



AQUA FISSION

Clean Water. Smarter.

Redefining Sustainable Water Desalination and Water Treatment



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# The Problem

With billions of people at risk, access to clean water is one of the world's most urgent challenges.

Legacy solutions such as Reverse Osmosis remain expensive, energy-intensive, and environmentally damaging, generating high emissions and toxic, high-salinity, chemical-laden brine streams.

There is an urgent global need for a low-cost, sustainable, and scalable water treatment solution.







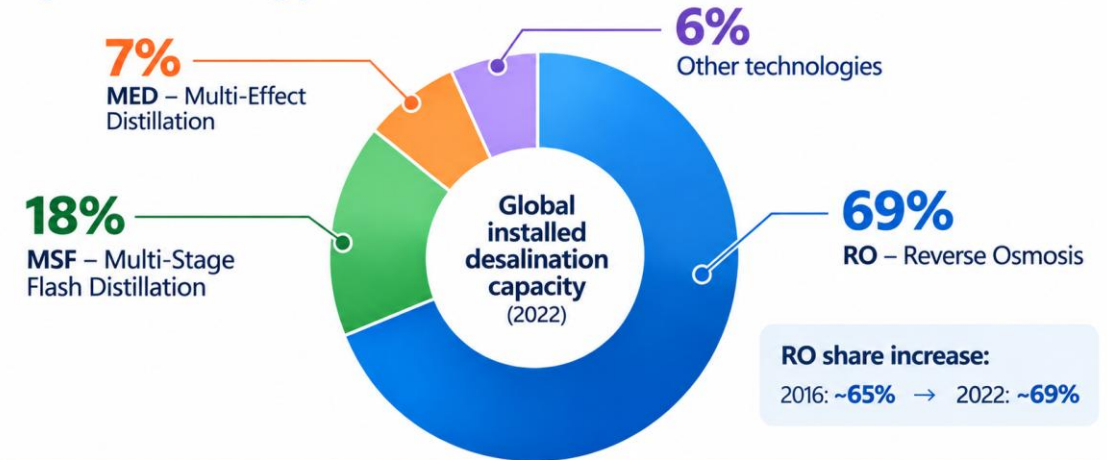
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# Global Overview of the Seawater Desalination Market

# Global Market Status of Seawater Desalination

The strategic importance of desalination is growing rapidly worldwide due to declining freshwater resources, population growth, urbanization, and increasing industrial water demand. The global desalination technology market was estimated at approximately USD **21.49 billion** in 2025. A comprehensive global assessment identified **16,876** operational desalination plants worldwide, of which: **14,360** used reverse osmosis (RO) technology, meaning that RO accounted for approximately **85%** of all desalination plants by number.

## Global installed desalination capacity by technology (2022)



Source: Orfi, J., Sherif, R., AlFaleh, M., Water, 2025, 17(2), 279 – Conventional and Emerging Desalination Technologies: Review and Comparative Study from a Sustainability Perspective. Technology share reference year: 2022.

*Sources: Eke, J. et al., Desalination, 2020, "The Global Status of Desalination: An Assessment of Current Desalination Technologies, Plants and Capacity." Water, Vol. 17, 279, 2025, "Conventional and Emerging Desalination Technologies: Review and Comparative Study from a Sustainability Perspective." Reference year for the technology distribution: 2022. Market value source: The Business Research Company, Desalination Technologies Global Market Report 2026.*

**Technology distribution of global installed desalination capacity:**  
RO – Reverse Osmosis: ~69% MSF – Multi-Stage Flash: ~18%  
MED – Multi-Effect Distillation: ~7% Other technologies: ~6%  
According to a scientific review published in 2025, the share of RO increased from approximately 65% to 69% between 2016 and 2022.



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# The Main Desalination Technologies Currently in Use

## MSF – Multi-Stage Flash – ~18% (Market Share).

A thermal process in which heated seawater is passed through a series of chambers operating at progressively lower pressures. As the pressure decreases, a portion of the water rapidly evaporates, after which the water vapor is condensed. This technology requires a high amount of thermal energy and has been particularly widely adopted in the Middle East.

## MED – Multi-Effect Distillation – ~7% (Market Share).

Also a thermal technology, but it uses the thermal energy of the vapor generated in one evaporation stage to evaporate water in the subsequent stage. Due to the repeated reuse of thermal energy, MED can be more thermally efficient than MSF.



## RO – Reverse Osmosis – ~69% (Market Share).

A membrane-based technology that uses high pressure—typically **55–70 bar for seawater**—to force water through semipermeable polymer membranes. Reported energy consumption varies considerably in the literature: modern SWRO systems are reported in the range of **3.5–6 kWh/m<sup>3</sup>**, while a 2025 review also reports practical values of **4–6 kWh/m<sup>3</sup>**. Seawater RO typically achieves a water recovery rate of **40–50%**, meaning that a significant portion of the feed seawater remains as concentrated brine. Additional operational characteristics of RO include membrane fouling, regular chemical cleaning, and periodic membrane replacement.

## Other Technologies – ~6% (Market Share).

This category includes electrodialysis (ED), nanofiltration, and other desalination technologies with smaller market shares or technologies currently under development. Electrodialysis alone accounts for approximately **2% of global desalination capacity** and is primarily used for waters with lower salinity levels.

*Source: Water, Vol. 17, 279, 2025, “Conventional and Emerging Desalination Technologies: Review and Comparative Study from a Sustainability Perspective.”*

*Source: Applied Energy, Vol. 254, 2019, “A Comprehensive Review of Energy Consumption of Seawater Reverse Osmosis Desalination Plants.”*



# GLOBAL REVERSE OSMOSIS (RO) DESALINATION INFRASTRUCTURE

Country-level desalination infrastructure and the world's largest RO plants



INDEPENDENT ENERGY.  
STRONGER COMMUNITIES.  
A MORE SECURE TOMORROW.

## DESALINATION INFRASTRUCTURE BY COUNTRY

Number of operating desalination plants and total installed capacity ( $\geq 100$  m<sup>3</sup>/day)

The figures include all desalination technologies (not only RO).

| #  | Country              | Number of plants | Total capacity (m <sup>3</sup> /day) |
|----|----------------------|------------------|--------------------------------------|
| 1  | Spain                | > 770            | ~ 5,300,000                          |
| 2  | China                | 156              | ~ 2,520,000                          |
| 3  | United States        | 406              | ~ 2,270,000                          |
| 4  | Saudi Arabia         | n.a.             | ~ 11,100,000                         |
| 5  | United Arab Emirates | n.a.             | ~ 6,800,000                          |
| 6  | Australia            | n.a.             | ~ 2,000,000                          |
| 7  | Kuwait               | n.a.             | ~ 1,900,000                          |
| 8  | Qatar                | n.a.             | ~ 1,400,000                          |
| 9  | Algeria              | n.a.             | ~ 1,200,000                          |
| 10 | India                | n.a.             | ~ 1,100,000                          |

Source: Water, 2024; AEDyR database. Figures include all desalination technologies (not only RO). (Number of plants with capacity  $\geq 100$  m<sup>3</sup>/day)

## GLOBAL RO MARKET



~ **14,360**  
operating RO plants  
worldwide



~ **85%**  
of global desalination  
capacity is RO  
(2020 data, by installed capacity)

Source: Eke, J. et al., Desalination, 2020, 114633.



## THE WORLD'S LARGEST RO DESALINATION PLANTS – BY CAPACITY

| #  | Plant name           | Country              | Capacity (m <sup>3</sup> /day) |
|----|----------------------|----------------------|--------------------------------|
| 1  | Taweelah IWP         | United Arab Emirates | 909,000                        |
| 2  | Umm Al Quwain IWP    | United Arab Emirates | 681,818                        |
| 3  | Soreq 2              | Israel               | 670,000                        |
| 4  | Al Khobar 2 SWRO     | Saudi Arabia         | 630,000                        |
| 5  | Soreq                | Israel               | 624,000                        |
| 6  | Shoaiba 5            | Saudi-Arabia         | 600,000                        |
| 7  | Rabigh 3 IWP         | Saudi-Arabia         | 600,000                        |
| 8  | Shoaiba 3 Conversion | Saudi-Arabia         | 600,000                        |
| 9  | Jubail 3A IWP        | Saudi-Arabia         | 600,000                        |
| 10 | Jubail 3B IWP        | Saudi-Arabia         | 570,000                        |

Source: Toray Industries, GWI/DesalData, 2024.

## INDONESIA – STRATEGIC FOCUS

- Rapidly growing water security demand
- SWRO/BWRO projects
- Significant potential for decentralized desalination solutions

Indonesia, as the world's largest archipelagic country, has extensive RO potential due to its water scarcity, numerous islands and remote communities.



### GROWING WATER DEMAND

Population growth, urbanization  
and the impacts of climate change.



### LARGE-SCALE RO INFRASTRUCTURE

Thousands of plants  
worldwide.



### STRATEGIC MARKETS

Middle East, Asia, Africa  
and North America.



### AQUA FISSION: NEXT-GENERATION WATER TREATMENT

Membrane-free technology.  
Less energy. Cleaner water.

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# GLOBAL REVERSE OSMOSIS (RO) MARKET

## Market size, country share of desalination capacity and membrane replacement costs

RO is the leading technology for seawater desalination, driven by growing water demand, urbanization and industrial needs.



INDEPENDENT  
ENERGY.  
STRONGER COMMUNITIES.  
A SAFER TOMORROW.

**Reverse Osmosis (RO)**  
– the most widely  
adopted technology  
for seawater desalination.

### GLOBAL DESALINATION CAPACITY BY COUNTRY (Top 10, 2024)

Share of total global installed desalination capacity  
(percentage based on capacity, all technologies, RO-dominated)



**Top 10 countries combined: 32.6% of global capacity**

Source: University of Florida IFAS, 2025; Islam et al., 2018 – Global desalination capacity.

### RO MEMBRANE DESALINATION MARKET

Market size and forecast (2024–2034)

**2024:**  
**USD 16.5**  
**billion/year**

**2034 (forecast):**  
**USD 32.1**  
**billion/year**  
**CAGR: 7.0%**



Source: Reports and Data, RO Membrane Desalination Market, 2025.

### RO MEMBRANE REPLACEMENT AND COSTS



#### EXAMPLE: MEDIUM-SIZED SWRO PLANT (illustrative, not global average)



At SWRO plants, membrane replacement typically accounts for ~20% of annual membrane-related O&M costs.

Source: Desalination, 2020 – RO membrane permeability and process cost (review).  
Desalination Engineering: Planning and Design – typical RO membrane lifetime 5–7 years, average replacement rate 14–20%, element price USD 400–600.

**GROWING WATER DEMAND**  
Population growth,  
urbanization and industrial development

**STRATEGIC IMPORTANCE**  
Greater water security  
in water-stressed regions

**WIDE APPLICATIONS**  
Drinking water, industrial water,  
agriculture and new markets

**STRONG MARKET GROWTH**  
Market expected to reach  
USD 32.1 billion/year by 2034 (CAGR: 7.0%)



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Environmental Impacts of RO Technology



# The Problems with Reverse Osmosis



## High CAPEX/OPEX

High energy, maintenance, and costly consumables such as chemicals, membranes and filters, reagents, inhibitors, coagulants, and high-pressure pumps that require regular replacement.

Susceptible to corrosion, scaling, and requires pre- and post-processing with **significant toxic brine handling and disposal costs.**

## Harms Environment

Significant greenhouse emissions. RO outputs 50% brine and reverse osmosis concentrates (ROCs) in the reject stream, increasing toxicity and disposal complexity.

Toxic salt brine and ROC's are loaded with chemicals and heavy metals, depleting oxygen, and threatening land and marine ecosystems.

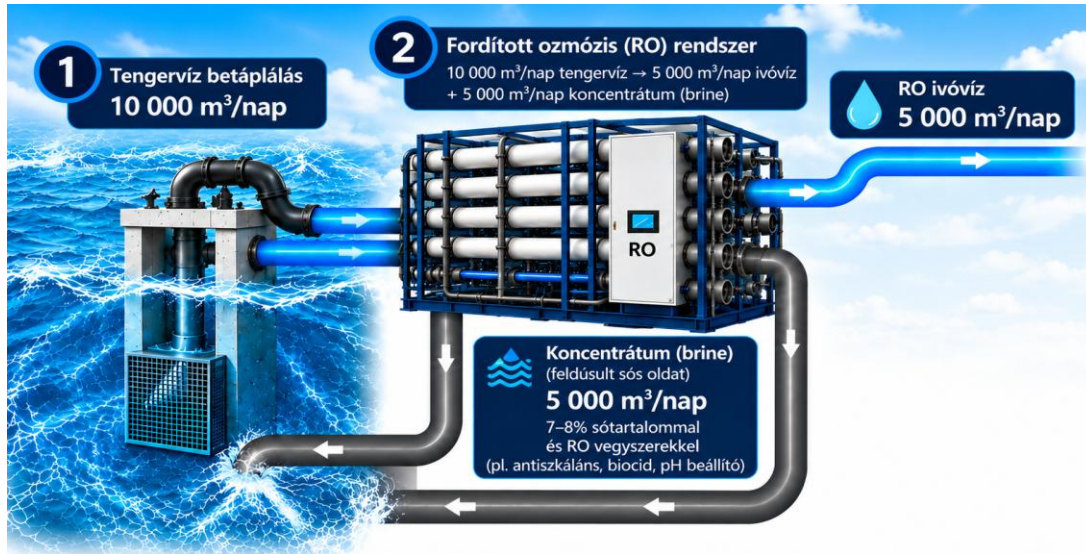
## Highly Inefficient

Only 40-50% clean water output (and 50-50% toxic brine) requiring processing of 2X water volume.

Ineffective on high TDS and salt content, PFAS and microplastics, heavy metals, and other contaminants. Requires pre- and post-treatment. Mineral loss and acidic pH, and processing lead to bad tasting water.



# The Three Main Environmental and Operational Challenges of RO



## 1. Large Volume of Brine Generation

Seawater RO typically achieves a water recovery rate of approximately 40–50%. As a result, approximately 50–60% of the feed seawater may remain as concentrated saline water (brine). Discharge into the marine environment may place additional stress on the receiving ecosystem due to the higher salt concentration and chemicals used in the water treatment process.

## 2. High Energy Consumption

Seawater RO is a high-pressure technology. Total energy consumption in modern large-scale plants is typically 3.5–4.5 kWh/m³, while older, smaller, or less efficient systems may consume up to 7 kWh/m³. In high-salinity systems without energy recovery, energy consumption may reach 7–20 kWh/m³.

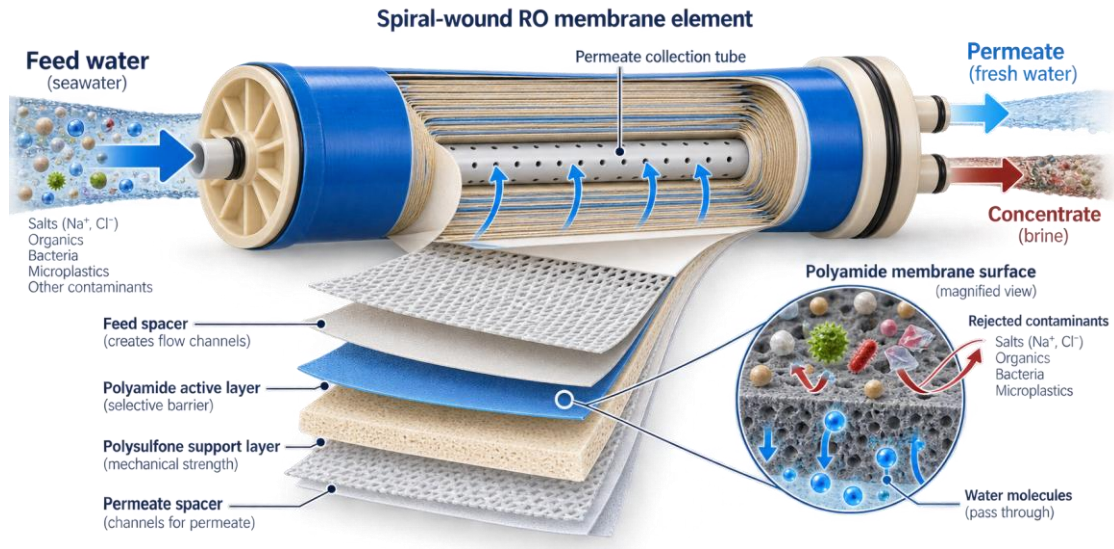
## 3. Membrane Use and Membrane Waste

RO technology relies on polymer membranes as a fundamental component of the process. Membrane performance deteriorates during operation, requiring periodic replacement. The management and recycling of spent membranes represent a growing waste-management and environmental challenge.



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# Membrane Technology and Microplastic Pollution: New Research Findings



Research into the environmental impacts of membrane technologies has identified a new area of concern: **polymer membranes used for water treatment may themselves become a source of microplastics under certain operating conditions.** A recent *Water Research* study demonstrated that membrane pre-oxidation and chemical cleaning can accelerate polymer degradation and the release of microplastic particles..

Among the particles released during the study, the 1–5  $\mu\text{m}$  size range was predominant.

Under certain conditions examined in the study, concentrations of up to  **$319.1 \pm 9.3$  microplastic particles per liter** were measured in the permeate from PVDF membranes.

According to the researchers, oxidizing agents and chemical cleaning agents can cause fragmentation of polymer membranes through **material-specific degradation processes.**

**Source:** Yu, S. et al., *Water Research*, Vol. 289, Part B, 2026, Article 124991, "Purifying or Polluting? Tracing Membrane-Based Microplastics Release for Long-Term Drinking Water Safety."

DOI: 10.1016/j.watres.2025.124991.

The study was published online in 2025; the journal issue date is January 15, 2026.





# THE GLOBAL MARKET FOR RO MEMBRANE MANUFACTURING

Significant market concentration, leading players and the opportunity for new entrants

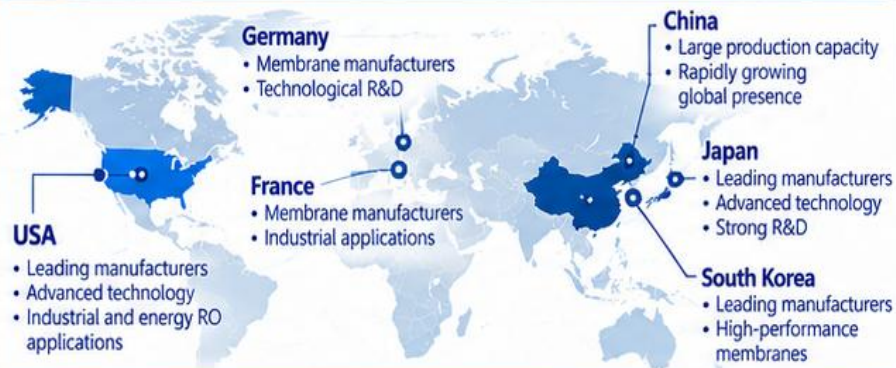
RO membranes are key components in seawater desalination and industrial water treatment, and the global market is continuously expanding as the demand for membrane-based solutions grows.



INDEPENDENT ENERGY.  
STRONGER COMMUNITIES.  
A MORE SECURE TOMORROW.

