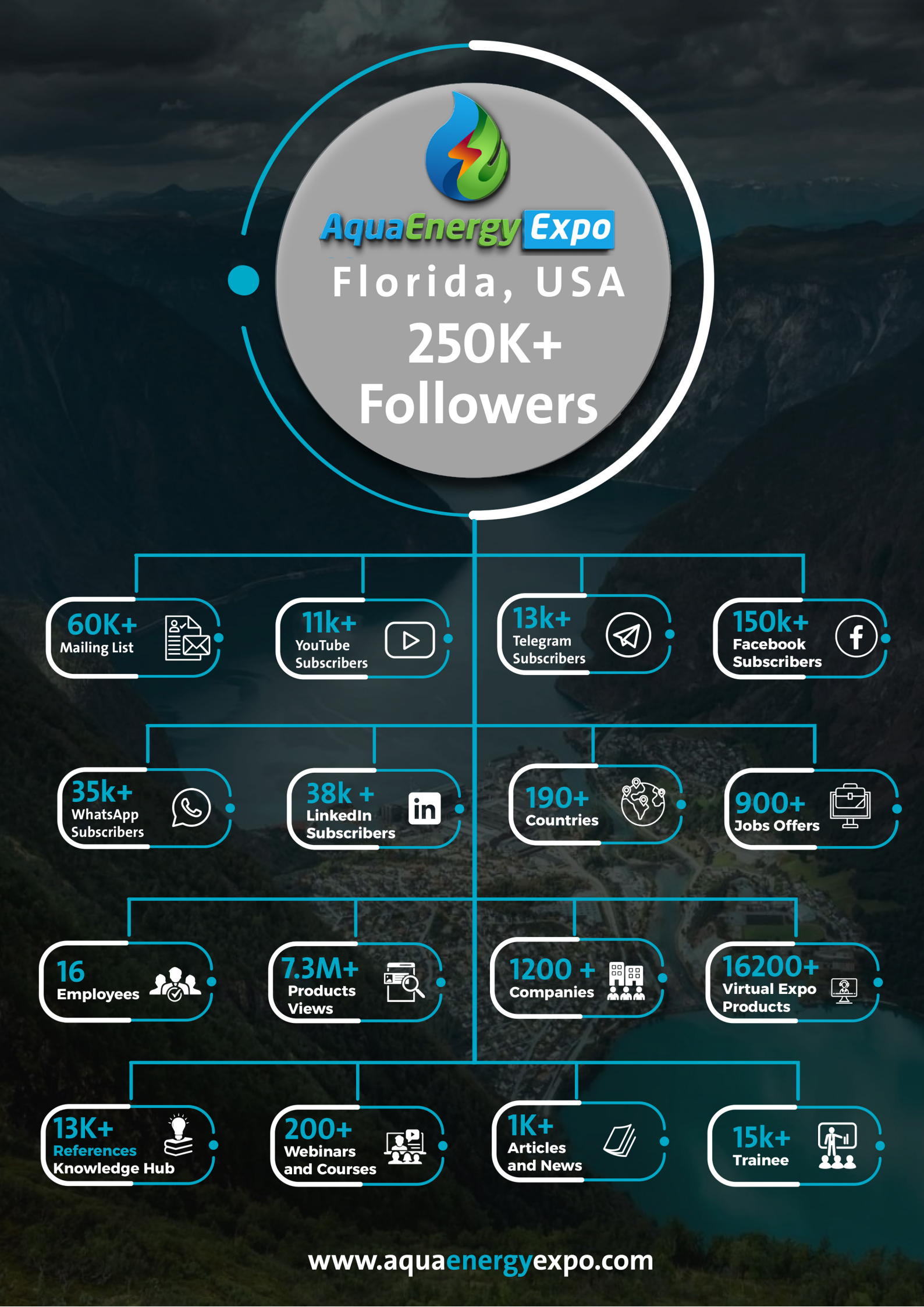
Website: www.aquatechtrade.com

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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MAS AUTOMATION
Middle East for Industrial Automation

Mas Automation: Powering the Future with Intelligent Industrial Solutions

Since its establishment in 2007, Mas Automation has grown into one of the leading family-run engineering companies in the region, providing tailored instrumentation and control systems solutions for industrial and infrastructural facilities. With deep roots in automation, the \company has proudly served as a system integrator for top-tier automation providers including Siemens, Schneider Electric, and Emerson.

A Journey of Expansion and Innovation

Over the years, Mas Automation has steadily diversified its portfolio. In response to the growing needs of the industrial and utilities sectors, the company expanded into the power sector, offering:

- Low and Medium Voltage Panels
- Motor Control Centers (MCCs)
- VFD Installations and Upgrades

This strategic shift allowed the company to provide end-to-end electrical and automation solutions, covering both process and power domains.

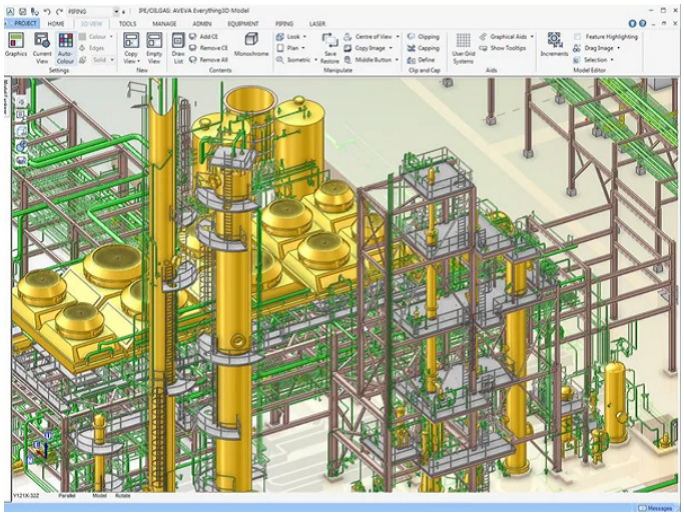
Entering the Digital Age: The Launch of EagleView

In 2020, Mas Automation embraced the challenge of digital transformation. Driven by the need for smarter operations, improved governance, and optimal resource utilization, the company's R&D team developed EagleView, an in-house digital platform tailored for industrial applications.

EagleView empowers organizations to stay aligned with the digital era, offering powerful, web-based tools designed for:

- Real-Time Monitoring
- Energy Management
- Computerized Maintenance Management System (CMMS)
- Overall Equipment Effectiveness (OEE)

The platform provides instant access to critical data, enabling proactive decision-making through precision analytics. Our technical team is also well-versed in the latest global technologies, including the Aveva™ industrial software suite, ensuring seamless integration and scalability.



Proven Success: Flagship Projects

Thanks to its deep expertise and agile approach, Mas Automation has successfully executed a wide range of impactful projects:

• NRW Software Platform (In collaboration with GIZ)

To combat non-revenue water losses, we provided a complete solution that included:

- Installation of flowmeters and pressure transmitters
- Communication devices (modems)
- A customized software platform for real-time monitoring of water networks

This project played a vital role in improving water conservation and infrastructure efficiency in key regions.

• Savola – Power Management System

For the Savola Group, Mas Automation delivered an advanced energy monitoring system

to track electrical consumption across facilities using smart power meters. The system provided real-time data visualization, enabling better energy governance and cost optimization.

• Nile Navigation Bridges: Nagaa Hammady, Embaba, Shoubra, and Abu Zaabal

To enhance river navigation infrastructure, Mas Automation supplied a comprehensive automation package for moveable bridges. The scope included:

• Supply of motors, industrial brakes, and control panels

• Design and implementation of full PLC and SCADA systems

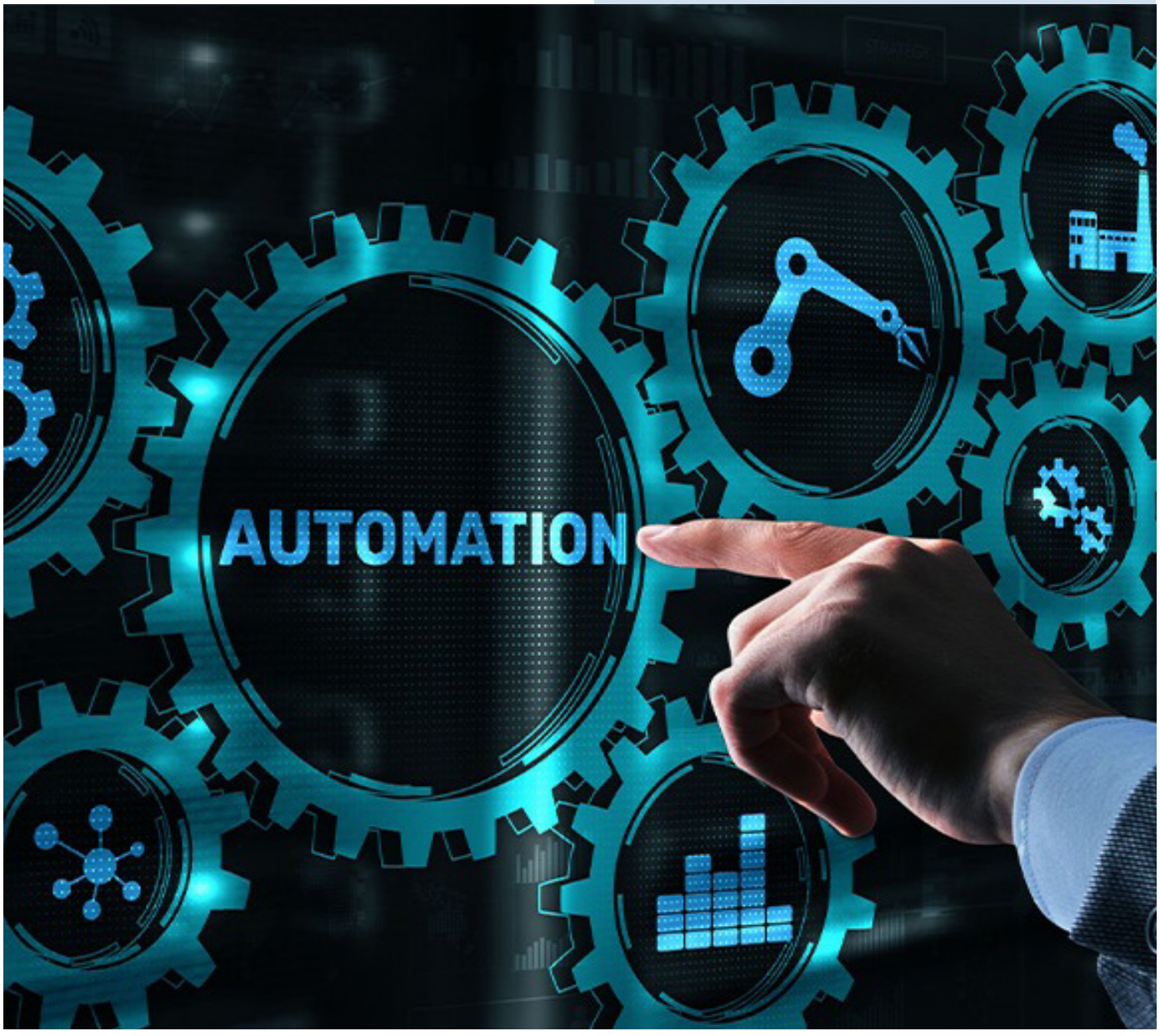
This solution contributed to improving logistics and river traffic across the Nile by ensuring reliable and safe bridge operations.

Looking Ahead

Mas Automation continues to be a trusted partner for businesses seeking reliable, future-ready industrial solutions. Our strength lies not only in our technical know-how but in our ability to adapt and innovate. As industries evolve, so do we pioneering the shift from traditional systems to smart, integrated, and data-driven ecosystems.

Contact Mas Automation

Website: www.masautomation.com
E-mail: sales@masautomation.com
Phone: +20 10 1971 0001
+20 10 0497 2497



Egyptian Public Authority for Drainage Projects

The Egyptian Public Authority for Drainage Projects contributes to the development of the national economy by establishing and maintaining infrastructure projects in the field of public and covered agricultural drainage, aiming to keep the groundwater level away from plant roots to ensure aeration.

Therefore, drainage projects are considered one of the main tools for improving soil quality, maintaining its fertility, preventing deterioration in its properties, and increasing agricultural productivity as a national goal to narrow the gap between production and consumption. In this context, the authority implements both covered and uncovered drainage projects.

It is worth noting that the ministry, represented by the Egyptian Public Authority for Drainage Projects, is making every effort to cover all lands with public and covered drainage networks, and to replace and renew the networks that have reached the end of their expected lifespan and where maintenance is no longer effective.

These projects are considered among the most important projects for vertical agricultural expansion due to their quick returns in increasing agricultural production by about 20% for many major crops, as well as their positive effects in improving the natural and chemical properties of the soil by reducing groundwater levels, improving hydraulic conductivity, and reducing soil and groundwater salinity. This has prompted numerous international organizations and bodies to participate in financing the implementation of these projects.

The Pipe Factories Affiliated with the Drainage Authority

• The authority operates 7 factories for the production of plastic pipes distributed across its six regions in the Delta and Upper Egypt (Aga – Zefti – Damanhur – Tanta – Beni Suef – Assiut – Qena) to produce PVC and PE pipes. The authority constantly seeks to develop the factories and increase production to meet the requirements of the future plan and achieve the authority's

strategy regarding covered drainage projects.
• The authority produces pipes from its factories, which causes a balance in market prices for pipes and reduces the costs of network construction, benefiting the farmer.
• The authority's factories fill the production gaps in the market during sharp fluctuations in the prices of the raw materials used to manufacture pipes, ensuring the continuation of operations at the required rates.
• The quality of the pipes produced by the Authority's factories, which undergo numerous quality control tests, is not available in many private sector factories.