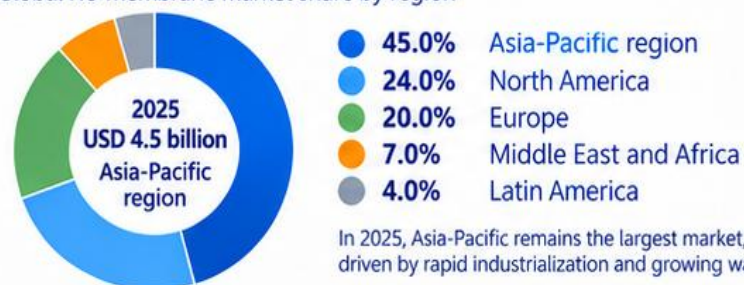
## MAIN RO MEMBRANE MANUFACTURERS AND TECHNOLOGY HUBS WORLDWIDE

RO membrane manufacturing is led by a few, technologically advanced countries.



## REGIONAL MARKET SHARE (2025)

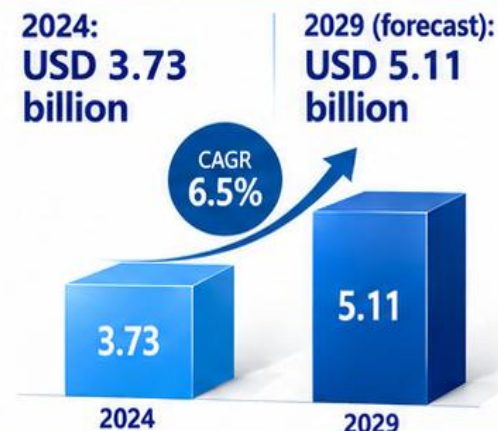
Global RO membrane market share by region



In 2025, Asia-Pacific remains the largest market, driven by rapid industrialization and growing water demand.

## RO MEMBRANE MARKET SIZE AND FORECAST

Global market value, 2024–2029



The global RO membrane market is expected to grow at a CAGR of 6.5% (2024–2029).

## RO MEMBRANE TYPES

Spiral-wound element for industrial and seawater applications



## 3 LEADING STRATEGIC PARTNER EXAMPLES

Global membrane manufacturers with strong technology and specializations.

- 1 DUPONT** **DuPont Water Solutions – USA**
  - FilmTec™ RO membranes
  - Industrial and seawater desalination applications
- 2 'TORAY'** **Toray Industries – Japan**
  - RO membranes
  - Strong presence in seawater desalination
- 3 LG Chem** **LG Chem – South Korea**
  - High-performance RO membranes
  - Energy-efficient RO membranes
  - Industrial and seawater applications

## OTHER MAJOR RO MEMBRANE MANUFACTURERS

Global players, wide product portfolio



## A UNIQUE OPPORTUNITY FROM AN AQUA FISSION PERSPECTIVE

Aqua Fission is not a membrane technology. The dominance of RO membrane manufacturers creates a clear market opportunity for Aqua Fission's unique approach. With its independent, membrane-free technology, lower energy consumption and broad applicability, Aqua Fission can offer an attractive alternative for regions, industrial sectors and project partners seeking cost-effective, reliable and sustainable water treatment solutions.



Global value chain analysis



Water treatment know-how



Market forecasting and follow-up



Hybrid systems and project partnerships



# The Solution

Aqua Fission is the world's first sustainable, True Zero Liquid Discharge (ZLD) water desalination and decontamination technology. SGS validated; filter, membrane, and chemical free; modular; decentralized; and infinitely scalable with no toxic brine or emissions,

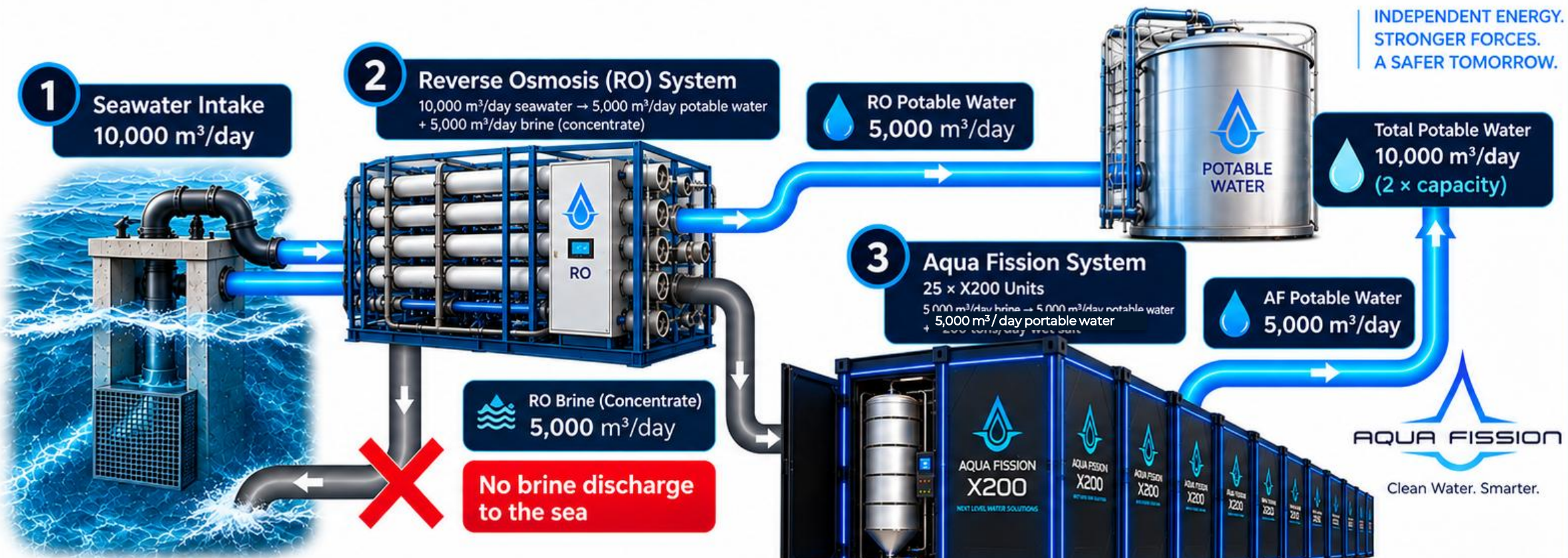
Aqua Fission can process water virtually anywhere, from any source, and at any scale.



## Clean Water. Smarter.







## Schematic Illustration of Integration into an Existing RO System

Aqua Fission converts the brine water—normally discharged back into the sea as a polluting by-product of the RO process—into potable water and wet salt. By recovering this otherwise wasted water, Aqua Fission can double the potable water production capacity of an existing RO system **and eliminate brine discharge to the environment.**

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Higher Water Supply



Zero Liquid Discharge



Valuable By-products



Sustainable Future

**AQUAFISSION.COM**



# Anywhere, Any Source, Any Scale.

Aqua Fission's patented thermodynamic vacuum technology uses extremely low energy ( $<1 \text{ kWh/m}^3$ ) and purifies virtually any water source with more than 99% water recovery without pre- or post-treatment, membranes, chemicals, reagents, or other consumables.



**NO BRINE**



**NO MEMBRANES**



**NO CHEMICALS**

\* Aqua Fission produces **no toxic brine** or Reverse Osmosis Concentrates (ROCs) and no direct CO<sub>2</sub> emissions. Our proprietary AI-driven software enables flexible control of output, allowing multiple water compositions from the same source, including high-quality potable water exceeding WHO standards.

- ✓ SGS validated
- ✓ ESG / Sustainability
- ✓ Modular
- ✓ Decentralized
- ✓ Infinitely Scalable
- ✓ Off-Grid Ready
- ✓ ZLD / No Toxic Brine \*
- ✓ RO Retrofit
- ✓ No Consumables
- ✓ No Membranes
- ✓ No Chemicals
- ✓ Ultra-Low Energy ( $<1 \text{ kWh/m}^3$ )
- ✓ Lowest OPEX
- ✓ No scaling
- ✓ No corrosion
- ✓ No CO<sub>2</sub> Emissions \*\*

\*\* With a renewable energy source.



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# Capacity - Aqua Fission X200

Daily capacity: 53,000 GPD (200 m<sup>3</sup>/day)\*

Width: 8 feet (2.591 m)

Depth: 8 feet (2.438 m)

Height: 20 feet (6.058 m)

Empty Weight: 10.6 metric tons (10,600 kg)

Operating Weight (Fully Loaded): 21 metric tons (21,000 kg)

Each unit is based on a standard 20-foot ISO container format, ensuring mobility.





# Scaling production is as simple as adding more units.

Each Aqua Fission system operates independently, ensuring continuous operations and rapid deployment.



# Easily Scalable

10 Aqua Fission X200 units yield 2,000 m<sup>3</sup> (2,000,000 liters) of pure water and up to 80 tons of valuable wet salt per day, with no toxic brine or ROCs. With net energy consumption under 1 kWh/m<sup>3</sup>, we are off-grid ready.



# Targeted Output

Aqua Fission can produce different water qualities and control mineralization to meet specific requirements, whether for irrigation water, potable water, or distilled water. Aqua Fission can cool water at the same time.





# Any Water Source Can Be Used



**SGS**

Validated

**INDEPENDENTLY TESTED BY SGS**

*Energy Consumption: 0.72–1.0 kWh/m<sup>3</sup>  
According to SGS test results*

- Saline sources
- Industrial, Data Center, and Agricultural sources
- Municipal and infrastructure-related sources
- Retrofit to existing Reverse Osmosis plants to double capacity and eliminate toxic brine and Reverse Osmosis Concentrates (ROCs)."



# Aqua Fission AI & Big Data

Aqua Fission mimics the natural water cycle. It is non-linear and governed by dynamic thermodynamics, rather than the pressure-driven flow used in legacy technologies such as Reverse Osmosis.

Aqua Fission AI is the core enabler of stable water quality, low kWh/m<sup>3</sup>, and reliability under real-world variability.



- Optimizes the full thermodynamic state
- Targeted-TDS control: delivers a setpoint mineral/salt level in the condensate (not just “as pure as possible”)
- Improves both OPEX and byproduct value (salt/crystallization)





# AQUA FISSION®

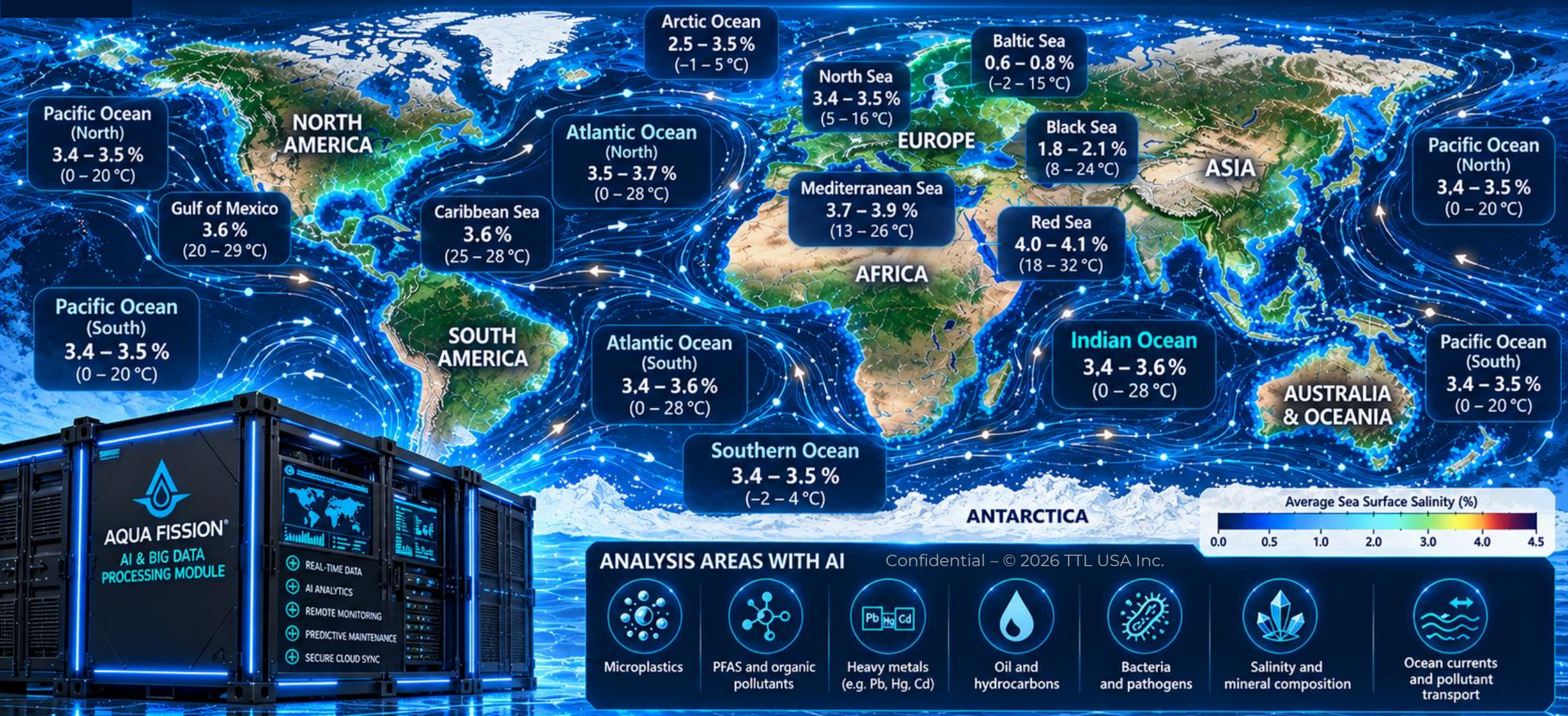
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## GLOBAL WATER MAP

Ocean and Sea Salinity and Typical Water Temperature

THOUSANDS OF SAMPLES  
REAL LABORATORY DATA  
AI & BIG DATA ANALYSIS

INDEPENDENT ENERGY.  
STRONGER COMMUNITIES.  
A SAFER TOMORROW.



**CLEANER OCEANS**  
Healthier ecosystems  
and biodiversity



**ACCURATE DATA**  
Better decisions  
for a cleaner future



**GLOBAL COLLABORATION**  
From data to solutions



**AI-POWERED INSIGHTS**  
Turning water data  
into real impact

[AQUAFISSION.COM](https://aqua-fission.com)





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The Advantages of Aqua Fission



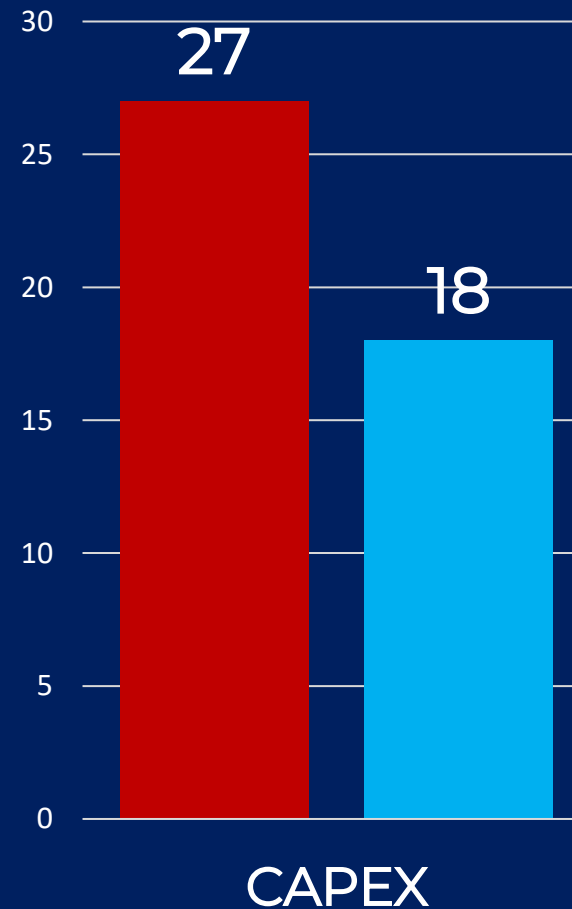
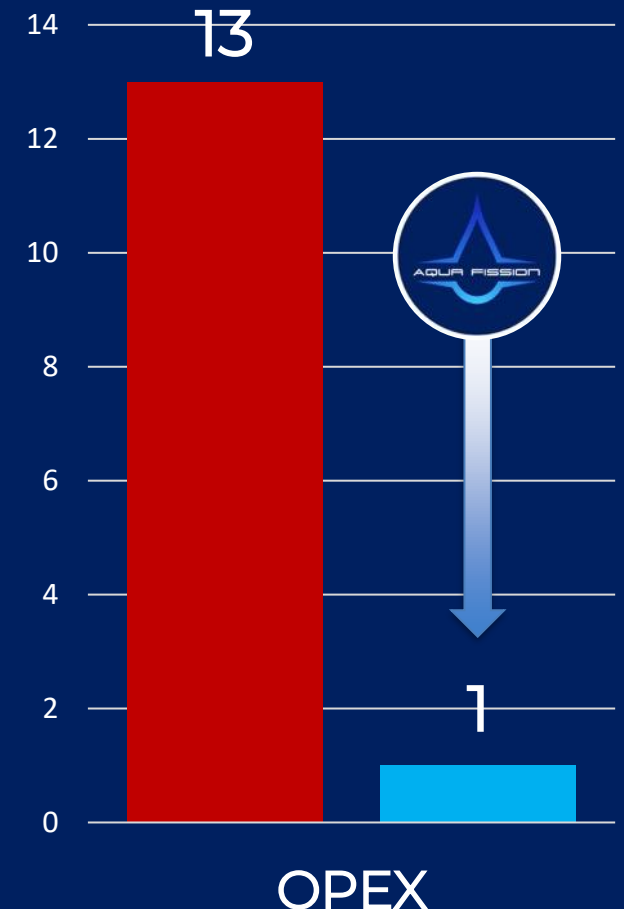
# Low CAPEX / OPEX.

- Low CAPEX – up to 2x lower \*
- Low OPEX – 13x lower
- No toxic brine disposal costs
- Low maintenance
- No consumables: chemicals, membranes, or filters.
- Durable design
- Wet salt / lithium market

\* RO CAPEX estimates often exclude brine or ROC handling, deep-water discharge or diffusion (DDD), and other associated costs.