The Authority's Plan for the Replacement, Renovation, and development of factories:

• The technical condition of the production lines in the factories was studied, and the required rehabilitation and development works for the factories (Aja, Tanta, Damanhur) were identified with funding from the German bank.
• The technical specifications for the production lines were prepared, and the terms and specifications booklet was compiled in collaboration with the factory expert.
• Three operations for the qualification of factories (Aga, Tanta, Damanhur) for civil works have been included in the Authority's plan, which are the factories where production lines will be replaced and renewed.
• The specifications and conditions for the civil works in each region have been prepared, and the procedures for tendering the three operations to rehabilitate the three factories are underway.

Water and Soil Research Laboratories

The authority has 5 laboratories distributed across the drainage regions: Central Delta in Tanta, Eastern Delta in Zagazig, Western Delta in Damanhur, Upper Egypt in Qena, and Middle Egypt in Minya.

The Authority's Laboratories Do the Following:

• Analysis and classification of soil for the implementation of covered drainage networks.
• Monitoring the efficiency of drainage networks in collaboration with the Evaluation and Environment Department.
• Monitoring pollution in drainage and irrigation canal waters and their compliance with irrigation water specifications, as well as the extent of using drainage water for irrigation again.

Training Centers

The authority has established two training centers in Tanta and Alexandria to provide the necessary training to enhance the efficiency of its employees. Through these centers, specialized practical courses are offered in the fields of drainage technologies, drainage guidance, computer skills, language, financial and administrative aspects, in addition to the courses held at the Ministry's Training Center.

The authority has established a Human Resources Development Department that specializes in studying the training needs of employees from various specialties and preparing the training plan for the authority in light of the training programs available at both the drainage training centers and the ministry's training center, and when a training need arises that is not available at these centers.

The administration coordinates with specialized training centers to organize training courses specifically tailored to the authority's needs in all its activities, in addition to the possibility of training engineers from countries with which cooperation agreements are made.

Additionally, through the components of technical support and consultancy services provided by the donors in the third national drainage program, the authority's employees are trained in external organizations.

The Authority's Plan Aims to Enhance the Efficiency of The Two Training Centers Affiliated with the Authority (Tanta - Alexandria) to Achieve the Following Objectives:

• Raising the efficiency of the training process for the authority's employees

• Providing financial resources for the authority by studying the feasibility of partnering with the private sector to utilize existing buildings and facilities in conducting external training.

• Training of the authority's employees in external entities is also conducted through the components of technical support and consultancy services provided by the donors in the third national drainage program.

The Authority's Plan Aims to Enhance The Efficiency of The Authority's Affiliated Training Centers (Tanta – Alexandria) to Achieve The Following Objectives:

• Improving the efficiency of the training process for the authority's employees

• Providing financial resources for the authority by studying the feasibility of partnering with the private sector to utilize existing buildings and facilities in conducting external training.

The authority's specialized agencies intensify seminars and awareness campaigns in coordination with relevant bodies, including the Public Departments for Water Guidance and Water Media at the ministry, agricultural associations, the National Council for Women, and civil society organizations in the governorates, to educate and guide citizens about the dangers of dumping waste and garbage into water bodies and its negative impact on public health, the environment, and water quality.

The Drainage Authority spares no effort in promptly addressing all incoming complaints, which vary between requests from members of the House of Representatives, complaints received on social media, the government portal, beneficiary complaints, and others.

The drainage authority's devices also take all legal and administrative measures related to the Irrigation and Drainage Law No. 147 of 2021 and the Nile River and Waterways Pollution Protection Law No. 48 of 1982.

Covered Drainage Works:

The Authority's strategy for covered drainage projects included the implementation of covered drainage networks across the entire cultivated area at the national level in both the Upper and Lower Egypt regions, in the valley, delta, and reclamation areas.

The implementation of covered drainage networks for an area of 6,005,808 million acres in the northern and southern regions has been completed. Completion of the replacement and renewal of covered drainage networks for an area of 2.517 million acres in both the northern and southern regions has also been achieved.

Excavation and Weed Removal Works for Drainage Systems

The authority's devices at the national level carry out the cleaning and maintenance of all the authority's drains through dredging and cleaning contracts executed by companies and contractors or through the authority's self-operating equipment. Continuous monitoring is conducted to ensure the cleanliness of the drains and that they are free from weeds, water hyacinth, and all waste. It also purifies and removes garbage and waste from the drains within residential blocks and in front of coverings and industrial works, transporting it outside the residential blocks and away from asphalt roads to public dumps, funded by the authority's budget.

The Drainage Authority establishes protocols with various entities contributing to ongoing national projects undertaken by other ministries.

Public and Open Drainage Works

• The Authority's strategy included the establishment, deepening, and expansion of public open drainage systems across the entire cultivated area at the national level in both the northern and southern regions of the Delta, the valley, and reclamation areas.
• Under the jurisdiction of the Drainage Authority, there are public and open drainage systems covering an area of 7.2 million acres in both the northern and southern regions, as well as an area of 0.8 million acres in reclamation areas. Additionally, the open drainage systems in both old and new areas have been expanded and deepened over an area of 434,000 acres, bringing the total completed public drainage area to 8.431 million acres. The total length of the open drainage systems reaches approximately 22,000 km.
• Industrial works such as bridges, weirs, and siphons on the open drainage networks are monitored, and periodic maintenance is carried out for them.

Agricultural Wastewater Reuse Projects

The reuse of agricultural drainage water is an important part of the water resources considered when developing the water resources management strategy until 2050. This strategy is based on the integrated use of all available water resources, ensuring the maximization of benefits from these resources and providing sufficient water resources for all required sectors, especially after the increase in population and the expansion of agricultural land.

A set of regulations has been established to ensure the safe use of agricultural drainage water, the most important of which is that this water must be of good quality and used for crops that are compatible with its quality. The executive regulations of Law No. 48 of 1982 have specified the standards for drainage water that can be used for agricultural purposes.

The ministry has been working for a long time to benefit from agricultural drainage water by mixing it with canal water to bridge the gap between increasing needs and limited resources. And with the steady increase in the population and the state's plans for agricultural and urban expansion to meet the needs of the growing population, whether to provide drinking water to new areas or to reclaim new agricultural lands, in addition to the development projects in the Sinai Peninsula, there has been an increased focus on utilizing treated agricultural drainage water to meet the standards outlined in the executive regulations of Law No. 48 of 1982.

The projects for expanding the reuse of agricultural drainage water are summarized as follows:

- Projects for utilizing drainage water through the implementation of intermediate mixing stations to feed the secondary canals directly from the secondary drains
- Project to transfer (1) million m^3/day from the El-Mahsama Drain to the east of the Suez Canal.
- Suez and benefiting from it in supplying the area east of the canal after treatment.
- Project to transfer (5.6) million m^3/day from the Bahr El-Baqar Drain to the East of the Canal Suez and utilizing it to supply the area east of the canal after treatment.
- New Delta Project (Project for the construction of the transmission path for treated agricultural and sanitary wastewater for the city of Alexandria and the establishment of a treatment plant with a capacity of 7.5 million m^3/day to cultivate new areas south of the Dabaa axis to benefit from agricultural wastewater in the western region after treatment and transfer to the Dabaa axis) to add new areas to the agricultural land. The Drainage Authority reviews and approves all facilities submitted by the project management and is required to implement the intersections of the transmission path for the Dabaa project with all operations related to the New Delta Project after fulfilling all the required data and documents in this regard.

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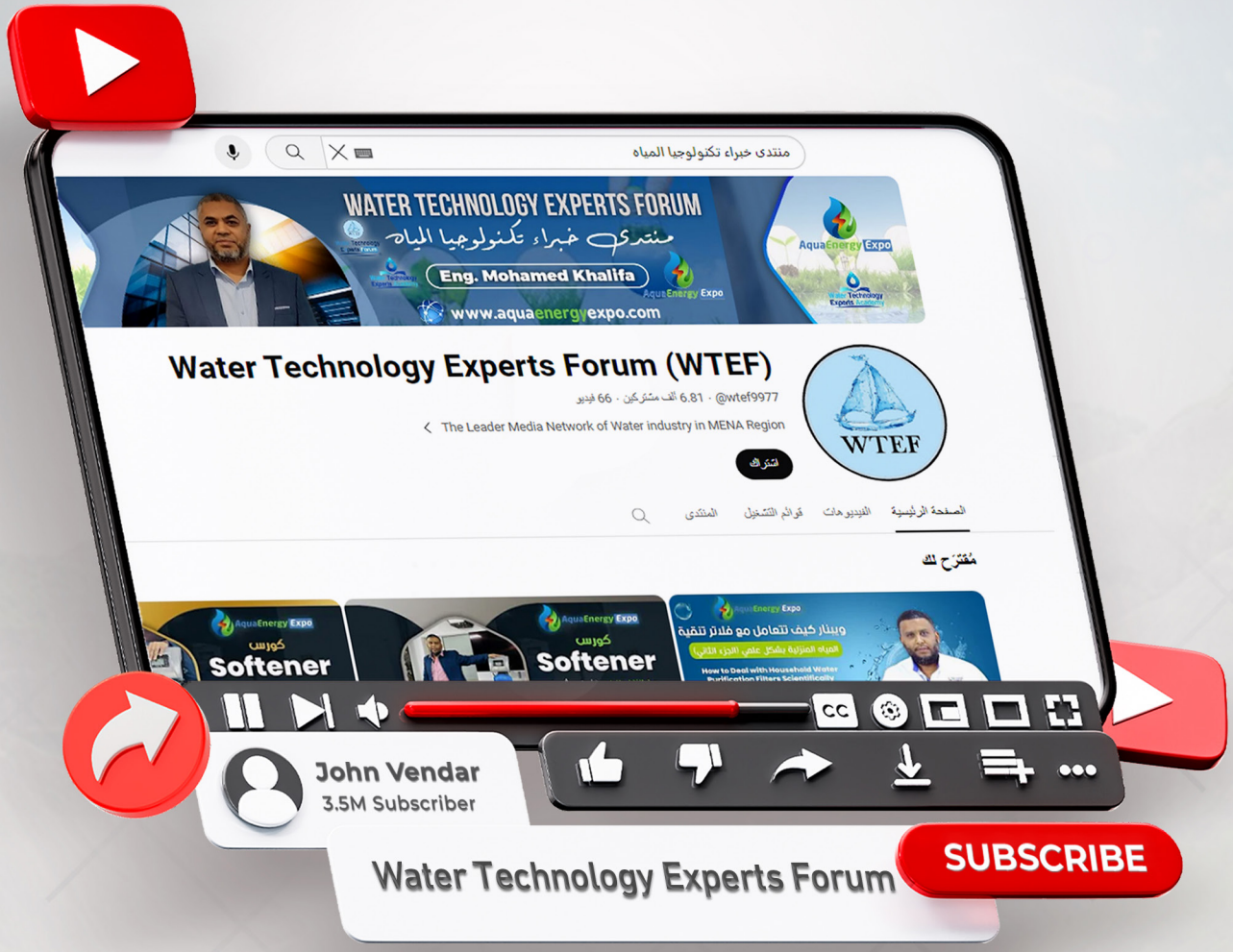

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September | 2025

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Dr. Mahmoud Abdallah Al-Haddad

Friday, September 5th

From 8:00 to 10:00 PM (Saudi Arabia Time)

Dr. Ahmed Gamal

Saturday, September 6th

From 8:00 to 10:00 PM (Saudi Arabia Time)

Yasmin Samir Ahmed

September Friday 12th

From 8:00 to 9:00 PM (Saudi Arabia Time)

Dr. Jim Sabzali

Saturday, September 13th

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

Dr. Zakaria Morad

Friday, September 19th

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

Dr. Wafaa Moustafa Yousif

Saturday 20th September

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

Dr. Amani Abd El-Meguid Gamal El-Din

Saturday 27th September

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

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Omran Business Incubator

Established in 2020 under HBRC, Omran Business Incubator addresses Egypt's climate and energy challenges by bridging research and market needs.

Omran aligns with Egypt Vision 2030 by focusing on:

- **Low-energy materials:** developing concrete mixes and thermal-insulation products that dramatically reduce energy use.
- **Waste management:** converting demolition and construction waste into new, eco-friendly products.
- **Building-Integrated Photovoltaics (BIPV):** embedding PV cells directly into façade elements.
- **Building-Energy Management Systems (BEMS):** deploying IoT-based, real-time analytics that can cut consumption by up to 30 %.

This focus naturally positions Omran as a trusted partner for green-investment funds and sustainable-property developers.

Key Programs & Initiatives

• Omran delivers capacity-building workshops that equip HBRC researchers and entrepreneurs with entrepreneurship skills and sustainable-urban-innovation know-how.
• Incubator logo design competition to establish a visual identity reflecting green-building ambitions and empowering young talent.
• First incubation cohort (launched early 2024) featuring idea vetting, a boot camp, and both technical and financial support through to graduation.
• Phase II expansion to welcome later-stage start-ups with market-ready products.
• Strategic alliances including an MoU with Mindshift MENA and participation in the "Tahalf wa Tanmia" initiative with Cairo Technological University, Galala University, the National Research Centre, and the Nuclear Materials Authority.