10 Million Liters / Day



■ RO w/ ERD ■ Aqua Fission

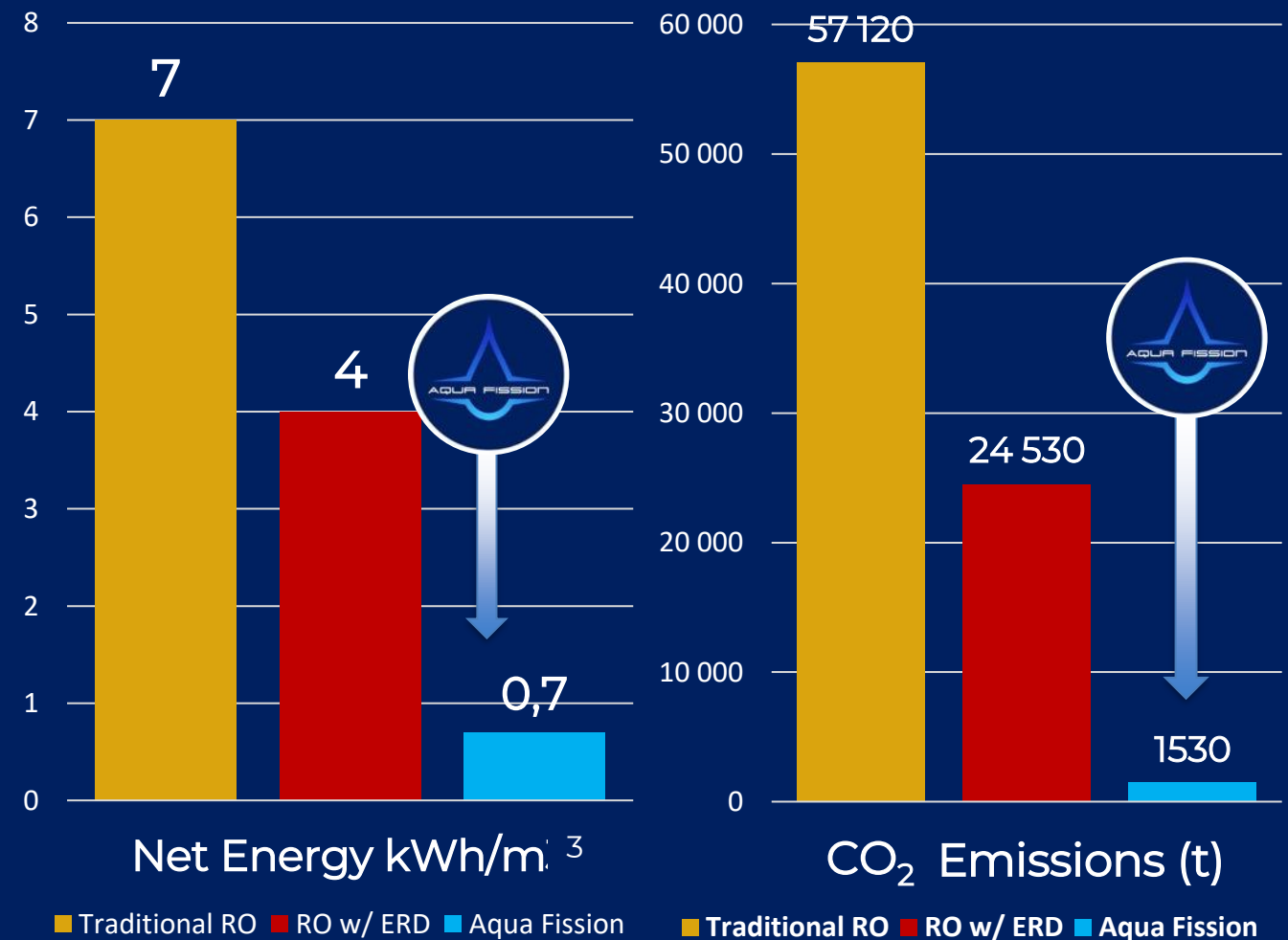
■ RO w/ ERD ■ Aqua Fission

# Low Energy. No Emissions. Delicious Water.



- Ultra-low net energy consumption ( $< 1 \text{ kWh/m}^3$ )
- 5x – 10x lower energy consumption than RO
- Full decontamination.
- No need to heat source water
- Sustainable and off-grid ready
- **Zero Liquid Discharge (ZLD)**
- Reprocess toxic brine
- No  $\text{CO}_2$  / Methane emissions\*
- **Exceeds WHO Standards**

\*With a renewable energy source.

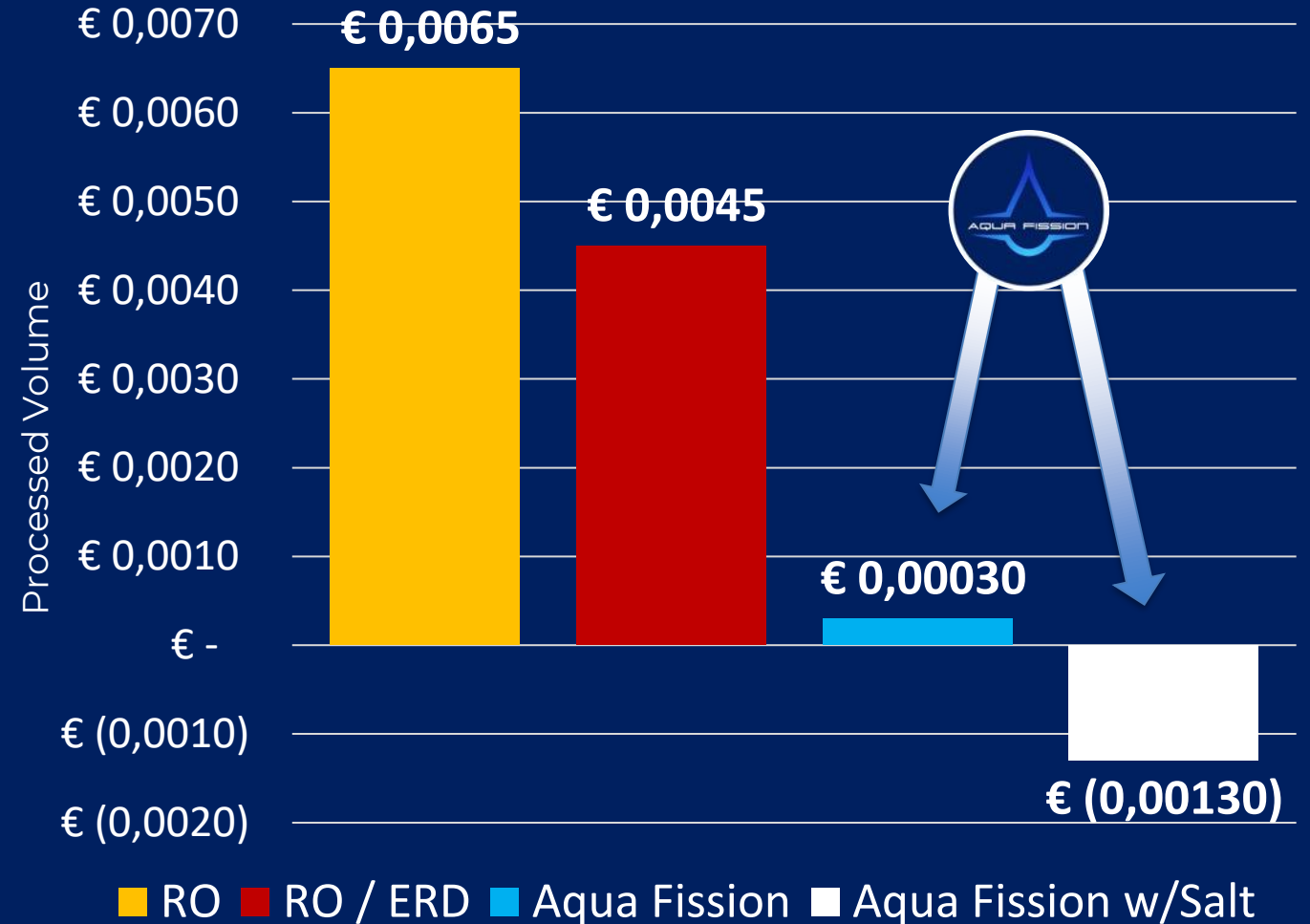




# Cost Comparison / Liter

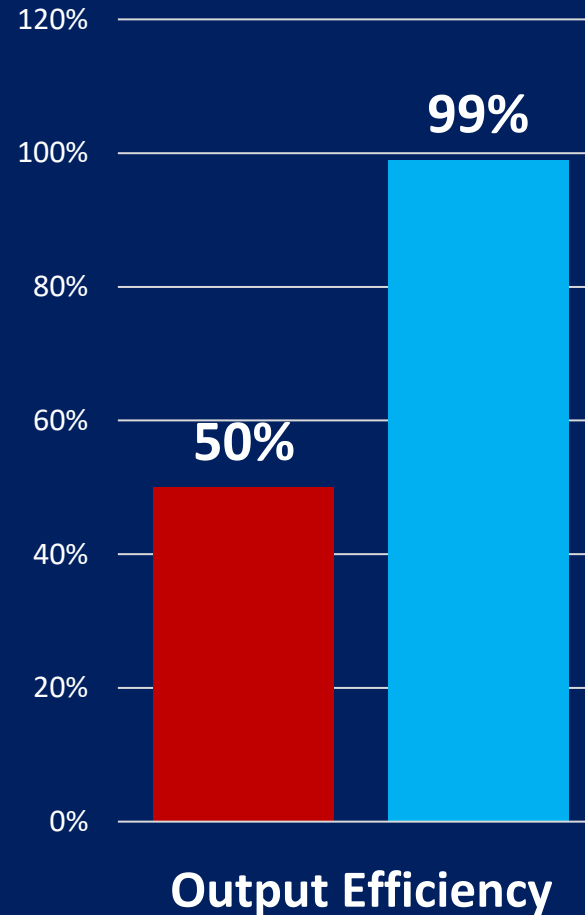
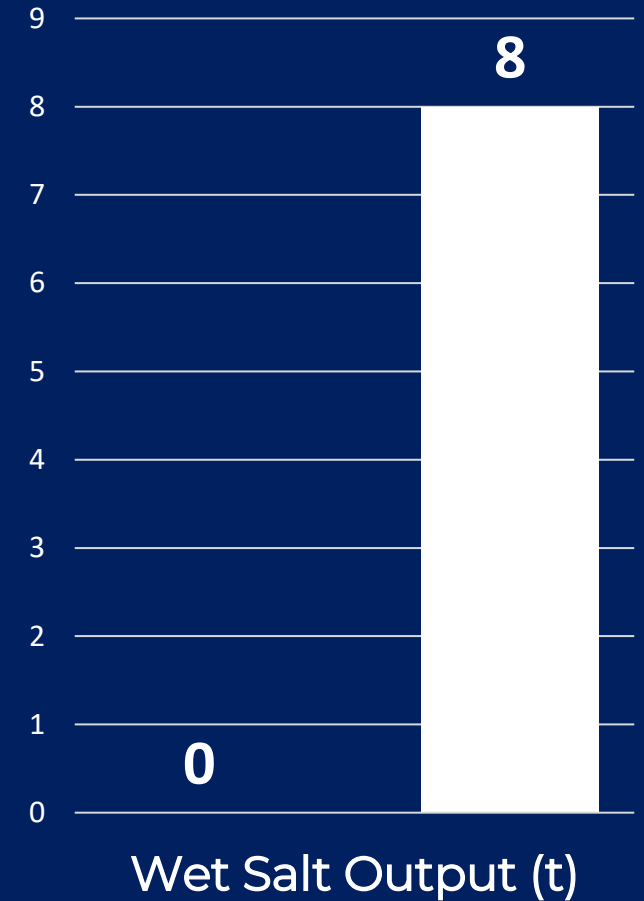
Aqua Fission is 15–20× less expensive per liter than Reverse Osmosis, while eliminating the environmental impact and costs associated with brine disposal.

With revenue from wet salt sales, the net cost per liter can become negative.



# Efficient. Modular / Scalable. 100% Decontamination.

- Modular / Simple scaling
- 99% clean water output
- No heating required; treats water at temperatures as low as 4–6°C.
- No salt or contaminant limits
- Retains healthy minerals
- 100% Decontamination: Heavy Metals, Oil, PFAS, Microplastics, Bacteria
- Up to 8 tons of wet salt per unit
- Lithium Extraction





# From Sea to Value

## Industrial Uses of Salt from Aqua Fission Desalination

A natural by-product. A valuable resource.



INDEPENDENT  
ENERGY.  
STRONGER FORCES.  
A SAFER TOMORROW.



### 1. Chemical Industry



- Electrolysis of brine produces chlorine, sodium hydroxide and hydrogen. These are key raw materials for PVC, detergents, disinfectants and many other chemical products.

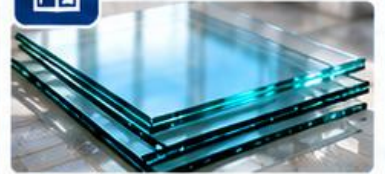
$\text{Cl}_2$   
Chlorine

$\text{NaOH}$   
Sodium hydroxide

$\text{H}_2$   
Hydrogen



### 2. Glass Industry



- Salt is a key raw material in soda production, which is an essential crafting.



### 3. Water Treatment



- Used for regenerating ion exchange water softeners, e.g. in industrial boilers, laundries and food processing plants.



### 4. Food Industry



- Used for seasoning, preservation, brining and in the production of cheeses, meat products and fermented foods.



### 5. Road Maintenance



- Used for de-icing and anti-icing, as it lowers the freezing point of water.



### 6. Oil and Gas Industry



- Used in drilling and well completion fluids, e.g. to reduce the swelling of clay formations.



### 7. Textile Industry



- Helps dye uptake in certain dyeing processes, especially for cotton.



### 9. Pharmaceuticals & Healthcare



- Used in sufficient purity for the production of infusion, rinsing and dialysis solutions.



### 10. Refrigeration Technology



- Used as a heat transfer fluid in brine form in certain refrigeration systems.



### 8. Leather Industry



- Used for preserving raw animal hides and in brining processes prior to tanning.



### 11. Animal Feed Industry



- Used in animal feed and lick salts to provide sodium and chloride for livestock.

-  Supports multiple industries
-  Local economic opportunities
-  Efficient resource utilization
-  Contributes to a circular economy

MORE THAN A BY-PRODUCT.  
A KEY RESOURCE  
FOR A SUSTAINABLE INDUSTRY.

HIGH-PURITY SALT (NaCl)  
FROM AQUA FISSION DESALINATION  
VERSATILE. SUSTAINABLE. VALUABLE.

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CLEANER WATER.  
STRONGER INDUSTRIES.  
A SAFER TOMORROW.



# THE GLOBAL SALT MARKET

Global NaCl Market (2024): approx. USD 17.36 billion per year

Market size, key players and industrial applications

Salt from seawater desalination – a valuable raw material for global industry.



INDEPENDENT  
ENERGY.  
STRONGER FORCES.  
A SAFER TOMORROW.

Pure water  
creates value.



Large  
and stable  
demand



Lower  
environmental  
impact



Multiple  
economic  
opportunities



Circular  
economy

CLEANER WATER.  
SMARTER.



## 2024 • GLOBAL SALT IMPORTERS

Largest salt-importing countries – 2024, million tonnes per year



Salt plays a vital role  
in the operation of  
global industry  
and infrastructure.

Note: Data refer to import volumes, not market shares.  
Source: World Bank WITS / UN Comtrade, HS 250100, 2024. Import volume, not adjusted for purity.

Today's challenges  
require sustainable  
solutions.



## SALT: A STRATEGIC RAW MATERIAL

Sodium chloride (NaCl) is one of the most important raw materials in modern industry. It has a stable and continuous market, with wide applications in industrial manufacturing, water treatment, infrastructure and many other sectors.



### MAIN INDUSTRIAL APPLICATIONS



#### Chemical industry

Chlorine, sodium hydroxide, hydrogen, PVC, detergents, disinfectants



#### Water treatment

Ion exchange resins, industrial and municipal applications



#### Road maintenance

De-icing and anti-icing



#### Glass industry

Soda ash production and glass manufacturing

### OTHER SIGNIFICANT APPLICATION AREAS

- Food industry
- Oil and gas industry
- Textile industry
- Leather industry
- Pharmaceuticals & healthcare
- Refrigeration technology
- Animal feed industry
- And other industrial uses



Indicative market price of industrial salt:

**USD 30 – 150 per tonne**

Depending on purity, quality, location and delivery terms. Not a stock exchange price.

- Valuable by-product
- Wide industrial use
- Local and export opportunities
- Contributes to a sustainable future



CLEANER WATER  
HEALTHIER ENVIRONMENT



GREATER  
RESOURCE INDEPENDENCE



STRONGER  
COMMUNITIES



MORE ECONOMIC  
OPPORTUNITIES



A MORE SUSTAINABLE  
FUTURE

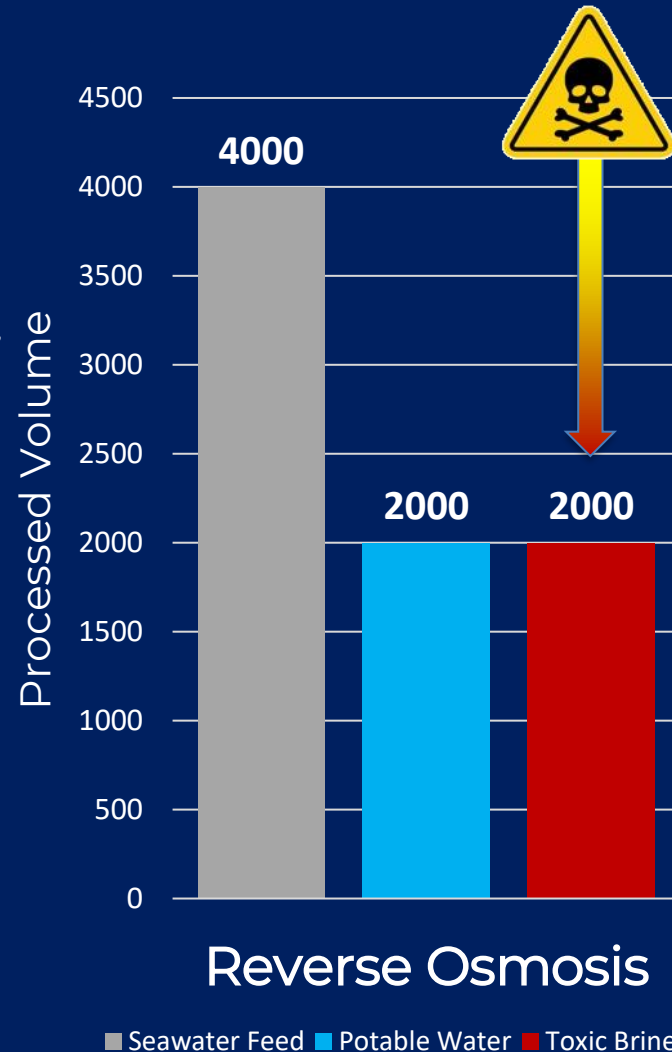
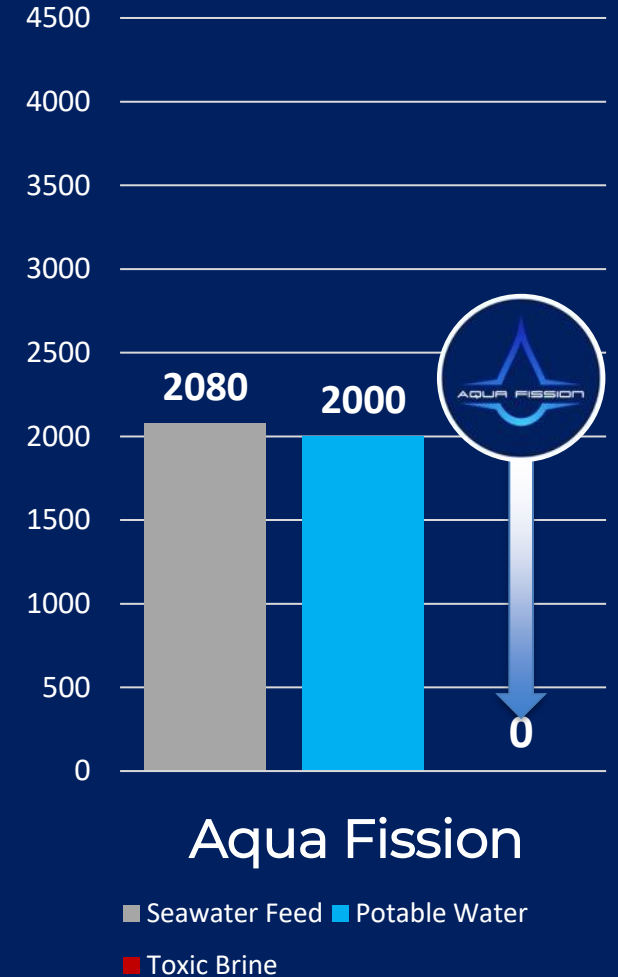
AQUAFISSION.COM



# RO Retrofit: Double Capacity. No Toxic Brine.



- To produce 2 million liters of clean water per day, Aqua Fission requires just 2.08 million liters of seawater, produces no toxic brine, and generates marketable wet salt.
- Reverse Osmosis must process 4 million liters of seawater to produce 2 million liters of clean water, while discharging over 2 million liters of toxic brine.
- RO Retrofit Ready



# Compare to Reverse Osmosis

| Feature                                                   |  | RO |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------|----|
| True ZLD - No Toxic Brine or Reverse Osmosis Concentrates | ✓                                                                                 | ✗  |
| Sustainable / ESG                                         | ✓                                                                                 | ✗  |
| Low CAPEX                                                 | ✓                                                                                 | ✗  |
| Low OPEX                                                  | ✓                                                                                 | ✗  |
| Easily Scalable                                           | ✓                                                                                 | ✗  |
| Ultra-Low Energy Consumption (<1 kWh/m <sup>3</sup> )     | ✓                                                                                 | ✗  |
| Off-grid, Solar Ready                                     | ✓                                                                                 | ✗  |
| Rapid Deployment                                          | ✓                                                                                 | ✗  |
| Efficient - Full Water Recovery                           | ✓                                                                                 | ✗  |
| Retrofit to Treat Toxic Brine and ROCs                    | ✓                                                                                 | ✗  |
| No Consumables                                            | ✓                                                                                 | ✗  |
| No Chemicals                                              | ✓                                                                                 | ✗  |
| No Membranes                                              | ✓                                                                                 | ✗  |
| No Filters                                                | ✓                                                                                 | ✗  |
| No CO <sub>2</sub> Emissions (off-grid)                   | ✓                                                                                 | ✗  |
| Modular                                                   | ✓                                                                                 | ✗  |
| Decentralized, Continuous Operations                      | ✓                                                                                 | ✗  |
| No Pre-processing                                         | ✓                                                                                 | ✗  |
| No Post-processing                                        | ✓                                                                                 | ✗  |
| High-TDS Water Sources                                    | ✓                                                                                 | ✗  |
| Eliminate PFAS / Forever Chemicals                        | ✓                                                                                 | ✗  |
| No Plastics / Microplastics                               | ✓                                                                                 | ✗  |
| Treat Mercury, Arsenic, and Other Heavy Metals Standard   | ✓                                                                                 | ✗  |
| No Deep-water / Offshore Discharge                        | ✓                                                                                 | ✗  |
| Targeted TDS / Mineralization Output                      | ✓                                                                                 | ✗  |
| Treat Hot Water and Cold Water                            | ✓                                                                                 | ✗  |
| Water Chilling                                            | ✓                                                                                 | ✗  |
| No Scaling or Corrosion                                   | ✓                                                                                 | ✗  |
| Fast ROI                                                  | ✓                                                                                 | ✗  |
| Lowest Cost per Liter                                     | ✓                                                                                 | ✗  |
| Low Maintenance                                           | ✓                                                                                 | ✗  |
| Small Footprint                                           | ✓                                                                                 | ✗  |
| Wet Salt Output                                           | ✓                                                                                 | ✗  |

# Brine Hazards



Environmental damage from concentrated salt (RO) & chemicals in discharged brine, creates marine "dead zones," harms aquatic life, and contaminates soil & groundwater.



RO

**High Intake Seawater**  
**142,860 - 333,333 m<sup>3</sup>/day**  
52,143,900 – 121,666,545 m<sup>3</sup>/year

RO

**Low Drinking Water Yield**  
**30% – 70% (depending on recovery rate)**  
Large amount of brine is rejected which is costly & inefficient

RO

**Wastewater (brine)**  
**42,860 - 233,333 m<sup>3</sup>/day**  
15,643,900 – 85,166,545 m<sup>3</sup>/year

RO

**High Energy Consumption**  
**3-7 kWh/m<sup>3</sup>**  
300 - 700 kWh/day – 109.5 - 255.5 MWh/year

RO

**No recoverable salt product**  
Only hazardous brine water requires additional treatment

**Low Intake Seawater**  
**101,600 m<sup>3</sup>/day**  
37,084,000 m<sup>3</sup>/year



**High Drinking Water Yield**  
**Up to 99% effective water recovery**  
No wastewater (brine) very efficient operation



**No liquid brine discharge**



**Low Energy Consumption**  
**0.72 -1 kWh/m<sup>3</sup> (Independently verified SGS)**  
72 - 100 kWh/day – 26.28 - 36.5 MWh/year



**Recoverable salt product from processed feedwater**  
**4,166 tons/day**  
1,520,590 tons/year







Clean Water. Smarter.

Case Studies

# Case Studies



GREECE

Sludge Dewatering / Irrigation Water

The Khalkidhiki biogas plant deployed Aqua Fission to dewater sludge and produce humus and clean irrigation water.

**CAPACITY:** 75 m<sup>3</sup>/day (75,000 liters/day)

**VOLUME TREATED:** 18,000,000 liters



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Boiling at room temperature



# Case Studies



## CYPRUS

### Seawater Desalination / Drinking Water

Cyprus, like many areas, faces a severe water shortage. Aqua Fission desalinated billions of liters of seawater.

ARADIPPOU CAPACITY: 1,500 m<sup>3</sup>/day

VOLUME TREATED: 1,642,500 m<sup>3</sup>

MONI CAPACITY: 1,200 m<sup>3</sup>/day

VOLUME TREATED: 1,314,000,000 liters



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# Case Studies



## GREECE

### Decontamination / Hydrocarbon Removal

OilOne, deployed Aqua Fission to treat seawater contaminated with hydrocarbon derivatives and other pollutants from ballast cleaning chemicals at the Port of Piraeus.

**CAPACITY:** 75 m<sup>3</sup>/day

**VOLUME TREATED:** 13,500,000 liters



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# Aqua Fission Portfolio 1 - 4

## Aqua Fission X200 Seawater Desalination System

Aqua Fission X200 unit capacity:  
200 m<sup>3</sup>/day (200,000 liters/day) of  
pure water and up to 8 tons of  
valuable wet salt per day, with no  
toxic brine or ROCs. Net energy  
consumption: under 1 kWh/m<sup>3</sup>.



## Aqua Fission X200 Off-Grid Seawater Desalination System

Aqua Fission X200 unit capacity:  
200 m<sup>3</sup>/day (200,000 liters/day) of  
pure water and up to 8 tons of  
valuable wet salt per day, with no  
toxic brine or ROCs. Net energy  
consumption: under 1 kWh/m<sup>3</sup>.  
Designed for off-grid operation.



## Aqua Fission X50 Water Treatment and Purification System

Aqua Fission X50 unit capacity:  
50m<sup>3</sup>/day. (50,000 liters/day).

The output produced from  
graywater or industrial  
wastewater can be configured,  
depending on requirements, as  
either irrigation water or potable  
water.



## Aqua Fission X50 Off-Grid Water Treatment and Purification System

Aqua Fission X50 unit capacity:  
50m<sup>3</sup>/day. (50,000 liters/day).

The output produced from  
graywater or industrial wastewater  
can be configured, depending on  
requirements, as either irrigation  
water or potable water.  
Designed for off-grid operation.



# Aqua Fission Portfolio 5 - 6



## Aqua Fission X50 Off-Grid and Mobile Water Treatment and Purification System

Aqua Fission X50 unit capacity: 50m<sup>3</sup>/day. (50,000 liters/day). The output produced from graywater or industrial wastewater can be configured, depending on requirements, as either irrigation water or potable water. Designed for off-grid operation.



## ANY WATER SOURCE ANYWHERE WHEN IT MATTERS

- Natural Disasters
- Refugee Camps
- Humanitarian Aid
- Rapid Deployment
- Off-Grid Operation

## Aqua Fission X50 Off-Grid and Mobile Seawater Desalination System

Aqua Fission X50 unit capacity: 50 m<sup>3</sup>/day (50,000 liters/day) of pure water and up to 2 tons of valuable wet salt per day, with no toxic brine or ROCs. Net energy consumption: under 1 kWh/m<sup>3</sup>. Designed for off-grid operation.





**AQUA FISSION®  
ANNEX 1**  
Technical Specification of the Aqua Fission® X200 System



**ANNEX 1**

**AQUA FISSION X200 SYSTEM – TECHNICAL SPECIFICATIONS**

This Annex 1 forms an integral part of the Agreement and sets forth the principal technical parameters and components of the Aqua Fission X200 System to be manufactured and delivered under the Agreement.

| TECHNICAL PARAMETER              | SPECIFICATION                                                                                                                                                                                                                                                                        |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System Name                      | Aqua Fission X200 System                                                                                                                                                                                                                                                             |
| Nominal Water Treatment Capacity | 200 m³/day (200,000 liters/day)                                                                                                                                                                                                                                                      |
| Configuration                    | Mobile configuration suitable for trailer mounting                                                                                                                                                                                                                                   |
| Application                      | Seawater desalination and water treatment                                                                                                                                                                                                                                            |
| Primary Construction Material    | Duplex Stainless Steel, Grade 19250                                                                                                                                                                                                                                                  |
| Length / Depth                   | 6.058 m                                                                                                                                                                                                                                                                              |
| Width                            | 2.438 m                                                                                                                                                                                                                                                                              |
| Height                           | 2.591 m                                                                                                                                                                                                                                                                              |
| Empty Weight                     | 10,600 kg (10.6 metric tons)                                                                                                                                                                                                                                                         |
| Full Operating Weight            | 21,000 kg (21.0 metric tons)                                                                                                                                                                                                                                                         |
| Electrical Energy Consumption    | 0.72-1.0 kWh/m³ (subject to specified operating conditions)                                                                                                                                                                                                                          |
| Electrical Connection            | 400 V AC / 50 Hz / 3-phase                                                                                                                                                                                                                                                           |
| Local Control                    | Integrated system control                                                                                                                                                                                                                                                            |
| Remote Monitoring                | Remote monitoring and diagnostic access by TTL USA                                                                                                                                                                                                                                   |
| Main Peripherals                 | Vacuum pump(s), water pump(s), connectors, sensors, and related equipment required for operation of the system                                                                                                                                                                       |
| FAT                              | Factory Acceptance Test under a seawater desalination scenario, documented by a FAT Report                                                                                                                                                                                           |
| SAT                              | Site Acceptance Test and commissioning at the implementation site                                                                                                                                                                                                                    |
| Maintenance / Inspection         | 2 mandatory technical inspections per year in accordance with the terms of the Agreement                                                                                                                                                                                             |
| Warranty                         | In accordance with the warranty terms specified in the Agreement                                                                                                                                                                                                                     |
| Technology Protection            | Opening, disassembly, modification, reverse engineering, or examination of the technological components of the System for copying purposes is prohibited. Any unauthorized intervention shall void the warranty and may result in further consequences as provided in the Agreement. |

**Note:** The final technical configuration of the System shall be determined during the adaptation engineering and production-design process for the X200 configuration. The finalized technical data, as approved by the Parties, shall form part of this Annex.

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AQUA FISSION®  
ANNEX 2  
Technical Specification of the Aqua Fission® X50 System



ANNEX 2

AQUA FISSION X50 SYSTEM – TECHNICAL SPECIFICATIONS

This Annex 1 forms an integral part of the Agreement and sets forth the principal technical parameters and components of the Aqua Fission X50 System to be manufactured and delivered under the Agreement.

| TECHNICAL PARAMETER              | SPECIFICATION                                                                                                                                                                                                                                                                        |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System Name                      | Aqua Fission X50 System                                                                                                                                                                                                                                                              |
| Nominal Water Treatment Capacity | 50 m³/day (50,000 liters/day)                                                                                                                                                                                                                                                        |
| Configuration                    | Mobile configuration suitable for trailer mounting                                                                                                                                                                                                                                   |
| Application                      | Water treatment (Fermentor Water Treatment Dry Solids Drying)                                                                                                                                                                                                                        |
| Primary Construction Material    | Duplex Stainless Steel, (6 – 8 mm)                                                                                                                                                                                                                                                   |
| Length / Depth                   | 6.058 m                                                                                                                                                                                                                                                                              |
| Width                            | 2.438 m                                                                                                                                                                                                                                                                              |
| Height                           | 2.591 m                                                                                                                                                                                                                                                                              |
| Empty Weight                     | 7,200 kg (7.2 metric tons)                                                                                                                                                                                                                                                           |
| Full Operating Weight            | 9,750 kg (9.75 metric tons)                                                                                                                                                                                                                                                          |
| Electrical Energy Consumption    | 0.72-1.0 kWh/m³ (subject to specified operating conditions)                                                                                                                                                                                                                          |
| Electrical Connection            | 400 V AC / 50 Hz / 3-phase                                                                                                                                                                                                                                                           |
| Local Control                    | Integrated system control                                                                                                                                                                                                                                                            |
| Remote Monitoring                | Remote monitoring and diagnostic access by TTL USA                                                                                                                                                                                                                                   |
| Main Peripherals                 | Vacuum pump(s), water pump(s), connectors, sensors, and related equipment required for operation of the System                                                                                                                                                                       |
| FAT                              | Factory Acceptance Test under a seawater desalination scenario, documented by a FAT Report                                                                                                                                                                                           |
| SAT                              | Site Acceptance Test and commissioning at the Implementation site                                                                                                                                                                                                                    |
| Maintenance / Inspection         | 2 mandatory technical inspections per year in accordance with the terms of the Agreement                                                                                                                                                                                             |
| Warranty                         | In accordance with the warranty terms specified in the Agreement                                                                                                                                                                                                                     |
| Technology Protection            | Opening, disassembly, modification, reverse engineering, or examination of the technological components of the System for copying purposes is prohibited. Any unauthorized intervention shall void the warranty and may result in further consequences as provided in the Agreement. |

**Note:** The final technical configuration of the System shall be determined during the adaptation engineering and production-design process for the X50 configuration. The finalized technical data, as approved by the Parties, shall form part of this Annex.

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# Aqua Fission X50 System



# Aqua Fission X50 Off Grid System







Clean Water. Smarter.

## Primary Application Areas of the Technology

The figures and calculations shown in the following scenarios are preliminary estimates for informational purposes only, based on typical conditions and average values. Actual performance and system configuration may vary. Each project requires site-specific technical assessment and engineering design.

## SURFACE WATER SOURCES

NATURAL AND CONTAMINATED OPEN WATER SOURCES



**Seawater**  
High-salinity  
ocean water



**Lakes**  
Natural lakes  
and reservoirs



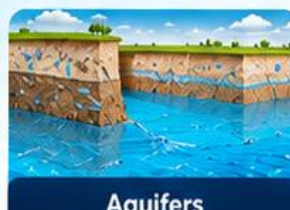
**Rivers**  
River water  
and surface flows



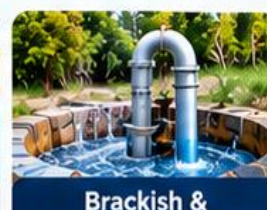
**Contaminated  
Surface Water**  
Polluted open water  
(e.g. industrial,  
municipal)

## GROUNDWATER SOURCES

AQUIFERS, WELLS AND OTHER SUBSURFACE WATER SOURCES



**Aquifers**  
Brackish and  
freshwater aquifers



**Brackish &  
Freshwater Wells**  
Brackish and  
freshwater wells



**High-Salinity  
Wells**  
High-salinity  
groundwater wells



**Contaminated  
Wells**  
Polluted wells  
(e.g. industrial,  
agricultural, municipal)

## INDUSTRIAL WATER SOURCES

WATER FROM INDUSTRIAL PROCESSES



**Industrial Process Water**  
Manufacturing  
and process water streams



**Oil & Gas Produced Water**  
Produced water and  
industrial effluents



**Mining & Quarry Water**  
Mine water, drainage  
and process water



**Chemical Industry Effluents**  
Wastewater from  
chemical processes

AQUA FISSION

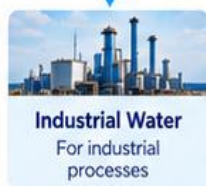
Clean Water. Smarter.



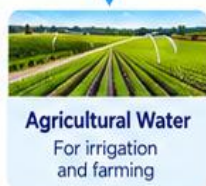
OUTPUTS – MULTIPLE USES



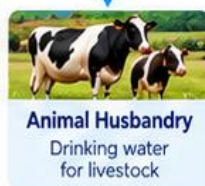
**High-Quality  
Drinking Water**  
For households,  
communities and industry



**Industrial Water**  
For industrial  
processes



**Agricultural Water**  
For irrigation  
and farming



**Animal Husbandry**  
Drinking water  
for livestock



**Valuable Wet Salt  
(by-product)**  
Marketable  
industrial raw material

## SPECIAL AND CHALLENGING SOURCES

MUNICIPAL, AGRICULTURAL AND OTHER DIFFICULT WATERS



**Municipal Wastewater**  
Treated or untreated  
sewage



**Landfill Leachate**  
Leachate from  
landfills



**Agricultural Runoff**  
Farm runoff, irrigation  
return flows, pesticide  
and fertilizer residues



**Emergency & Disaster Water**  
Flood water, disaster  
relief and other  
contaminated sources



**WIDE RANGE  
OF WATER SOURCES**  
Natural, industrial and contaminated



**NO MEMBRANES  
NO CHEMICALS**  
Simpler and more reliable operation



**ZERO LIQUID DISCHARGE  
(ZLD)**  
No concentrated brine, no waste



**MOBILE & MODULAR**  
Fast deployment,  
scalable capacity



**LOW ENERGY CONSUMPTION**  
Cost-efficient operation



**OFF-GRID CAPABLE**  
Independent operation  
is possible



# A Global, Multi-Sector Market

Primary Scenarios for the Application  
of the Aqua Fission System



Municipalities &  
Water Utilities



Military



Oil & Gas



Industry



NGO's



HORECA



Confidential



Disaster Relief



RO Treatment



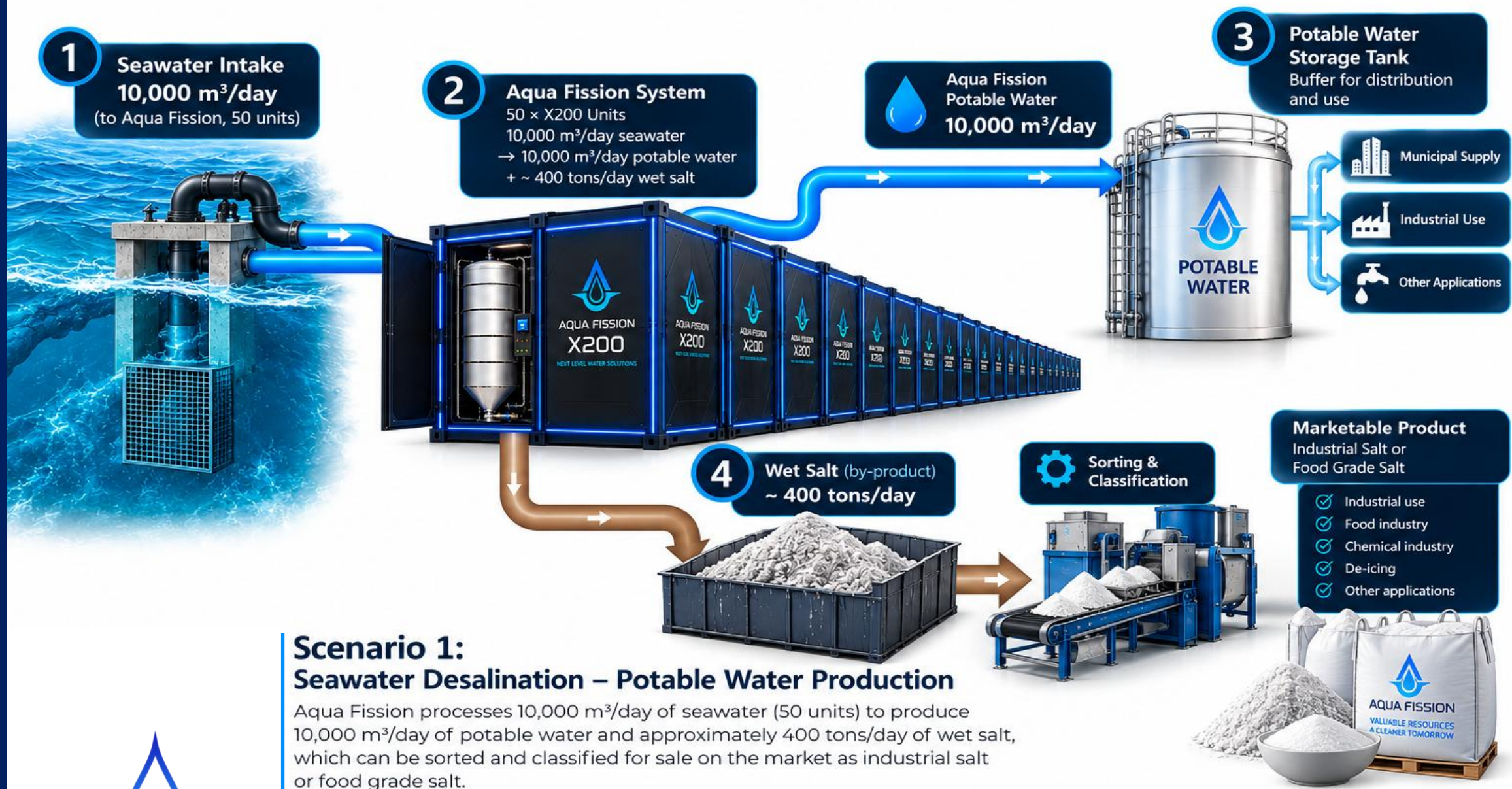
Mining



Maritime



Agriculture





# 1 Multiple Water Sources

Aqua Fission can produce high-quality potable water in emergency situations from:



# 2 Aqua Fission Emergency System

10 x X200 Units  
Produces 2,000 m<sup>3</sup>/day of potable water



Potable Water Output  
2,000 m<sup>3</sup>/day  
(2,000,000 liters/day)

# 3 Drinking Water for 500,000 people per day

(2 million liters/day)



DRINKING WATER  
FOR 500,000 PEOPLE  
PER DAY

# 4 Packaging and Distribution

The potable water can be packaged in bags or filled into bottles for easy distribution. Primarily suitable for drinking.