Tangible Achievements in One Year

• **Incubated start-ups (1st cohort):** Omran's first cohort successfully graduated two start-ups, now actively scaling their solutions in the market
• **Events & workshops:** 25 in-person / virtual sessions delivered.
• **Partnerships signed:** 2 major agreements (Mindshift MENA and Cairo Technological University).

Call to Collaborate

We welcome investors, universities, and innovators to collaborate with Omran and accelerate Egypt's transition to a sustainable, low-carbon economy.

Conclusion

Omran exemplifies an integrated model that unites scientific research with practical application, paving the way toward a low-carbon urban future in Egypt and the wider region. As the global shift to clean energy accelerates, the incubator demonstrates how local innovation can transform environmental challenges into economic and social opportunities, laying the foundation for an efficient, eco-friendly Egyptian construction ecosystem.

You Can't Manage What You Can't Measure

In the heart of Egypt's energy system, and at the core of the network that transmits electricity to millions of citizens, stands **"The Central Chemical Laboratories"** Sector – one of the oldest and strongest arms of **"The Egyptian Electricity Transmission Company"** since its establishment in 1970 – acting as a technical and laboratory safety valve.

This sector functions as a vital protective shield, a guarantee of quality, and an invisible guardian of network stability. It's an integrated system equipped with the latest devices and technologies, backed by an elite group of national experts who meticulously battle every day to inspect oils, analyze fuel, and monitor the most precise chemical and mineral indicators.

Their goal: to protect massive investments, prevent malfunctions, and ensure the safe and stable flow of energy. It is the expert technical arm that knows no compromise, the scientific support that makes the difference between randomness and precision, between stopping and continuing, between danger and stability.

This is the Central Chemical Laboratories Sector – the beating heart behind the scenes of energy. The Central Chemical Laboratories Sector has been able to contribute to solving the problems of the electricity sector (generation, transmission, and distribution) by following the latest international standards in conducting analyses with continuous improvement.

The sector comprises an integrated system of specialized technical departments, including:

- **Fuel Analysis Laboratory (Gaseous, Liquid, and Solid):**

To accurately determine the physical and chemical properties of fuel and estimate its calorific value.

- **Oil Analysis Laboratory:**

Evaluation of the physical, chemical and electrical properties and calculation of the percentage of dissolved gases in transformer oils and

their ability to provide electrical insulation using the latest laboratory equipment and standard methods.

• Metallurgical Studies Laboratory:

For testing alloys, examining corrosion issues in towers and industrial facilities, and suggesting the most suitable technical solutions, resistant materials, and appropriate coatings.

• Chemical Measurements and Water Research Department:

To examine and analyze various types of water and identify sources of pollution through bacteriological and chemical examination.

• Chemical Treatment Department:

This is the sole authority in Egypt responsible for evaluating the efficiency of ion-exchange materials (Cation, Anion or Mixedbed Resin) for producing demineralized water, used in industrial facilities, power plants, and treatment plants.

• Water and Soil Pollutants Analysis Department:

To provide accurate environmental solutions through chemical analysis of water and steam and identify pollutants and their sources.

• Residue Analysis and Elemental Determination:

To detect residues resulting from fuel combustion or those formed in water circuits, which contribute to improving operational efficiency and reducing malfunctions. Through advanced techniques like gas chromatography, the condition of transformer oils, turbine oils, and hydraulic fluids is assessed, and any malfunction is diagnosed before it occurs. This not only saves equipment but also ensures the stability of an electricity network serving millions.

Professional Quality Assessment of Ion Exchange Resins for Water Treatment Systems

Advanced Testing Services for Water Softener and Demineralization Units

How Can You Determine the Quality and Performance of Ion Exchange Resins?

The Central Chemical Laboratories of the Egyptian Electricity Transmission Company offers comprehensive quality assessment services for ion exchange resins, a specialized analytical service that sets our laboratory apart in the region. Our advanced testing protocols ensure optimal performance of water treatment systems across industrial and commercial applications.

• Comprehensive Analytical Framework

Our laboratory conducts a complete suite of tests and analyses specifically designed for ion exchange resins. Each sample undergoes rigorous evaluation, with results meticulously compared against manufacturer specifications and technical data sheets. This systematic approach enables precise quality determination and performance prediction for both new and in-service resins.

• Critical Applications for Our Testing Services

New Procurement Evaluation

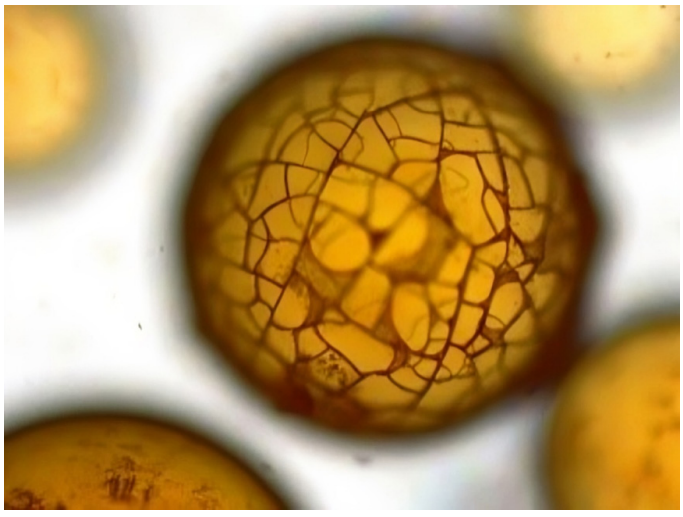
- Technical comparison between multiple resin types and manufacturers
- Performance verification against stated specifications
- Cost-effectiveness analysis based on actual capacity measurements
- Quality assurance for optimal supplier selection

Storage Life Assessment

- Degradation analysis for resins in long-term storage
- Storage condition impact evaluation
- Shelf-life determination and extension recommendations
- Storage method optimization guidance

In-Service Performance Monitoring

- Real-time assessment of resin bead cross-linking integrity
- Contamination detection (iron, organic materials, and other foulants)