Clean Water. Smarter.

ANY WATER SOURCE  
ANYWHERE  
WHEN IT MATTERS

- Natural Disasters
- Refugee Camps
- Humanitarian Aid
- Rapid Deployment
- Off-Grid Operation

## Scenario 2: Emergency System

Aqua Fission can produce high-quality potable water from seawater, river water, lake water, and contaminated well water in emergency situations. Ten (10) X200 units can produce 2,000 m<sup>3</sup>/day (2,000,000 liters/day) of potable water, sufficient for the daily drinking water needs of 500,000 people. The water can be packaged in bags or filled into bottles. Primarily suitable for drinking.



Clean Drinking Water



No Liquid Discharge



Valuable By-products



Rapid Deployment



A More Resilient Tomorrow

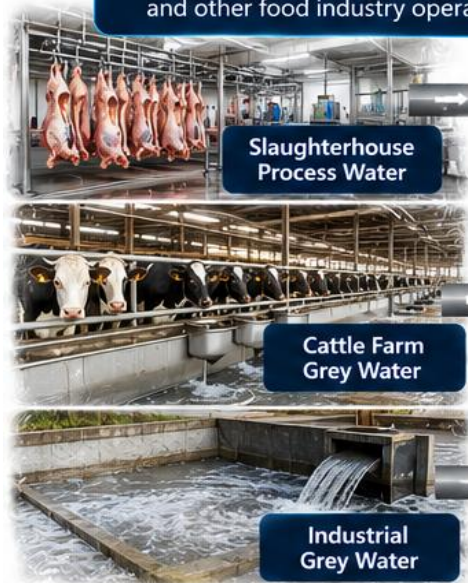
CLEAN WATER  
SAFER LIVES.



1

**Industrial Wastewater Source**

Process and grey water from slaughterhouses, cattle farms and other food industry operations.



2

**Aqua Fission System X200 Units**

Cleans and treats industrial wastewater to produce reusable water for irrigation or animal drinking water.



3

**Recovery of Valuable Components**

Ammonia and other valuable substances can be separated. If required, the remaining residues can be transported to a hazardous waste landfill or biogas plant.

**Scenario 3: Industrial Applications**

Aqua Fission can treat process and grey water from slaughterhouses, cattle farms and other industrial facilities. The treated water can be reused for irrigation of plants (e.g. animal feed crops) or as drinking water for animals, eliminating the need to discharge wastewater into the sewer system. Ammonia and other valuable components can be separated, and the remaining residues, if required, can be transported to a hazardous waste landfill or biogas plant.

Irrigation Water for Crops



Supports cultivation of animal feed and other crops.

Treated Water Output for Reuse  
(e.g. irrigation or animal drinking)



Drinking Water for Animals



High-quality water for healthy livestock.

**Sustainable Operations**

- ✓ Water reuse
- ✓ Resource recovery
- ✓ Reduced environmental impact
- ✓ Lower operating costs
- ✓ Supports circular economy



Clean Water. Smarter.



Water Reuse



Zero Liquid Discharge



Resource Recovery



Sustainable Future



1

**Fermented Digestate from Biogas Plant**

Transported by tanker truck to the mobile Aqua Fission unit (X50).

2

**Mobile Aqua Fission X50 with Integrated Dryer**

Installed in a 20-foot container – transported by truck. On-site operation (e.g. 20 days) to treat 1,000 m<sup>3</sup> of digestate.



## Scenario 4: Biogas Plant Digestate Treatment (Mobile Solution)

Aqua Fission X50 with integrated dryer can treat fermented digestate from biogas plants. The system separates clean water and contaminating solids. A truck-mounted 20-foot container can be deployed on-site and treat up to 1,000 m<sup>3</sup> of digestate in about 20 days. The separated solids are dried and granulated. At ~20% dry matter, approximately 200 tons of granulate can be produced, which can be applied to agricultural fields as a fertilizer, replacing conventional fertilizers.



Resource Recovery



No Liquid Discharge



Valuable By-products



Sustainable Agriculture

CLEAN WATER.  
NUTRIENT RECOVERY.  
A STRONGER TOMORROW.



## Scenario 5: Cruise Ships – Onboard Potable Water Supply

Reliable, sustainable fresh water from seawater for passengers and crew.

 **Passengers**  
~ 7,000 – 8,000

 **Crew**  
~ 1,500 – 2,500

**Total on board**  
~ 8,500 – 10,000 people

 **Typical freshwater demand**  
~ 200 liters/person/day

Actual demand depends on the number of people on board and the ship type/use profile, typically 150–300 liters/person/day (ISO 15748-2:2002).

### Main Water Uses Onboard



**Drinking Water**  
For passengers and crew



**Galley / Kitchen**  
Food preparation and cleaning



**Bathrooms**  
Showers, sinks, toilets



**Laundry**  
Washing and linen cleaning



**Pools & Recreation**  
Pools, spas, recreational facilities

AQUA FISSION



**1 Seawater Intake from the Ocean**  
Seawater is pumped directly into the Aqua Fission system (no discharge).

**2 10 × Aqua Fission X200 Units**  
Total capacity: 2,000 m³/day  
(≈ 2 million liters/day) of potable water

**3 Potable Water Storage**  
Three buffer tanks for continuous supply

**4 Wet Salt (by-product)**  
~ 80–100 tons/day  
(from 2,000 m³/day seawater)

Wet salt is transferred to a service vessel for transport and further processing or commercial use.



Pure Water On Board  
for a Better Experience



Zero Liquid Discharge  
No Harm to Marine Life



Valuable By-products  
Wet Salt for Industrial Use



Resource Efficiency  
Lower Environmental Footprint

CLEANER OCEANS.  
HEALTHIER PEOPLE.  
BRIGHTER DESTINATIONS.



# Scenario 6: Islands, Hotels and Resorts – Off-Grid Water Supply

Independent. Sustainable. Reliable Water for Paradise.

 **3,500 – 5,000 people**  
(guests + staff)

 **Water demand**  
**~ 200 liters/person/day**  
(depending on resort type and facilities)

The actual demand depends on the number of people and the type of facilities, typically 150–300 liters/person/day (ISO 15748-2:2002).

 **Total freshwater production**  
**~ 1,000 m<sup>3</sup>/day**  
(5 × Aqua Fission X200)  
(≈ 1 million liters/day)



SUSTAINABLE TOURISM.  
CLEANER ISLANDS.  
HEALTHIER PEOPLE.  
BRIGHTER DESTINATIONS.



100% Off-Grid  
Solar powered  
and independent



No Brine Discharge  
Protecting marine life



Valuable By-product  
Wet salt for industrial use



Cost Efficient  
Lower operating costs  
than conventional systems



Supports Sustainable Tourism  
Clean water for people,  
local communities and nature

CLEANER ISLANDS.  
HEALTHIER PEOPLE.  
BRIGHTER DESTINATIONS.



# Scenario 7: Data Centers – Sustainable Cooling Water

Reliable. Efficient. Off-Grid. Zero Liquid Discharge.



SUSTAINABLE  
INFRASTRUCTURE.  
FOR A COOLER  
DIGITAL WORLD.



**Medium Data Center**  
~ 5 MW IT Load  
(typical size)



**Typical cooling-water demand**  
~ 200 – 250 m<sup>3</sup>/day  
(≈ 2.0 L/kWh, depending on  
design, climate and WUE)



**Required Aqua Fission capacity**  
**2 × X200**  
**(400 m<sup>3</sup>/day)**  
Provides sufficient capacity  
with operational reserve.



**Aqua Fission cooling effect**  
~ 10 – 12 °C  
Treated water can be cooled  
by approximately 10 – 12 °C  
(depending on operating conditions).



**100% Off-Grid**  
Solar powered  
and independent



**Conserves Freshwater**  
Minimizes water intake  
and discharge



**Zero Liquid Discharge**  
No brine, no harm  
to the environment



**Cost Efficient**  
Lower operating costs  
and stable performance



**Supports Sustainable IT**  
Reliable infrastructure  
for a cleaner, digital future

CLEANER WATER.  
GREENER DATA CENTERS.  
BRIGHTER TOMORROW.

Note: Figures are preliminary estimates based on typical conditions and average values. Actual water demand, system configuration and performance may vary.  
Each project requires site-specific assessment and engineering design.

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# Scenario 8: Semiconductor Chip Manufacturing – Water Reuse

High-Purity Water. Zero Discharge. A More Sustainable Future.



SUSTAINABLE  
INDUSTRY.  
HIGHER EFFICIENCY.  
CLEANER PLANET.



**Medium Chip Factory**  
**~ 20,000 wafers/month**  
(typical size)



**Typical high-purity  
water demand**  
**~ 500 – 1,000 m<sup>3</sup>/day**  
(depending on technology node  
and production volume)



**Required Aqua Fission capacity**  
**5 × X200 units**  
**(1,000 m<sup>3</sup>/day)**  
Provides sufficient capacity  
with operational reserve.



**Water Reuse**  
**Up to 90 – 99%**  
Treated water is reused in the  
production process, reducing  
freshwater demand and  
wastewater discharge.

## Key Water Uses in a Chip Factory



Process Tools  
(ultra-pure water)



Wafer Cleaning  
and Rinsing



Facility Utilities  
(cooling, scrubbers)



General Use

### 1 Process Wastewater Collection

Wastewater from manufacturing:

- Rinse water
  - Cleaning water
  - Process wastewater
  - Cooling blowdown
- (no discharge to sewer)

### 2 Water Treatment & Cooling

5 × Aqua Fission X200 units  
Total capacity: 1,000 m<sup>3</sup>/day  
Cleans and cools the water (~ 10 – 12 °C lower temperature).

### 4 By-product: Wet Salt

~ 40 tons/day  
(for further processing  
or commercial use).

### 3 Reused in Production

Treated water is reused as  
high-purity water in the  
manufacturing process  
(e.g. wafer cleaning, rinsing,  
facility utilities).

TREATED  
HIGH-PURITY WATER

AQUA FISSION



**Conserves  
Freshwater Resources**  
Reduces dependence  
on municipal supply.



**Reduces  
Environmental Impact**  
Zero liquid discharge  
to sewer.



**Cost Efficient**  
Lower operating costs  
through water reuse  
and reduced wastewater fees.



**Reliable Supply**  
Stable, on-site high-purity  
water treatment and cooling  
solution.



**Supports High-Tech Industry**  
Enabling sustainable  
manufacturing for a  
cleaner future.

CLEANER INDUSTRY.  
STRONGER COMMUNITIES.  
BRIGHTER TOMORROW.

**Note:** Figures are preliminary estimates based on typical conditions and average values. Actual water demand, system configuration and performance may vary.  
Each project requires site-specific assessment and engineering design.

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# Scenario 9: Potable Water and Premium Beverages

Clean water from seawater. Sustainable solution. Healthier people. A brighter future.



- 1 Seawater Intake**  
Seawater is pumped directly from the ocean to the Aqua Fission system (no discharge).
- 2 Aqua Fission System**  
1 x X200 unit  
200 m<sup>3</sup>/day of potable water.
- 3 Potable Water Buffer Tank**  
Continuous supply and storage of treated water for production.
- 4 Filling and Packaging into Aluminum Cans**  
0.5 liter aluminum cans filling and packaging.  
200,000 liters/day = 400,000 cans/day (0.5 liter / can).
- 5 Palletizing and Shipping**  
One pallet contains 5,280 cans (132 cartons x 40 cans).  
400,000 cans = 76 pallets.  
One truck carries ~ 26 pallets.  
Therefore ~ 3 trucks are required (for full daily quantity).



Sustainable  
Water Supply



No Liquid  
Discharge



Valuable  
By-products



Cost-Effective  
Solution



Healthier People  
Stronger Communities

CLEANER WORLD.  
HEALTHIER PEOPLE.  
BRIGHTER TOMORROW.

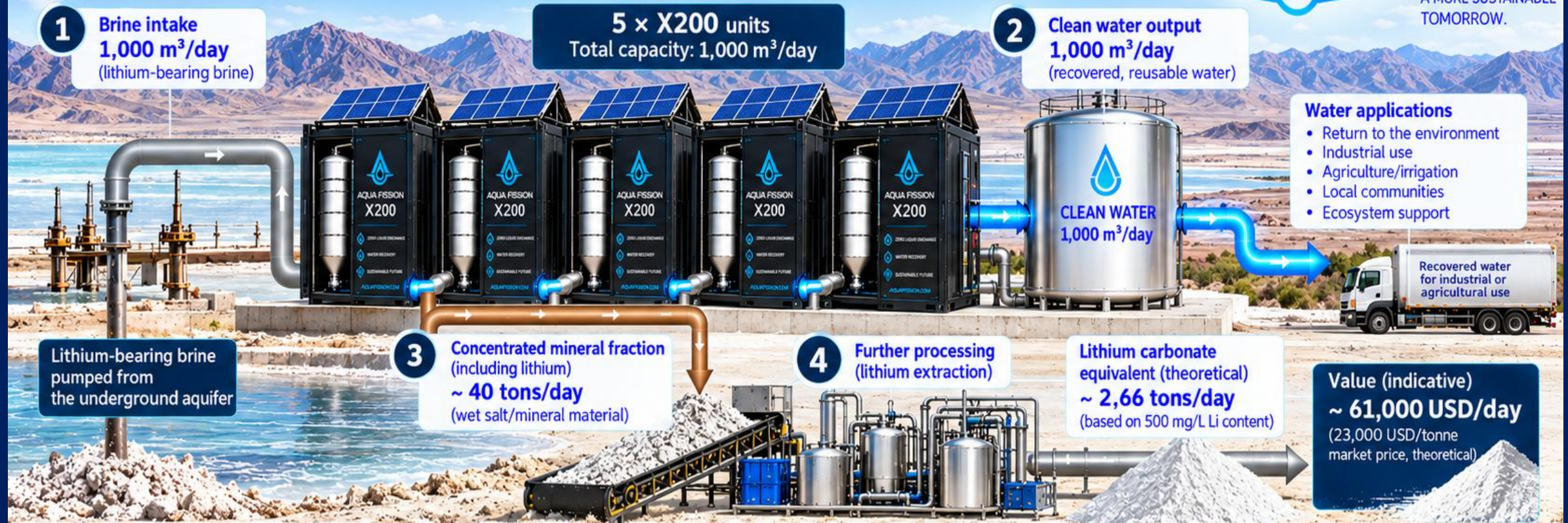


# Scenario 10: Lithium Mining – Water Recovery and Lithium Concentration

Valuable resources. Sustainable solution. Cleaner environment. A brighter future.



CLEANER WORLD.  
MORE VALUABLE  
RESOURCES.  
A MORE SUSTAINABLE  
TOMORROW.



## Key advantages compared to conventional evaporation



**Up to 10–50× faster**  
No long waiting time for natural evaporation.



**Lower environmental impact**  
Minimized land use and water losses, smaller ecological footprint.



**Lower operating costs**  
Energy-efficient technology.



**Water recovery**  
The water is recovered and reusable, not lost.



**Continuous, controllable operation**  
Weather-independent, stable production.



**Higher extraction efficiency**  
Faster and more controlled concentration, higher lithium recovery potential.



**Smaller land footprint**  
No need for large evaporation ponds.



**Valuable by-products**  
The concentrated mineral fraction can be used in further processing.



**More sustainable solution**  
Supports water security and a circular economy.

## Conventional evaporation vs. Aqua Fission

### Conventional evaporation

- 📅 Time: months – years
- 🏔️ Large land requirement
- ☀️ Weather dependent
- 💧 Water is lost
- 🌳 Greater environmental impact
- 💰 High capital cost

### Aqua Fission

- ✓ Continuous, fast
- ✓ Small land footprint
- ✓ Weather independent
- ✓ Water is recovered
- ✓ Lower environmental impact
- ✓ Lower capital cost



# Scenario 11: Car and Truck Wash – Water Reuse

Clean operation. Lower costs. A more sustainable future.



SUSTAINABLE  
INDUSTRY.  
HIGHER EFFICIENCY.  
CLEANER PLANET.



**Daily greywater volume**  
~ 400 m<sup>3</sup>/day

Soapy, contaminated water from washing cars and trucks.



**Aqua Fission capacity**  
2 × X200 units  
(400 m<sup>3</sup>/day)

Handles the full daily volume efficiently.



**Water Reuse**  
Up to 100%

Treated clean water is reused in the car wash operation.



**Contaminants and detergents**  
2–5% (approx. 8–20 m<sup>3</sup>/day)

Concentrated form, collected in 1 m<sup>3</sup> containers for easy transport. If using biodegradable ("green") detergents, alternative reuse options may be available.



**Reduces freshwater consumption**  
Less dependence on municipal water supply.



**Reduces environmental impact**  
Zero liquid discharge to sewer.



**Cost efficient**  
Lower operating costs through water reuse and reduced wastewater fees.



**Reliable operation**  
Stable, on-site water treatment and reuse solution.



**Supports sustainable industry**  
Enables a cleaner, more sustainable future for transportation and fleet operations.

CLEANER INDUSTRY.  
STRONGER COMMUNITIES.  
BRIGHTER TOMORROW.