- Efficiency decline analysis and trending
- Predictive maintenance scheduling

• Advanced Diagnostic Capabilities

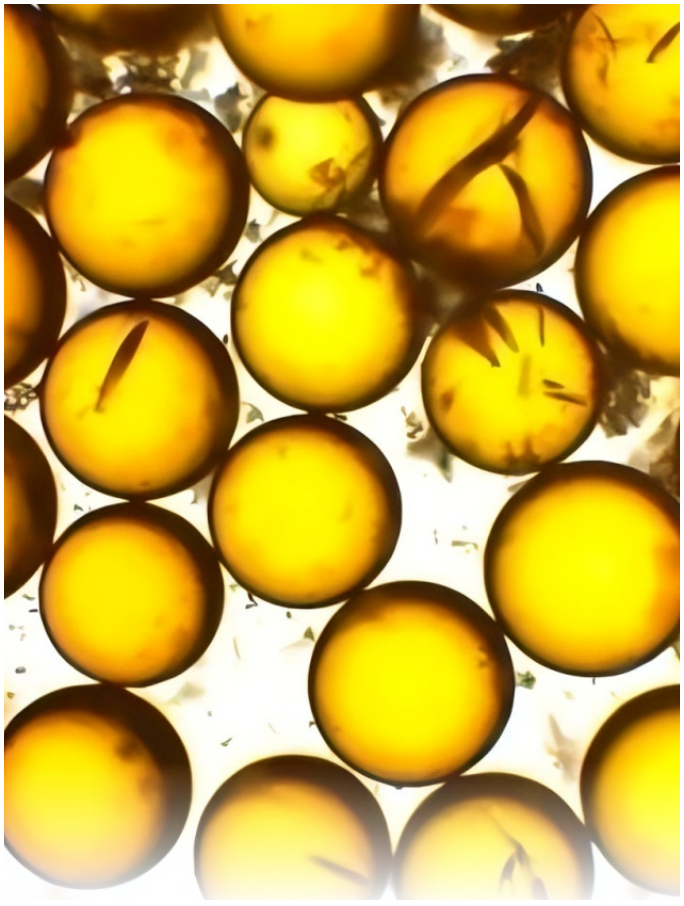
Our state-of-the-art analytical methods detect:

- **Physical Degradation:** Bead integrity, swelling characteristics, and mechanical strength
- **Chemical Contamination:** Iron fouling, organic material buildup, and other performance-inhibiting contaminants
- **Capacity Loss:** Exchange capacity reduction and regeneration efficiency
- **Structural Changes:** Cross-linking deterioration and polymer stability

• Preventive Action and Treatment Solutions

Based on our comprehensive analysis, we provide:

- Detailed technical reports with actionable recommendations
- Customized treatment protocols for resin recovery
- Preventive maintenance strategies
- Cost-benefit analysis for replacement versus restoration



Why Choose Central Chemical Laboratories of Egypt?

This specialized ion exchange resin quality assessment service represents one of our unique capabilities in the Egyptian market. Our expertise combines advanced analytical instrumentation with decades of water treatment industry experience, ensuring that your water treatment systems operate at peak efficiency.

Contact us today to optimize your water treatment system performance through our exclusive ion exchange resin quality assessment services.

Our services extend to major institutions such as petroleum companies, iron and cement factories, Fertilizers and petrochemical companies, where scientific decisions are made with precise and documented recommendations to reduce breakdowns and save costs. Our commitment to continuous development, embodied by our attainment of the international quality certificate ISO 9001 and our pursuit of ISO 17025 accreditation, reflects our vital role in supporting sustainable development in the fields of water, energy, and industry. Here, safety begins, and from here, leadership in technical analyses and studies to support industrial infrastructure and energy is launched.

Contact Information

Whatsapp: +201127030268
E-mail: ccllab2019@gmial.com
Facebook: CCLS المعامل الكيماوية المركزية
Linkedin: Central Chemical Laboratories (CCLS)المعامل الكيماوية المركزية
Fax. : +20225778268
Tel. : +20225770269 / +20225768250

Pumping Power: The Unsung Heroes of Steam Generation and Condensate Management

In power plants, numerous pump types are employed to meet a variety of needs. Power plant operations depend heavily on boiler feed pumps. Usually multistage, these pumps supply boilers with feedwater. After that, feedwater is converted into steam, which powers the power plants' turbines. This includes boiler feed pumps and Condensate pumps.

Boiler Feed Water Pumps

A boiler feed water pump's primary function is to move feed water to the boiler drum from the deaerator or feed water tank. In order to maintain steam production, the boiler's steam is replaced by this feed water. Feed water absorbs heat from combustion and helps keep drum water levels stable.

Lower boiler water levels can result from reduced or interrupted feed water flow, which can cause equipment damage or hazardous operating conditions. Having boiler feed water pumps that are the right size for the boiler's steam capacity helps avoid situations like this.

Components of a Boiler Feed Water Pump

Pump Casing and Impeller

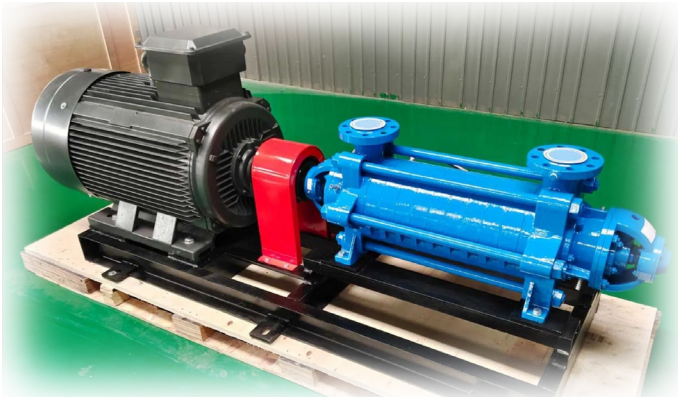
The impeller is enclosed by the curved pump casing, which also directs the flow of liquid through the pump. The fluid pressure and flow rate are increased by the rotating impeller. Usually, both parts are composed of sturdy steel or cast iron.

Drive Motor

The pump impeller rotates at the required pump operating speed thanks to the power of this electric motor. Depending on the required delivery pressure and pump size, motor horsepower varies.

Bearings and Shaft Seals

The shaft to which the impeller is attached is supported by bearings, which permit free rotation. Water leaking along the shaft is stopped by seals. Continuous lubrication is necessary for bearings. Seals may need to be replaced on a regular basis, particularly when handling hot feed water.



Base

The components of the pump are mounted and aligned by a strong pump base. Typically constructed of steel or cast iron, bases are intended to absorb vibration from pumps.

Coupling

To transfer rotary power, the coupling joins the drive motor shaft to the pump shaft. Couplings permit slight component misalignment.

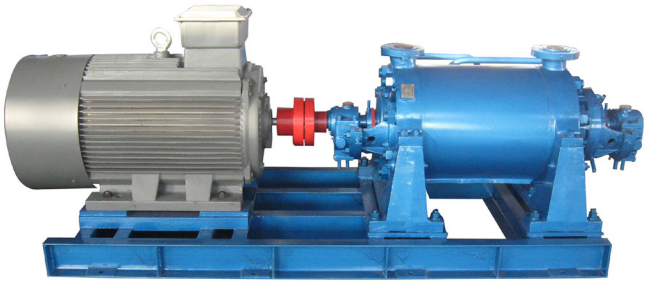
Other parts, such as controls, valves, and pressure gauges, may be attached to the feed water pump or included in packaged pumping systems. All things considered, knowing these fundamental pump parts enables operators to keep an eye on performance, make repairs easier, and interact with maintenance teams to address problems.