AQUAFISSION.COM



# Scenario 12: Port Operations – Barge Hold Cleaning

Clean ships. Clean water. A more sustainable future.



SUSTAINABLE  
INDUSTRY.  
HIGHER EFFICIENCY.  
CLEANER PLANET.



**Wash water volume**  
**~ 200 m<sup>3</sup>/day**

Soapy, oily, contaminated water from cleaning barge holds.



**Aqua Fission capacity**  
**1 × X200 unit**  
**(200 m<sup>3</sup>/day)**

Handles the full daily volume efficiently.



**Water Reuse**  
**Up to 97 – 94%**

Treated clean water is reused for barge hold cleaning.



**Contaminants and residues**  
**3–6% (approx. 6–12 m<sup>3</sup>/day)**

Oils, detergents, solids and other contaminants separated in concentrated form. Collected in 1 m<sup>3</sup> containers for easy transport and disposal.



**Reduces freshwater consumption**  
Less dependence on municipal water supply.



**Reduces environmental impact**  
Zero liquid discharge to the sea.



**Cost efficient**  
Lower operating costs through water reuse and reduced waste disposal fees.



**Reliable operation**  
Stable, on-site water treatment and reuse solution.



**Supports sustainable industry**  
Enables cleaner port operations and helps protect marine ecosystems.

CLEANER INDUSTRY.  
STRONGER COMMUNITIES.  
BRIGHTER TOMORROW.

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# Scenario 13: Open-Pit Gold Mine – Water Recycling and Higher Gold Recovery

More gold. Less water. A more sustainable mining operation.



SUSTAINABLE  
MINING.  
HIGHER EFFICIENCY.  
CLEANER ENVIRONMENT.



**Mobile capacity**  
**50 m<sup>3</sup>/day**  
**(≈ 2 m<sup>3</sup>/hour)**

Easily transportable to  
different mining locations.



**Water recycling**  
**Up to 95 – 99%**

The treated clean water  
is returned to the gold washing plant.



**Higher gold recovery**  
**+10 – 15%**

The gold remaining in the water  
can be recovered at a significantly  
higher rate.



**Separated solid material**  
**Sand, fine gravel, rock**

The separated dry material  
is collected and returned to the  
gold washing process.

## 1 Extraction of ore

Ore extracted from the open-pit  
mine is transported to the gold  
washing plant.

2

## Gold washing

The gold is separated from  
the sand and rock material  
using water.

3

## Collection of contaminated water

The discharged water still  
contains 15 – 20% of the gold.  
The water is collected and fed  
to the Aqua Fission system.

4

## Water treatment with Aqua Fission X50

The system separates the gold, detergents  
and other contaminants from the water,  
providing clean water and dry solids  
with high efficiency.

6

## Treated water reuse

The cleaned water is returned  
to the gold washing plant,  
resulting in significant water  
savings and higher gold recovery.

5

## Separated solid material

Sand, fine gravel and rock  
are collected, then returned to the  
gold washing plant for reuse.

CLEAN WATER  
BACK TO GOLD WASHING PLANT



**Reduces  
freshwater consumption**  
Less dependence on  
precious water resources.



**Reduces  
environmental impact**  
No contaminated  
water discharge.



**Cost efficient**  
Lower operating costs  
through water reuse  
and higher gold recovery.



**Flexible deployment**  
Mobile unit, quick  
installation and easy  
relocation to different sites.



**Supports sustainable mining**  
Enables more efficient  
and environmentally  
responsible gold production.

CLEANER INDUSTRY.  
STRONGER COMMUNITIES.  
BRIGHTER TOMORROW.

AQUAFISSION.COM



# Gold Mining – Rock Processing with Aqua Fission

Closed-loop water circulation for higher gold recovery and a cleaner environment.



INDEPENDENT ENERGY.  
HIGHER EFFICIENCY.  
MORE GOLD.  
CLEANER ENVIRONMENT.

## 1 Rock Extraction

Gold-bearing rock is excavated from open pit or underground mines and transported to the processing plant.



## 2 Crushing and Grinding

The rock is crushed and ground into a fine slurry (< 0.074 mm) so that the gold is liberated from the rock matrix.



## 3 Separation

Cyclones or spiral classifiers separate coarse and fine fractions, and the fine slurry is sent to the process water tank for further treatment (e.g. cyanidation).



## 4 Gold Recovery (Leaching)

Gold is extracted using a chemical process (e.g. cyanidation – CIL/CIP) from the slurry. After gold recovery, the process water still contains ~20–25% fine solids (rock particles) and other suspended materials.



## 5 Aqua Fission Water Purification System (mobile, solar-powered)

Aqua Fission separates the water from the solids, returning clean water for reuse, while the solid materials – including gold-bearing particles – remain as a wet concentrate.



### Process Water Tank (after leaching)

The process water still contains ~20–25% fine gold-bearing solids and other suspended materials.

## KEY ADVANTAGES

- ✓ Higher gold recovery (gold remains in solids)
- ✓ Closed-loop water circulation
- ✓ Significant reduction in freshwater use
- ✓ No liquid discharge (ZLD)
- ✓ Lower environmental impact
- ✓ Mobile, fast deployment, solar-powered
- ✓ Cost-effective and sustainable mining operations

## 6 Wet Solid Material (gold-bearing concentrate)

Aqua Fission retains the wet solid material containing gold particles and rock fines. This is returned to the mine for further processing with high-sensitivity separation technologies to recover the gold.



## 7 Gold Recovery and Cleaning

The wet solid material is processed with modern separation technologies to recover the gold particles, followed by cleaning and drying.



## 8 Final Product

The recovered and purified gold is refined into gold bars for the market.



Clean Water  
back to the leaching process



Less  
freshwater use



Zero liquid  
discharge (ZLD)



Lower  
environmental impact



Higher  
gold recovery



Lower  
operating costs



Sustainable  
mining

CLEANER MINING.  
MORE GOLD.  
BRIGHTER TOMORROW.

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# Scenario 14: Textile Factory – Process Water Recycling

Cleaner production. Less freshwater. A more sustainable future.



**SUSTAINABLE  
INDUSTRY.  
CLEANER ENVIRONMENT.  
STRONGER TOMORROW.**



**Daily water demand  
~ 1,000 m<sup>3</sup>/day  
(nominal)**

Used for washing, rinsing,  
dyeing, bleaching and finishing.



**Water reuse  
Up to 85 – 90%  
(~ 850 – 900 m<sup>3</sup>/day)**

The treated clean water is  
returned to the production processes.



**Reduced  
freshwater consumption  
Only ~ 10 – 15%  
(100 – 150 m<sup>3</sup>/day)**

Freshwater required only for losses.



**Cost-efficient and sustainable**

Lower water costs  
Reduced environmental footprint  
Compliance with stricter  
environmental regulations (EU).

## 1 Textile manufacturing processes

Washing | Rinsing | Dyeing | Bleaching | Finishing

FABRIC PREPARATION

WASHING

DYEING

RINSING

FINISHING

CONTAMINATED PROCESS WATER

## 2 Collection of contaminated water

Wastewater from the different  
production processes is collected  
in a tank, from where it is continuously  
fed to the Aqua Fission system.

**WASTEWATER  
COLLECTION TANK  
~ 1,000 m<sup>3</sup>/day**

## 3 Aqua Fission water treatment 5 × X200 units (total 1,000 m<sup>3</sup>/day)

The system separates the recoverable water  
from concentrated contaminants (dyes, chemicals,  
salts, fibers, etc.).

**CONCENTRATED CONTAMINANTS  
(3 – 8% of total volume)**

## 4 Clean water storage and reuse

The treated water is stored in a buffer  
tank and then returned to the production  
processes (washing, rinsing, dyeing –  
subject to required water quality).

CLEAN WATER BACK TO PRODUCTION PROCESSES

**FRESHWATER SUPPLY  
~ 100 – 150 m<sup>3</sup>/day**

## 5 Concentrated residues management

Separated dyes, salts, chemicals  
and other solids are collected  
in concentrated form (approx. 1 m<sup>3</sup>  
IBC containers) and transported  
to an authorized hazardous waste  
facility – or, where possible,  
further processed and recycled  
(e.g. dye recovery, salt reuse).

**CLEAN WATER  
BUFFER TANK  
~ 850 – 900 m<sup>3</sup>/day**

**CONCENTRATE  
(hazardous waste)**

**HAZARDOUS WASTE  
TRANSPORT**

**HIGH-QUALITY TEXTILES.  
A CLEANER FUTURE.**



**Significant  
water savings**  
Up to 85 – 90%  
less freshwater use.



**Lower  
environmental impact**  
Reduced wastewater  
discharge and smaller  
ecological footprint.



**Cost efficient**  
Lower operating costs  
through water reuse  
and reduced effluent fees.



**Reliable operation**  
Continuous, stable  
water treatment and  
secure production.



**Supports sustainable  
textile industry**  
Cleaner products.  
Stronger communities.  
A brighter future.

**AQUA FISSION  
FOR A CLEANER INDUSTRY.  
FOR A BRIGHTER TOMORROW.**

[AQUAFISSION.COM](http://AQUAFISSION.COM)



# Scenario 15: Military Deployment – Drinking Water in the Most Remote Locations

Security. Self-sufficiency. Water. Anywhere. For Any Mission.



INDEPENDENT  
ENERGY.  
STRONGER FORCES.  
A SAFER TOMORROW.



**Daily water production**  
**250,000 liters/day**  
(200 m<sup>3</sup> X200 + 50 m<sup>3</sup> X50)  
Provides full supply for  
1,500 soldiers.



**Off-grid operation**  
**Powered by solar energy**  
No grid connection required.  
Fully autonomous operation  
in the field.



**Multiple uses**  
**Drinking water | Cooking | Showering**  
All required water from one system,  
reliable and high quality.



**Rapid deployment**  
**By military truck or helicopter**  
Air, land or sea transport.  
Quick setup at the destination.

1

## Aerial transport

The X50 unit can be quickly  
delivered to the site by helicopter,  
ensuring the fastest possible  
deployment of water production  
in critical areas.



## Supply for 1,500 soldiers

Daily 250,000 liters of drinking water  
for 1,500 soldiers.  
(= 167 liters/person/day)  
Drinking water, cooking, showers  
and other hygiene needs.

2

## X200 installation

The X200 unit is installed  
on the shore and can be  
put into operation immediately.  
Daily capacity: 200 m<sup>3</sup>  
(200,000 liters) of drinking water.  
Solar powered, off-grid operation.

5

## X50 unit

The truck-mounted X50 unit  
produces 50 m<sup>3</sup> (50,000 liters)  
of drinking water per day.  
Ideal for rapid deployment  
and smaller forward bases.

6

## Distribution points

-  Drinking water for soldiers
-  Water for the kitchen
-  Water for showers and cleaning
-  Other camp needs

3

## Seawater intake

The system draws seawater,  
no pre-treatment or chemicals  
required.

4

## Clean water storage

The treated water is directed  
to a covered storage tank and  
distributed to different usage points  
within the camp.

CLEAN WATER STORAGE TANK  
250,000 liters/day



**Greater operational  
independence**  
No reliance on local  
infrastructure.



**Lower  
environmental impact**  
No chemical use,  
no brine – only clean water  
and concentrated solids.



**Rapid deployment**  
Operational within  
hours.



**Healthier soldiers**  
Better hygiene, higher  
performance.



**More secure missions**  
Reliable water supply  
in the most challenging  
environments.

CLEANER WATER.  
STRONGER FORCES.  
A SAFER TOMORROW.

AQUAFISSION.COM



# Scenario 16:

## Filling and Cleaning Hotel Swimming Pools with Desalinated Seawater

Clean Water. Satisfied Guests. Sustainable Tourism.



CLEANER  
RESORTS.  
MORE SUSTAINABLE  
TOURISM.  
A BRIGHTER FUTURE.



### Desalinated seawater

High-quality water for filling and cleaning swimming pools.



### Powered by solar energy

Fully autonomous operation without grid connection. Ideal for remote islands.



### Environmental protection

No chemicals, no brine. Only clean water and valuable salt.



### Better guest experience

Clean, crystal-clear pools. Sustainable operation. Stronger reputation.

1

### Seawater intake

The system draws seawater from the ocean, with no pre-treatment required.

2

### Two X50 units

Daily  $2 \times 50 \text{ m}^3 = 100 \text{ m}^3$  of desalinated seawater. Solar powered, fully autonomous operation.

3

### Clean water to the pool

The desalinated water is directed to the hotel swimming pool. Daily  $100 \text{ m}^3$ , filling a  $500 \text{ m}^3$  pool in 5 days.

5

### Next destination

After filling the pool, the trucks move on to the next hotel or resort.

Seawater intake

Clean, desalinated water to the pool

$500 \text{ m}^3$  swimming pool  
(25 m x 10 m x 2 m)

4

### Valuable by-product

In 5 days, approx. 20 tons of salt is produced, which can be sold or used locally.

Salt  
~ 20 tons  
(in 5 days)



### Reliable water supply

Always clean water when and where it is needed.



### Lower environmental impact

No chemicals, no brine – only clean water and valuable salt.



### Cost-effective operation

Solar powered, low operating costs.



### Sustainable tourism

Clean pools, happy guests, greener resorts.



### Applicable to remote locations

Islands, resorts, coastal areas, summer complexes.

CLEANER WATER.  
BETTER RESORTS.  
MORE SUSTAINABLE  
TOURISM.  
A BRIGHTER FUTURE.

AQUAFISSION.COM



# Scenario 17: Greening Desert Areas – Irrigation Water from the Sea

Life in the desert. Sustainable agriculture. A greener future.



FROM OCEANS  
TO LIFE.  
RENEWABLE ENERGY.  
SUSTAINABLE  
FUTURE.



## 1,000,000 liters/day irrigation water

5 solar-powered X200 units  
combined capacity.



## 100% off-grid operation

Powered by solar energy  
without grid connection.  
Ideal for desert and  
remote areas.



## Multiple agricultural applications

Trees, crop cultivation,  
greenhouses, land reclamation.



## Food security and economic development

Local production, jobs,  
sustainable communities.

## 6 Salt export



Approx. 40 tons of salt/day  
(5 X200 units).  
The produced salt can be sold  
for industrial use.



## 2 5 X200 units

Daily 1,000,000 liters (1,000 m³)  
of desalinated irrigation water.  
Fully autonomous,  
solar-powered operation.



## 3 Tree irrigation

Approx. 1,000,000 liters/day  
enough for ~50–70 hectares of olive  
trees or palm trees  
(depending on tree type and soil conditions).

Date palm plantation

Olive grove



## 4 Crop cultivation in greenhouses

Fresh vegetables, e.g. tomatoes,  
peppers, lettuce, all year round.  
Aqua Fission provides clean water  
for irrigation and humidification systems  
in controlled-environment greenhouses.

Climate-controlled  
greenhouse

Product delivery  
to the market



## 1 Seawater intake

The system draws seawater  
from the ocean, with no  
pre-treatment required.

IRRIGATION WATER STORAGE  
1,000 000 liters/day



## Enabling desert agriculture

New opportunities  
in arid regions.



## Lower environmental impact

More plants, CO<sub>2</sub> capture,  
and a better microclimate.



## Economic benefits

Local food production,  
jobs, and self-sufficiency.



## Sustainable communities

Water, food, and a more  
stable future for local people.



## Scalable solution

Applicable to large areas  
and various crops  
worldwide.

CLEAN WATER.  
GREENER DESERTS.  
MORE LIFE.  
A BRIGHTER FUTURE.

AQUAFISSION.COM



# Scenario 18:

## Battery Manufacturing – Water Recovery and Sodium Sulfate Valorization

Turning industrial by-products into valuable resources. Cleaner environment. A more sustainable future.



FROM  
INDUSTRIAL WASTE  
TO VALUE.  
CLEANER INDUSTRY.  
BRIGHTER FUTURE.



### Industrial waste valorization

Treatment of sodium sulfate containing by-products from battery manufacturing.



### Water recovery

Separation and recovery of clean water for reuse in the production process.



### Valuable secondary raw material

Dry sodium sulfate for industrial applications (e.g. detergents, glass industry, chemicals).



### Sustainable industry

Low energy consumption, no chemical additives, zero liquid waste.

2

### Two X200 Aqua Fission units

With dedicated process modules for high-solids materials and viscous slurries. Total nominal capacity: 400 m<sup>3</sup>/day (for the given material, processing time depends on the specific characteristics).

3

### Recovered clean water

Approximately 70 m<sup>3</sup> of clean water (from 100 m<sup>3</sup> of input material), which can be reused in the production process or for other industrial purposes.

1

### Sodium sulfate slurry from battery production

The sodium sulfate containing slurry is collected from the battery manufacturing process and pre-treated before processing.

#### Potential use of recovered water:

- ✓ Process water
- ✓ Cooling water
- ✓ Cleaning
- ✓ Other industrial applications

4

### Dry sodium sulfate

Approximately 30 m<sup>3</sup> of dry sodium sulfate (from 100 m<sup>3</sup> of input material), which can be sold as a valuable secondary raw material.

#### Potential applications:

- ✓ Detergent industry
- ✓ Glass industry
- ✓ Chemical industry
- ✓ Other industrial uses

Input material:  
**100 m<sup>3</sup>**  
(solids content: 25–30%)

Pre-treatment  
and feeding

AQUA FISSION  
X200

ZERO LIQUID  
DISCHARGE  
WATER RECOVERY  
SUSTAINABLE FUTURE

AQUA FISSION  
X200

ZERO LIQUID  
DISCHARGE  
WATER RECOVERY  
SUSTAINABLE FUTURE

Recovered water  
~ 70 m<sup>3</sup>

Dry sodium sulfate  
~ 30 m<sup>3</sup>



### Environmental protection

Less industrial waste, cleaner environment.



### Lower carbon footprint

Reduced waste, no brine, low energy consumption.



### Economic benefits

Valuable secondary raw material and recovered water.



### Efficient industrial solution

Reliable, modular, scalable technology.



### Sustainable future

Cleaner industry, A healthier planet.

CLEANER INDUSTRY.  
GREATER VALUE.  
A BRIGHTER FUTURE.

AQUAFISSION.COM



# Scenario 19: Semiconductor (Chip) Manufacturing – Rinse Water Recycling

Ultra-pure water. Higher efficiency. Lower water consumption. A more sustainable future.



PROTECT  
PRECIOUS RESOURCES.  
ENABLE TECHNOLOGY.  
BUILD A SUSTAINABLE  
TOMORROW.



## Recycle rinse water

Clean and reuse high-purity rinsing water from chip manufacturing.



## Significant water savings

Up to 80–95% less freshwater demand.



## Zero liquid discharge

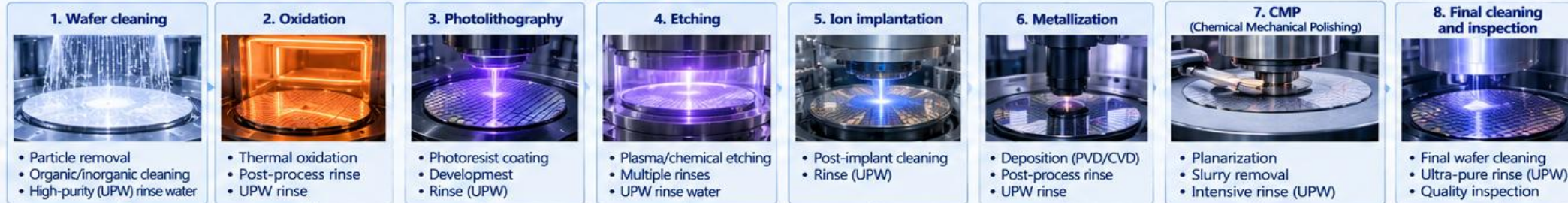
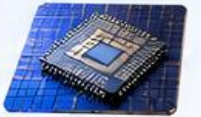
No brine, no chemicals, no filters, no membranes.