Types of Boiler Feed Water Pumps

There are two main types of boiler feed water pumps: vertical multistage inline pumps and horizontal multistage centrifugal pumps.

Horizontal pumps

They are space-efficient and allow easy maintenance access, making them ideal for confined areas.



Vertical pumps

Save floor space and reduce alignment concerns, making them suitable for installations with height restrictions.

The choice between these types depends on factors such as available space, maintenance convenience, and specific requirements of the steam generation system.

Sizing Boiler Feed Water Pumps

A boiler feed water pump's size must take into account a number of factors. Important factors include:

Boiler Steam Capacity

Enough water must be supplied by the feed water pump to equal the boiler's steam output. Boiler capacity is directly tied to pump capacity.

Operating Pressure

Boiler pressure, pipe friction, and elevation heads must all be overcome by the pump discharge pressure in order to introduce water into the boiler. Generally speaking, centrifugal pumps need 20–30 psi above the boiler operating pressure.

Continuous or Intermittent Operation

When the boiler is operating, the feed water pump may run continuously or alternately. Sizing prevents short-cycling and takes into account suitable turndown capabilities.

Water Temperature

Pumping hot boiler return condensate uses less energy than pumping cold makeup water. However, seals and pump parts are affected by heat.

Future Load Increases

The boiler feed water pump can be enlarged to accommodate future increases in steam capacity.

Efficient power consumption by the pumping system and dependable boiler operation are guaranteed by appropriately sized feed water pumps.

Boiler Feed Water Pump Maintenance

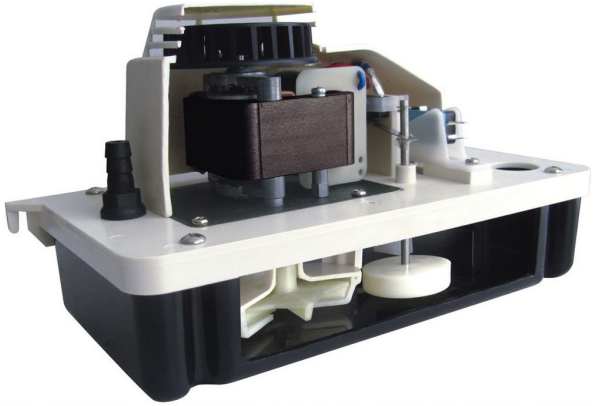
- Lubricating seals and bearings in accordance with manufacturer specifications.
- Checking for mechanical wear and corrosion on pump parts.

• Checking the integrity of the insulation in hot water applications.
• Examining the alignment of the pump to prevent needless bearing strain.
• The suction and discharge pressure heads of the pump are being tested.
• Tracking analytics for power usage, vibration patterns, and flow rates.
• As needed, swap out worn couplings, bearings, seals, and other components.

As maintenance checks and part replacements take place, teams should record them. Unexpected changes in performance are frequently related to maintenance problems. Maintaining thorough logs aids in process troubleshooting when issues occur.

Condensate pumps

A condensate pump is a tool used in heating and cooling systems, including furnaces, boilers, and air conditioners, to collect and remove condensation. The cooling and liquidization of the air's moisture is what causes this condensation. This liquid is gathered by the pump and transferred from the system to an external location or drain.



Components of a Condensate Pump

Pump Unit

The main part that moves the condensate from the collection tank to the discharge point.

Collection Tank

A container where the condensation is collected before being pumped out.

Float Switch

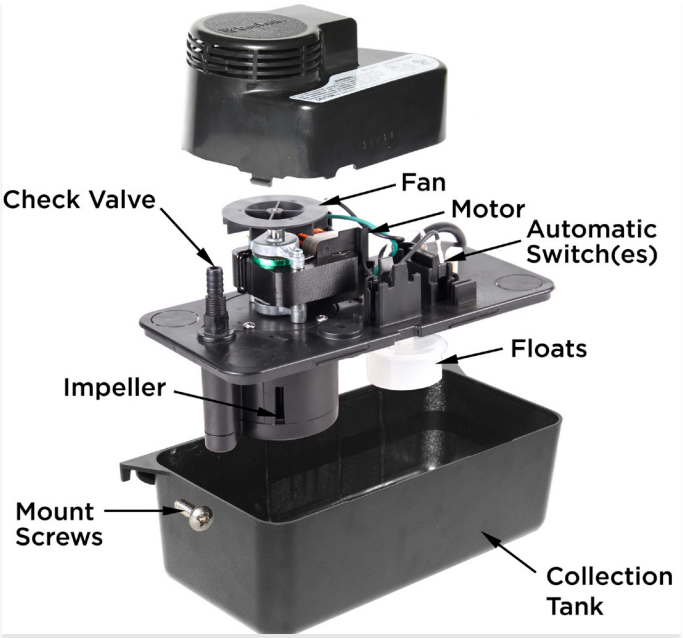
A device that activates the pump when the water level in the collection tank reaches a certain point.

Discharge Line

A tube or pipe that carries the condensate away from the pump to a designated drainage area.

Check Valve

Prevents the backflow of water into the pump once it has been discharged.



How a Condensate Pump Works

As the boiler, furnace, or air conditioner runs, condensation is created and drips into a collection tank. The pump is turned on by a float switch that is activated when the tank's water level rises. After that, the pump forces the water out to a drain or another specified location via the discharge line. The cycle is finished when the float switch shuts off the pump when the tank's water level falls.

Types of Condensate Pumps

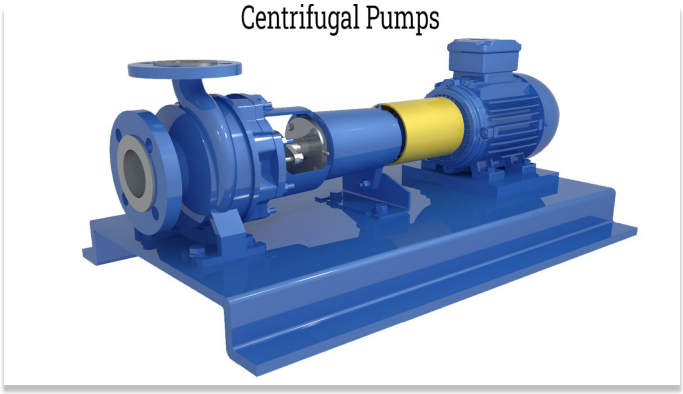
Condensate pumps come in a variety of forms, each intended for particular applications and specifications. Selecting the ideal pump for your requirements can be made easier if you are aware of the differences.

Peristaltic Condensate Pumps

Peristaltic pumps force the condensate through the system by compressing a flexible tube with a revolving roller. Because they can handle tiny particles without clogging, these pumps are excellent in scenarios where the condensate contains solids or debris.

Centrifugal Condensate Pumps

Centrifugal pumps generate a water flow by means of a revolving impeller. Most homes and businesses use these condensate pumps, which are the most widely used kind. They are dependable and effective at managing solid-particle-free, clean condensate.

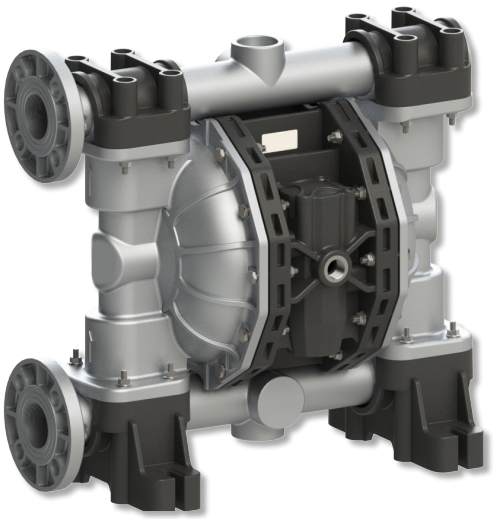


Piston Condensate Pumps

The condensate is moved by a reciprocating piston in piston pumps. Because of their high pressure, these pumps are frequently utilized in industrial settings where moving condensate over long distances or to higher levels is necessary.

Diaphragm Condensate Pumps

Diaphragm pumps generate suction and force the condensate through the pump by means of a flexible diaphragm that oscillates back and forth. These pumps are helpful in a range of circumstances because they are adaptable and can handle both clean and dirty condensate.



Maintenance of Condensate Pumps

Regular Inspections

Check the pump and its components regularly for any signs of wear or damage. Look for cracks, leaks, and any unusual noises when it runs.

Clean the Collection Tank

Clean the collection tank from time to time to remove any debris or buildup that can clog the pump.

Test the Float Switch

Make sure the float switch moves freely and activates the pump correctly. Clean or replace it if it becomes stuck or faulty.

Check the Discharge Line

Inspect the discharge line for blockages or leaks. Make sure it remains properly connected and slopes downward for effective drainage.

Perform Routine Tests

Run the pump now and then to make sure it's working correctly, especially before heavy-use seasons like summer and winter.

Conclusion

Both boiler feed water pumps and condensate pumps play vital roles in the efficient operation of power plants and heating systems. Understanding their components, types, and maintenance requirements is essential for ensuring optimal performance and reliability.

Proper sizing and regular maintenance of these pumps not only enhance energy efficiency but also prevent costly downtime and equipment damage. By prioritizing these aspects, operators can ensure a steady supply of steam and effective condensation management, ultimately contributing to the overall efficiency of power generation processes.

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ENERGY NEWS BRIEF

September| 2025

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ReNew launches its Second Integrated Report, celebrating 15th year of clean energy leadership

ReNew Energy Global Plc has released its second Annual Integrated Report for FY 2024-25, celebrating 15 years of operations. The report highlights significant achievements in clean energy, including avoiding 18.6 million tonnes of carbon emissions and generating over 22 billion kWh. Key metrics include a 76% renewable electricity usage and a commissioned portfolio of 10.7 GW. The company emphasizes sustainability, with over 1.7 million lives impacted through CSR initiatives and 40% female board representation. The report aligns with global standards, showcasing ReNew's commitment to innovation and long-term value creation in decarbonization solutions.

Vestas wins 274 MW order in Canada from EDF power solutions North America

Vestas has received a 274 MW order from EDF Renewables North America for the Madawaska wind project in Québec, Canada, which includes 25 EnVentus V162-6.0 MW and 20 V162-6.2 MW wind turbines. The agreement also features a 10-year Active Output Management (AOM) 5000 service contract. The project will provide clean energy to thousands of homes and promote local job creation. This order follows a recent 124 MW contract for the Haute-Chaudière wind project. Vestas, a leader in Canada's onshore wind market, emphasizes collaboration and local partnerships to enhance Québec's renewable energy future, with turbine deliveries expected in late 2026.

Hyroad Energy Acquires Hydrogen Fuel Cell Trucks to Accelerate Deployment of Zero-Emission Commercial Fleets

Hyroad Energy has acquired 113 hydrogen fuel cell trucks, along with spare parts, software platforms, and intellectual property, from the Nikola Corporation bankruptcy auction. This acquisition will enhance Hyroad's fleet and accelerate its deployment of zero-emission hydrogen trucks. The package includes vehicles, operational software, and infrastructure for maintenance. The trucks will be primarily used in California, where Hyroad is developing hydrogen refueling stations. CEO Dmitry Serov stated that this acquisition advances Hyroad's mission to provide comprehensive hydrogen trucking solutions, enabling immediate capacity to utilize proven hydrogen technology to meet the growing demand for zero-emission vehicles.

Strong quarterly results positions Siemens Energy towards the upper end of the full-year guidance range

Siemens Gamesa, part of Siemens Energy AG, reported a notable increase in fiscal Q3 orders year-on-year, reaching EUR 16.6 billion (USD 19.2 billion), despite a slight revenue decline. This surge was driven by two significant offshore wind turbine orders in the Baltic Sea totaling EUR 3.3 billion. The order backlog climbed to EUR 38 billion, although negative currency effects posed challenges. The quarterly loss before special items narrowed to EUR 438 million, influenced by rising costs in offshore activities and quality issues in the onshore sector. Siemens Energy also reported a net profit of EUR 697 million, indicating recovery and growth prospects.

Masdar and Consortium Partners Achieve Financial Close for 2GW Al Sadawi Solar Project in Saudi Arabia

Abu Dhabi Future Energy Company PJSC – Masdar, in partnership with GD Power and Korea Electric Power Corporation (KEPCO), has reached financial close for the 2-gigawatt Al Sadawi solar photovoltaic project, a key initiative under Saudi Arabia's National Renewable Energy Program. CEO Mohamed Jameel Al Ramahi emphasized Masdar's commitment to supporting Saudi Arabia's clean energy goals, noting the project's significance as one of the largest solar power plants globally. With an estimated cost of $1.1 billion, financed by eight lenders, Al Sadawi will contribute to the Kingdom's target of 50% renewable energy by 2030 and is set to begin operations in 2027.

Hi-MO X10 Crowns Muwaqqar: Al Izdehar's 1 MW Rooftop Reign Lights Up Jordan's Solar Summit

LONGi has supplied its HPBC 2.0-based Hi-MO X10 modules for a 1-megawatt photovoltaic plant at the Izdehar Carton Factory in Jordan, marking one of the first regional deployments of this distributed-generation solution. This installation is the largest single-site application of LONGi's Hi-MO X10 technology in the country, featuring over 1,500 panels on a 10-donum (1-hectare) rooftop area. The Hi-MO X10 modules excel in efficiency, reliability, safety, and aesthetics, achieving up to 670 W and 24.8% efficiency. LONGi and Magic Energy aim to expand this "solar-plus-manufacturing" model across various sectors in Jordan, supporting the region's zero-carbon 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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