## Reliable and continuous

Modular, energy-efficient, fully automated operation.

## Where water is used in chip manufacturing – typical process flow



High-performance chips for a smarter world

**Freshwater (UPW)**  
Currently large volumes required

**Rinse water (used, but still clean)**  
Contains particles, trace chemicals and residuals

## AQUA FISSION X200 Rinse Water Recycling System



Up to 95% water reuse



More chips.  
Less water.  
A brighter future.

**Dry residues (small volume)**  
for safe disposal  
or material recovery  
(e.g. metals, oxides)



## Conserve water

Dramatically lower freshwater consumption.



## Lower environmental impact

Less industrial wastewater. No brine. No chemicals.



## Cost savings

Reduced water procurement and wastewater treatment costs.



## Reliable production

Consistent high-purity water quality for critical processes.



## Sustainable technology

Support the world's chip production with responsible innovation.

CLEANER WATER.  
SMARTER TECHNOLOGY.  
A BRIGHTER TOMORROW.

AQUAFISSION.COM



# Scenario 20: Large Paper Mill – Water Treatment and Reuse

Less freshwater. Lower cost. Cleaner environment. Sustainable operation.



FOR INDUSTRY.  
FOR PEOPLE.  
FOR A CLEANER  
AND MORE  
SUSTAINABLE PLANET.



**Up to 1,000 m<sup>3</sup>/day**  
of water recycled  
with 5 X200 units



**Significant cost savings**  
Lower freshwater purchase  
and wastewater disposal costs



**Zero liquid discharge**  
Contaminants recovered  
in concentrated form



**Reliable, continuous  
operation**  
Modular, scalable system



**Cleaner environment**  
A more sustainable  
paper industry



## Typical water use in a paper mill (indicative values)



**Raw material washing**  
5–15 m<sup>3</sup>/ton



**Pulping**  
10–30 m<sup>3</sup>/ton



**Papermaking**  
20–50 m<sup>3</sup>/ton



**Cleaning, CIP**  
5–20 m<sup>3</sup>/ton



**Total**  
40–100 m<sup>3</sup>/ton  
(depending on paper grade)

### Example:

1,000 m<sup>3</sup>/day of treated water  
= approx. 10,000–25,000 tons  
of paper/day  
(depending on paper type and  
water reuse rate in the process).



**Less freshwater**  
Up to 80–95%  
water savings



**Lower operating costs**  
Reduced water procurement  
and wastewater disposal costs



**Sustainable production**  
Cleaner environment  
and smaller ecological footprint



**CLEANER WATER.**  
**A STRONGER INDUSTRY.**  
**A BRIGHTER TOMORROW.**

[AQUAFISSION.COM](http://AQUAFISSION.COM)



# Scenario 21: Pharmaceutical Manufacturing – Ultra-Pure Water Production and Reuse

Higher safety. Lower water consumption. Lower cost. A more sustainable future.



FOR HEALTHIER  
PEOPLE.  
FOR A CLEANER  
PLANET.



## Ultra-pure water quality

Meets pharmaceutical standards (PW, WFI).



## Significant water savings

Up to 70–90% lower freshwater demand.



## Zero liquid discharge

Recover and reuse process water.



## Lower operating costs

Less water purchase and wastewater disposal.



## Environmental protection

Supports sustainable and responsible pharmaceutical production.

## Where is water used in a pharmaceutical factory? – Typical process flow

### 1. Raw material preparation



- Dissolving and mixing
- API (active ingredient) preparation
- Cleaning of equipment
- Process water

### 2. Solution preparation and formulation



- Buffer and media preparation
- Formulation
- Purified Water (PW)
- Water for Injection (WFI)

### 3. Production processes



- Synthesis and reaction
- Fermentation (biotech)
- Crystallization, filtration
- Process cooling and heating

### 4. Cleaning (CIP/SIP)



- Cleaning in Place (CIP)
- Sterilization in Place (SIP)
- Equipment and piping cleaning
- High-purity water

### 5. Laboratory and QC



- Analytical testing
- Sample preparation
- Rinse water
- Laboratory wash water

### 6. Utilities



- Cooling water
- Boiler feed water
- HVAC (humidification)
- General utilities

### 7. Final products



- Rinsing of containers
- Sterile water (WFI)
- Product formulation
- Equipment rinsing



## Key benefits for pharmaceutical manufacturing



**Up to 70–90% water savings**  
Dramatically lower freshwater consumption.



**Lower operating costs**  
Less water purchase and wastewater disposal costs.



**Smaller environmental footprint**  
Reduced effluent discharge. Supports sustainability goals.



**Reliable and safe operation**  
Consistent high-water quality for critical processes.



**Modular and scalable solution**  
Adapts to your site and future expansion.



CLEANER WATER  
FOR BETTER MEDICINES.  
FOR A HEALTHIER WORLD.

SUSTAINABLE  
PHARMA  
MANUFACTURING  
FOR GENERATIONS  
TO COME.

AQUAFISSION.COM



# Scenario 22: Cheese Production

## Greywater Treatment and Reuse with Aqua Fission

Turning process water into opportunity – Cleaner production. Lower costs. A more sustainable future.



FOOD  
PEOPLE  
PLANET  
A CLEANER FUTURE.

### Where is water used in a cheese factory?

#### 1. Milk reception



- Equipment cleaning
- Floor washing
- CIP (clean-in-place)

#### 2. Cheese making



- Process water (heating, cooling, brine preparation)
- CIP cleaning

#### 3. Molding & pressing



- Mold and press cleaning
- Whey handling
- Equipment rinsing

#### 4. Brining



- Brine preparation
- Tank cleaning
- Floor washing

#### 5. Ripening



- Humidification systems
- Cleaning

#### 6. Packaging



- Equipment cleaning
- Area washing

#### 7. Utilities



- Cooling water
- Boiler feed water
- HVAC (humidification)
- General service water

### Typical water consumption in a cheese factory



2 – 5 m<sup>3</sup> water per ton of cheese (depending on type and size)



Main uses: cleaning (CIP), process water, cooling, brine, utilities



Example: 50 ton/day factory = 100 – 250 m<sup>3</sup>/day



In this scenario: 200 m<sup>3</sup>/day of greywater from production processes available for treatment and reuse.



### Key benefits for cheese production



Up to 70–90% water savings  
Significantly reduces freshwater demand.



Lower operating costs  
Less water purchase and wastewater disposal costs.



Smaller environmental footprint  
Reduces effluent and supports sustainability goals.



Zero liquid discharge  
Concentrated residues in solid form.



Reliable and modular solution  
Fits small and large dairy operations (e.g. X200 = 200 m<sup>3</sup>/day).



CLEANER WATER.  
BETTER CHEESE.  
A HEALTHIER PLANET.

AQUAFISSION.COM



# Scenario 23: Steel Industry Application

## Process Water Treatment and Reuse with Aqua Fission

Less fresh water. Lower costs. Cleaner environment. A more sustainable steel industry.



STRONGER STEEL.  
CLEANER WATER.  
HEALTHIER PLANET.  
BRIGHTER TOMORROW.

### Where is water used in a steel plant?

#### 1. Raw material handling



- Dust suppression
- Conveyor and yard spraying
- Equipment cooling

#### 2. Coke plant



- Quenching
- Gas cleaning
- Equipment cooling

#### 3. Sintering / Pelletizing



- Cooling
- Dust control
- Process water

#### 4. Blast furnace



- Cooling systems
- Gas cleaning
- Slag granulation

#### 5. Basic oxygen furnace (BOF)



- Equipment cooling
- Gas cleaning
- Process water

#### 6. Continuous casting



- Secondary cooling
- Scale removal (descaling)
- Hydraulic systems

#### 7. Rolling mill



- Roll cooling
- High-pressure water
- Scale removal
- Emulsions and lubricants

#### 8. Utilities



- Cooling towers
- Boiler feed water
- HVAC
- General service water

#### 9. Other areas



- Wastewater treatment
- Sludge handling
- Sanitation
- Fire protection



#### Reused water for:

- ✓ Cooling systems
- ✓ Descaling
- ✓ Process water
- ✓ Dust suppression
- ✓ Utilities (cooling towers, boiler feed, HVAC)
- ✓ General service water

### Key benefits for the steel industry



Up to 70–90% freshwater savings  
Significantly reduces freshwater consumption.



Lower operating costs  
Less water purchase and wastewater disposal costs.



Smaller environmental footprint  
Reduced discharge and supports sustainability goals.



Zero liquid discharge (essentially ZLD)  
Concentrated residues in solid form.



Reliable and modular solution  
Designed for heavy industrial applications.



CLEANER WATER.  
STRONGER STEEL.  
A SUSTAINABLE FUTURE.

[AQUAFISSION.COM](http://AQUAFISSION.COM)



# 24. SCENARIO: DISASTER RELIEF

## Mobile Clean Water for People in Need

Rapid deployment. Safe drinking water. A brighter tomorrow.



PEOPLE  
PLANET  
DISASTER RESILIENCE.  
A STRONGER TOMORROW.

**Location 1: Coastal Earthquake Area**  
Seawater to drinking water



### CLEAN WATER BRINGS HOPE



12,000 – 15,000  
people per unit  
(daily drinking water supply)



100,000 pouches/day  
(0.5 L each)



Rapid deployment



No chemicals  
No membranes  
Zero liquid discharge



Safe people.  
Healthier communities.  
Stronger tomorrow.

**Location 2: Remote Disaster Area**  
Independent operation, anywhere



### Key advantages for disaster relief



Fast  
- deployment  
and operation



Decentralized  
- and independent



Turns seawater,  
brackish or  
contaminated water  
into safe drinking water



No fuel required  
(solar or hybrid)



Robust and reliable  
in harsh conditions



Low operating  
costs.



Immediate impact  
on people's health  
and well-being



WATER  
GIVES LIFE.  
ANYWHERE.  
ANYTIME.

AQUAFISSION.COM

FROM CRISIS TO CLEAN WATER. TOGETHER WE MAKE A DIFFERENCE.



# 25. SCENARIO: Field Hospital – Safe, Clean Water

## With the Aqua Fission mobile X50 system

Clean water for life-saving work. Anywhere. Anytime. In any location.



PEOPLE.  
COMMUNITIES.  
A CLEANER  
TOMORROW.

### Water sources – clean water from any source



Lake



River



Well



Sea

Aqua Fission can produce high-quality, clean water from various water sources.



Medical helicopter  
Emergency transport

Field hospital tent  
Emergency care, surgery, treatment

Field hospital containers  
Intensive care, diagnostics,  
laboratory, treatment rooms



**Aqua Fission X50**  
Daily capacity: 50 m<sup>3</sup> (50,000 liters)  
of purified water  
Rapidly deployable, mobile system



**Mobile water laboratory**  
Continuous water quality monitoring  
and laboratory analysis at every location.

### Purified water quality (ST108 Critical Water)

|              |             |                                                                                               |                            |
|--------------|-------------|-----------------------------------------------------------------------------------------------|----------------------------|
| pH           | 5.0 – 7.5   | Chloride                                                                                      | < 1 mg/L                   |
| Conductivity | < 10 µS/cm  | Sulphate                                                                                      | < 1 mg/L                   |
| Bacteria     | < 10 CFU/ml | Silicate                                                                                      | < 1 mg/L                   |
| Endotoxin    | < 10 EU/mL  | Total hardness                                                                                | < 1 mg/L CaCO <sub>3</sub> |
| TOC          | < 1.0 mg/L  | Water quality is verified at each location<br>by a mobile laboratory with laboratory testing. |                            |

### Capacity and supply

|                                                                                                                                   |                         |                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------------------------------------------------|
| <br>~ 150 patients<br>capacity                                                                                                    | <br>50 staff<br>members | <br>Daily 50 m <sup>3</sup><br>(50,000 liters)<br>of clean water |
| Sufficient for a field hospital with approx. 150 patients<br>and 50 staff members, covering the hospital's<br>daily water demand. |                         |                                                                  |

### Key advantages

|                         |                           |                       |                               |                                          |
|-------------------------|---------------------------|-----------------------|-------------------------------|------------------------------------------|
| <br>Rapid<br>deployment | <br>Reliable<br>operation | <br>Chemical-<br>free | <br>Versatile<br>applications | <br>Safe and<br>healthier<br>environment |
|-------------------------|---------------------------|-----------------------|-------------------------------|------------------------------------------|

[AQUAFISSION.COM](https://www.aquafission.com)

CLEAN WATER. HEALTHIER PEOPLE. STRONGER COMMUNITIES.



# 26. SCENARIO: Modern Campsite – Clean Water for Relaxation

With the Aqua Fission X200 system. Sustainable tourism. A cleaner environment. Happier guests.



PEOPLE.  
NATURE.  
CLEANER DAYS.  
BRIGHTER  
TOMORROWS.



Clean and  
safe water



Happier  
guests



Sustainable  
tourism



A cleaner  
environment



Stronger  
communities

Clean water.  
A freer life.  
Closer to nature.

**Motorhomes, tents and container homes**  
Comfortable, nature-based  
accommodation

**Aqua Fission X200**  
**Daily capacity: 200 m<sup>3</sup>**  
**of purified water**  
Compact, quiet, reliable  
Zero liquid discharge

**Beach and coastline**  
Pristine nature,  
clean experiences

**4 x 50 m<sup>3</sup>**  
clean water storage tanks  
Total: 200 m<sup>3</sup> buffer capacity

**Seawater intake**  
(seawater, lake, river  
or well water)

Reception →

Beach →

Restaurant →

Laundry →

Toilets →

**Restaurant**  
Local flavors, better experiences

SHOWERS

LAUNDRY

**Showers and laundry**  
Always clean water

## Purified water quality (ST108 Critical Water)



|                |             |                                                                                               |                            |
|----------------|-------------|-----------------------------------------------------------------------------------------------|----------------------------|
| pH             | 5.0 – 7.5   | Chloride                                                                                      | < 1 mg/L                   |
| Conductivity   | < 10 µS/cm  | Sulfate                                                                                       | < 1 mg/L                   |
| Bacteria count | < 10 CFU/ml | Silicate                                                                                      | < 1 mg/L                   |
| Endotoxin      | < 10 EU/mL  | Total hardness                                                                                | < 1 mg/L CaCO <sub>3</sub> |
| TOC            | < 1.0 mg/L  | Water quality is verified at each location<br>by a mobile laboratory with laboratory testing. |                            |

## Capacity and usage



**1,000 people**  
camping capacity



**200 m<sup>3</sup>/day**  
purified water



**200 liters/person/day**  
for comfortable  
and sustainable operation



## By-products

**Recovered salt**  
Approx. 8 tons/day  
(depending on seawater  
salinity)  
Non-hazardous,  
valuable for local use  
or commercial use

## Key advantages



Easy  
deployment



Chemical-  
free



Sustainable  
operation



Closer to  
nature

Aqua Fission – Clean water for today's people and tomorrow's generations.

[AQUAFISSION.COM](https://aqua-fission.com)



# 27. SCENARIO: Offshore Drilling Platform – Clean Water from the Ocean

With the Aqua Fission X50 system. Reliable operation. Self-sufficiency. A more sustainable future.



PEOPLE.  
ENERGY.  
CLEAN WATER.  
A SAFER  
TOMORROW.



Drinking water



Food preparation



Showers and hygiene



Laundry



Dishwashing



Better living conditions

Clean water in the middle of the ocean – greater safety, more efficient operations, and healthier, happier people.

## Aqua Fission X50

Daily capacity: 50 m<sup>3</sup>  
(50,000 liters) of purified drinking water  
Compact, reliable, low energy consumption

## Recovered salt

Approx. 2 tons/day (depending on sea water salinity)  
Regular collection by service vessel

## Service vessel

Regular removal of recovered salt and delivery of supplies (food, fuel, spare parts, etc.)

2 x 50 m<sup>3</sup>  
purified water storage tanks  
Total capacity: 100 m<sup>3</sup>

## Helicopter

Personnel transport and emergency response

## Emergency capsule

Safety for personnel in emergency situations

## Purified water quality (ST108 Critical Water)



|                |             |                |                            |
|----------------|-------------|----------------|----------------------------|
| pH             | 5.0 – 7.5   | Chloride       | < 1 mg/L                   |
| Conductivity   | < 10 µS/cm  | Sulfate        | < 1 mg/L                   |
| Bacteria count | < 10 CFU/ml | Silicate       | < 1 mg/L                   |
| Endotoxin      | < 10 EU/ml  | Total hardness | < 1 mg/L CaCO <sub>3</sub> |
| TOC            | < 1.0 mg/L  |                |                            |

Water quality is regularly verified by an independent laboratory with laboratory testing.

## Capacity and usage



150–200 personnel onboard



50 m<sup>3</sup>/day purified drinking water



250–300 liters/person/day of purified drinking water for comfortable, healthy operations

Drinking water, food preparation, showers, laundry, dishwashing and full platform infrastructure supply.

## Key advantages



Reliable operation



Low operating cost



Chemical-free



Zero waste (ZLD)



Safer and healthier work environment

Clean water. Reliable operations. Sustainable oceans.

AQUAFISSION.COM



# 28. SCENARIO: CLEANING CONTAMINATED GROUNDWATER

Safe drinking water for communities – with the Aqua Fission mobile X50 system

Removal of arsenic, acidification, heavy metals and other contaminants. Clean water. Healthier people. A brighter future.



PEOPLE.  
PLANET.  
SUSTAINABLE  
TOMORROW.

## Problem: Contaminated groundwater

Common contaminants:

- Arsenic
- Acidification (low pH)
- Heavy metals (e.g. lead, cadmium)
- Other pollutants (e.g. nitrates, fluorides, industrial or agricultural chemicals)

Raw water  
(from the well)

Well  
(contaminated groundwater)

Treated water  
(50 m<sup>3</sup>/day)

## Aqua Fission X50 – Key features

- ✓ Daily capacity: 50 m<sup>3</sup> of treated water
- ✓ No membranes
- ✓ No chemicals
- ✓ Removes arsenic, acidification, heavy metals and other contaminants
- ✓ Mobile, quick to deploy
- ✓ Can operate off-grid or from the local grid

- NO MEMBRANES
- NO CHEMICALS
- LOW ENERGY CONSUMPTION
- HIGHLY EFFECTIVE CONTAMINANT REMOVAL

Removed  
contaminants  
(concentration)

Concentrated  
contaminants tank  
(1 m<sup>3</sup>)

Transport to  
hazardous waste  
disposal facility

## Result:

- ✓ Safe and clean drinking water
- ✓ Healthier communities
- ✓ Use of local water resources
- ✓ Environmental protection
- ✓ Rapid response in emergency situations
- ✓ Sustainable solution

## Main advantages



Clean and safe  
drinking water



Healthier  
communities



Use of local  
water resources



Low operating  
costs



Mobile and  
rapid deployment



Safe handling  
and removal of  
contaminants



Cleaner environment.  
A more sustainable  
future.

*The true value of water lies beneath the surface. We bring a cleaner future.*

AQUA FISSION®  
CLEAN WATER  
GIVES LIFE.

AQUAFISSION.COM







# Poultry Farm – Closed-Loop Water Management

Clean Water for Healthy Birds, a Cleaner Environment

LESS WATER.  
LOWER COSTS.  
A HEALTHIER FARM.  
A CLEANER PLANET.

**1 RAW WATER SOURCE**  
e.g. well water, surface water  
or municipal supply

## CLEAN WATER USES ON THE FARM

- Drinking water for birds
- Cleaning and disinfection
- Cooling (pad systems)
- Humidification
- General process water

**2 PROCESS WATER (Used water)**

- Drinking system drainage
- Cleaning water
- Litter area runoff
- Cooling system blowdown
- Contaminated water (with organic matter, nutrients, pathogens, etc.)

**3 PROCESS WATER TANK**  
Collects all used water from the farm  
(~ organic matter, litter particles, nutrients, cleaning agents, etc.)

**4 AQUA FISSION PURIFICATION SYSTEM**  
Separates clean water from all solids and contaminants  
(no membranes, no chemicals, low energy, zero liquid discharge)

**5 CLEAN WATER TANK (for reuse)**

- High-quality purified water
- Reused on the farm
- Continuous circulation
- Reduces freshwater demand
- Stable, safe water supply

**PURIFIED WATER QUALITY**

- 99% potable water quality
- Free from bacteria, viruses
- Free from heavy metals
- Free from organic pollutants
- Suitable for animal use, cleaning and other farm processes

**6 WET SOLID PRODUCT (valuable by-product)**

- Nutrient-rich (N, P, K)
- Can be used as organic fertilizer
- Supports circular economy
- No liquid waste (ZLD)

Moist solid  
(fertilizer)

**KEY BENEFITS FOR POULTRY FARMS**

Up to 70–90% less freshwater use

Lower operating costs

Healthier birds and higher productivity

Minimal environmental impact

Zero liquid discharge (ZLD)

Sustainable and future-ready





Clean Water. Smarter.

Management Team & Partners



# The Founders



## Bryan Dawson, CEO



Bryan Dawson is a tech entrepreneur and business leader with a passion for applied innovation. His career spans diverse industries—from Fortune 50 manufacturing and hyperscale cloud infrastructure and Dell and Microsoft data centers to DOD, DOJ, information technology, software, and public affairs—driving transformation across both public and private sectors.



## Lajos Toth, President



Lajos “Lui” Toth is an entrepreneur and leader in marketing and innovation. His experience spans market research and technology commercialization across multiple industries for the world’s top five market research firms and blue-chip clients. He focuses on innovative, sustainable environmental and energy technologies.



# Executive Advisory Board & Owners



Agnes Nagy-Rado, Ph.D.

Executive Vice President  
and Chief of Staff

A cognitive psychologist and professor with deep expertise in professional development, communication, applied learning, vocational training, and process management. Agnes also has extensive experience as a translator and interpreter at both national and international levels, including the White House and the British royal household (Queen Elizabeth II).



George Rado

Chief Operating Officer –  
PlastiFission Project

George brings over 25 years of experience in marketing, business planning, process management, sales, and quality control within the U.S. private sector. He has more than 15 years of executive leadership experience across education, healthcare, technology, and professional training, successfully guiding multiple organizations from start-up to established enterprise. His current focus is on innovative renewable energy and recycling technologies alongside his leadership role as CEO of TTL USA, Inc.



Dezso Karpati

With more than 20 years of experience, “Dez” has led B2B and B2C initiatives across diverse industries. With deep experience in business development, strategic planning, sales, consulting, and project management, Dez brings a global perspective, with deep experience across U.S., Latin American, and European markets. He has a proven track record of building and scaling companies—particularly in the manufacturing sector—and is committed to advancing durable, high-impact solutions that support a cleaner, safer, and more sustainable future.



# Executive Advisory Board & Owners



## Peter Vegh

Entrepreneur and business developer with 25+ years of experience leading ventures in hospitality, franchising, and sustainable technology. He built and managed Ristorante Mercatino to the John Bull Pub franchise operating in 9 countries and drove technical innovations, including EV-charging communication towers and the Screenest Infolayer media platform. He is dedicated to bringing Aqua Fission's breakthrough desalination and water treatment technology to market.



## Agnes Bozi

Agnes Bozi is focused on European business development and international commercial growth, primarily in Scandinavia, Italy and Spain. Her sales leadership experience includes cross-border market expansion in the environmental technology sector. In addition to her business role, she has a distinguished athletic background in long-track speed skating, including Swedish national records and senior Sprint-SM success—experience that reinforces a profile of discipline, competitiveness, and execution under pressure.



## Zsombor Csaba Keri

Zsombor Csaba Keri has deep experience in project management, industrial construction, and development leadership. He brings more than 10 years of experience in execution, construction, and project management in the building industry, supported by an MSc in Architectural Engineering. His recent work has focused on sustainable architecture, industrial construction, and the preparation and installation of renewable energy and energy storage initiatives across Europe.



# Executive Advisory Board & Owners



## Istvan Zentai

Istvan Zentai, MSc, is an electrical engineer with extensive experience in the management of national and international projects. Istvan is a space policy expert who completed the postgraduate [Unispace university] program. He serves as Advisor to the Board of the IT Section of the Hungarian Chamber of Engineers and as Chairman of the Board of Trustees of the [Spacebuzz] Hungary Education, Climate and Environment Public Benefit Foundation.



## Zsuzsa Dobi

Account Management, EU  
With nearly 20 years of experience in sales support, relationship building, and market expansion, Zsuzsa helps connect customers and partners with Aqua Fission's breakthrough water treatment technology that supports sustainability, operational efficiency, and long-term value. She focuses on identifying new business opportunities, developing partner networks, and delivering practical, client-focused commercial solutions.



## Benedek Kaban

Head of Technology at the National Film Institute – Film Archive, responsible for technology strategy, digitalization, processing, and long-term preservation of celluloid and born-digital film heritage. Brings over 20 years of international experience in digital film technology as a colorist, post-production supervisor, and film digitization consultant. Experienced in developing digital workflows, technical facilities, archival environments, and professional training at universities & industry programs.



# Executive Advisory Board & Owners



## Szilard Dobi

Account Management, EU  
With over 20 years of experience in client support, relationship management, technical coordination, and business development, Szilárd combines strong operational discipline with hands-on commercial experience, helping customers and partners find practical solutions that support sustainability, performance, and long-term value. At Aqua Fission, he focuses on building trusted relationships and supporting growth through responsive, client-focused account management.



## Mesut Sönmez

Mesut Sönmez is General Manager of [Bartay Otomasyon], an authorized Aqua Fission reseller headquartered in Bursa, Türkiye. He is a senior business leader with over 20 years of experience in industrial automation and water treatment solutions. He leads complex infrastructure projects across Türkiye and the Middle East, delivering scalable and sustainable systems. Through strong international partnerships, he works with global stakeholders to drive innovation and long-term value.



## Tamas Nemet

Tamas Nemet would substantially contribute to TTL USA INC. – Aqua Fission Projects through his seasoned expertise in technological training and project management. His role would encompass designing and implementing comprehensive training programs, ensuring a highly skilled workforce in water treatment and desalination. Leveraging his extensive project management experience, he would streamline initiatives, optimize operations, and ensure the timely delivery of projects.



# Executive Advisory Board



Jahan Moghadam, Ph.D.

Jahan has 25+ years of experience in renewable energy, oil & gas, and technology across four continents. He has held leadership roles at major companies, built strategic partnerships with global corporations, and serves on multiple boards, including Oranto Petroleum (Africa's largest indigenous oil and gas company) and the UVA McIntire School Advisory Board. He has built partnerships with major corporations and institutions such as Pertamina, BNP Paribas, GE, Siemens, and Technip.



John Jackson

John is a graduate of the U.S. Naval Academy where he studied Aerospace, Aeronautical and Astronautical Engineering. He earned his Nuclear Power School Certification and served as a Los Angeles-class submarine officer. He has extensive experience leading cutting-edge services and technology solutions across diverse industries. His expertise spans program management, data centers, business development, R&D, software, manufacturing, supply chain management, and global deployment.



Prince Arthur Eze

Prince Arthur Eze is the founder of Atlas Oranto Petroleum International, one of Africa's most prominent independently owned oil exploration and production companies. He studied mechanical and chemical engineering at California State University, Long Beach. Beyond his business achievements, Prince Eze is widely known for his philanthropy and long-standing investment in social infrastructure, including hospitals, university projects, roads, water access, rural electrification, and wider community development initiatives in Ukpou and across Nigeria.





Robert Auer, Ph.D.

Robert has deep experience across the energy, chemical, and sustainability sectors, spanning industry, academia, and public institutions. A chemical engineer, he has led major R&D, innovation, and commercialization initiatives across renewables, waste-to-fuel, CO<sub>2</sub> utilization, and advanced fuels. He holds leadership roles in circular economy and served as an expert evaluator for the European Commission on Horizon Europe and Innovation Fund projects, with a strong focus on hydrogen, energy storage, carbon capture, and energy-intensive industries.



Pál Zoltán Lukács

A senior academic and industry leader with deep expertise in sustainability, circular economy, and recycling technologies. He has held professorial and senior research roles across multiple Hungarian universities and currently serves as Director of the Circular Economy Sustainability Competence Center at the University of Pannonia, as well as Technical Director of the FIEK industry-academia cooperation program. His government ministerial advisory work includes national waste policy.



Robert Tuba, Ph.D.

Dr. Robert Tuba is a leading researcher in green chemistry. As head of the Green Chemistry Research Group at Hungary's Research Centre for Natural Sciences, his work focuses on sustainable chemical processes and environmentally responsible technologies. Research appointments include Texas A&M University and Caltech, placing him at the intersection of academic excellence and applied innovation. He is a Fulbright Research Fellow at Yale University's Center for Green Chemistry & Green Engineering,



# Our Strategic Partners



## GanzAir

GanzAir is an engineering and manufacturing company with deep experience in compressors, gas systems, welded structures, installation, and after-sales service. The company participates in hundreds of projects each year, has delivered thousands of units, and operates under ISO 9001, ISO 14001, and ISO 45001 management systems. GanzAir brings custom-engineering capability, industrial fabrication base, and full lifecycle service support to Aqua Fission.



## BDO Hungary

BDO Hungary is a leading financial consulting and advisory firm with capabilities spanning audit, tax, legal, IT, corporate finance, FDI advisory, and ESG. Its dedicated ESG practice provides support in sustainability strategy, ESG implementation, and evolving reporting requirements such as CSRD and ESRS. With a clear institutional focus on sustainable business and an established ESG advisory platform, BDO helps Aqua Fission enhance ESG alignment, improve investor and stakeholder confidence, and support sustainability-driven growth across multiple markets.



## Marsh

Marsh is a global leader in insurance broking and risk management, bringing more than 150 years of experience, deep industry specialization, and a broad platform of advisory, brokerage, and claims services. Its expertise spans energy and power, infrastructure, manufacturing, environmental risk, political risk, and risk analytics—all key to Aqua Fission's international growth strategy, helping structure insurance, mitigate country and project risk, and strengthen overall project bankability.





  
TTL USA Inc.  
USA  
Washington DC.

  
Aqua Fission  
USA  
Washington DC.

  
Aqua Fission  
USA  
Miami, Florida

  
Aqua Fission  
CHILE  
Santiago de Chile

  
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Audits and Validation



# Cyprus SGS Audit 1



# SGS

Date: 14 DEC 2015

Location: Aradippou, Cyprus

Water Type: Contaminated, saline groundwater

Parameters tested: Water and Electricity Consumption and Water Analysis



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## SGS Testing 14 DEC 2015

| Aradippou, Larnaka, Cyprus              | RL    | BEFORE       | AFTER        |
|-----------------------------------------|-------|--------------|--------------|
| Volume Meter                            | NA    | 244.84       | 510.4        |
| Electricity Consumption kWh             | NA    | 951127       | 951309       |
| Energy Efficiency                       | NA    | NA           | 0.685344178  |
| pH                                      | 0.1   | 7.2          | 6.8          |
| Conductivity (US/CM)                    | 1     | 13200        | 125          |
| Dissolved Oxygen Before mg/L            | 0.5   | 3.7          | 5.4          |
| Free Chlorine (Cl <sub>2</sub> ) mg/L   | 0.01  | 0.02         | <0.01        |
| Total Chlorine (Cl <sub>2</sub> ) mg/L  | 0.01  | 0.16         | 0.02         |
| Hardness MG/L                           | 1     | 4400 ±173    | 14 ±189      |
| Fixed residue at 180 °C (mg/L)          | 1     | 10800 ±173   | 162 ±8       |
| Sulphate mg/L SO <sub>4</sub>           | 1     | 3240 ±188    | 4 ±1         |
| Nitrate mg/L NO <sub>3</sub>            | 1     | 30 ±2        | <1           |
| Chloride mg/L                           | 0.1   | 3380 ±194    | 27 ±1.8      |
| Fluoride mg/L                           | 0.2   | 1.1 ±0.2     | <0.2         |
| Bicarbonate (as HCO <sub>3</sub> ) mg/L | 1     | 267 ±107     | 2.4 ±1       |
| Nitrite mg/L                            | 0.03  | 0.12 ±0.03   | <0.03        |
| Aluminium mg/L                          | 0.01  | 0.02 ±0.01   | 0.03 ±0.01   |
| Arsenic mg/L                            | 0.001 | 0.002 ±0.001 | <0.001       |
| Cadmium mg/L                            | 0.001 | <0.001       | <0.001       |
| Chromium mg/L                           | 0.005 | <0.005       | <0.005       |
| Iron mg/L                               | 0.01  | 0.03 ±0.01   | 0.11 ±0.03   |
| Mercury mg/L                            | 0.001 | <0.001       | <0.001       |
| Manganese mg/L                          | 0.001 | 0.045 ±0.010 | 0.007 ±0.005 |
| Nickel mg/L                             | 0.005 | 0.022 ±0.005 | 0.015 ±0.005 |
| Lead mg/L                               | 0.001 | 0.003 ±0.003 | 0.001 ±0.002 |
| Antimony mg/L                           | 0.001 | <0.001       | <0.001       |
| Selenium mg/L                           | 0.01  | 0.06 ±0.01   | <0.01        |
| Vanadium mg/L                           | 0.005 | <0.005       | <0.005       |
| Sodium mg/L                             | 0.05  | 1700 ±221    | 13.0 ±1.71   |
| Calcium mg/L                            | 0.1   | 606 ±61      | 0.4 ±0.1     |
| Magnesium mg/L                          | 0.05  | 640 ±87.6    | 2.00 ±0.34   |
| Potassium mg/L                          | 0.1   | 64 ±8.3      | 0.6 ±0.1     |
| Boron mg/L                              | 0.1   | 3.7 ±0.5     | <0.1         |
| Copper mg/L                             | 0.001 | 0.016 ±0.004 | 0.044 ±0.008 |
| Silica (as SiO <sub>2</sub> ) mg/L      | 0.5   | 33           | <0.5         |



# Cyprus SGS Audit 2



**SGS**

Date: 12 and 13 JAN 2021

Location: Moni, Cyprus

Water Type: Seawater

Parameters tested: Electricity Consumption

| Moni, Cyprus                | RL | BEFORE   | AFTER       |
|-----------------------------|----|----------|-------------|
| Volume Meter                | NA | 29184.54 | 29290.28    |
| Electricity Consumption kWh | NA | 7442.4   | 7531.7      |
| Energy Efficiency           | NA | NA       | 0.844524305 |



# Water Analysis



Date: 10 SEP 2021

Location: CYPRUS

Water Type: Wastewater from Dairy / Cheese Factory



PANKEMI LAB

| Determination                              | Method         | Result | Units         |
|--------------------------------------------|----------------|--------|---------------|
| Conductivity                               | APHA 2510      | 302    | µS/cm         |
| pH                                         | APHA 4500-H    | 7.07   | ---           |
| Total Hardness (TH)                        | APHA 2340 B    | 6.31   | mg/L as CaCO3 |
| Total Dissolved Solids (TDS)               | APHA 2540 C    | 210    | mg/L          |
| Sulphates (SO <sub>4</sub> <sup>2-</sup> ) | ASTM D516      | <0.5*  | mg/L          |
| Nitrates (NO <sub>3</sub> <sup>-</sup> )   | APHA 4500-NO3  | 1.3    | mg/L          |
| Nitrites (NO <sub>2</sub> <sup>-</sup> )   | APHA 4500-NO2  | <0.01* | mg/L          |
| Chlorides (Cl <sup>-</sup> )               | APHA 4500-Cl   | 10     | mg/L          |
| Boron (B)                                  | ISO 11885:2009 | <0.01* | mg/L          |
| Sodium (Na)                                | ISO 11885:2009 | 6.99   | mg/L          |
| Magnesium (Mg)                             | ISO 11885:2009 | 0.12   | mg/L          |
| Calcium (Ca)                               | ISO 11885:2009 | 2.36   | mg/L          |



# Waste Analysis



Date: 10 SEP 2021

Location: CYPRUS

Water Type: Solid waste Nutrient Analysis from Dairy  
/ Cheese Factory



PANKEMI LAB

| Parameter                        | Method                   | Result | Units |
|----------------------------------|--------------------------|--------|-------|
| Moisture                         | CEN/TS 15414:2011        | 12.1   | %     |
| Protein                          | ISO 1871:2009            | 7.12   | %     |
| Fat                              | ISO 8262-3:2005          | 2.44   | %     |
| NaCl                             | APHA 4500-Cl             | 65.2   | %     |
| Magnesium (Mg)                   | EPA 6010C                | 789    | mg/Kg |
| Calcium (Ca)                     | EPA 6010C                | 0.60   | %     |
| Phosphorous (P)                  | EPA 6010C                | 0.28   | %     |
| Sodium (Na)                      | EPA 6010C                | 24.2   | %     |
| Calorific value (G) as it is     | EN 15400:2011            | 6677   | KJ/Kg |
| Calorific value (G) in dry basis | EN 15400:2011            | 7596   | KJ/Kg |
| Lactose                          | ISO 22662:2007 / HPLC-RI | 0.70   | %     |



# Water Analysis



Date: 9 SEP 2025

Location: Hungary

Water Type: Process Water

Parameters tested: Physical and Sensory Characteristics

| Characteristics                                     | Input                                                                                                                         | Output                                                                                                                                           |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Color                                               | Process water: Pale greenish                                                                                                  | Clear                                                                                                                                            |
| Odor                                                | Contaminated, pungent odor                                                                                                    | Odorless                                                                                                                                         |
| Turbidity                                           | Turbid                                                                                                                        | Clear                                                                                                                                            |
| Electrical Conductivity [ $\mu\text{S}/\text{cm}$ ] | Exceeds measurement limits<br>(above 2500 $\mu\text{S}/\text{cm}$ – non-compliant<br>with legal requirements, excessive salt) | 63 $\mu\text{S}/\text{cm}$<br>(50–200 $\mu\text{S}/\text{cm}$ corresponds to soft<br>water with low salt content, e.g.<br>mountain spring water) |
| TDS                                                 |                                                                                                                               | 40.95 ppm                                                                                                                                        |
| pH                                                  | 8.65                                                                                                                          | 7.6                                                                                                                                              |





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FAQs



## 1) Is There a Limit on Aqua Fission's Capacity?

No. Aqua Fission is modular, mobile, and infinitely scalable. Each unit operates independently and minimizes any potential downtime. Adding capacity is as easy as adding additional units.

## 2) What is Aqua Fission's Energy Consumption?

Aqua Fission, per SGS audit and certification, achieved a remarkable net energy consumption of 0.72 kWh/m<sup>3</sup> in a seawater desalination configuration. Total consumption can be impacted by factors such as distance from water source and TDS.

## 3) What are Aqua Fission's Electrical requirements?

Our standard configuration requires a three-phase connection with at least 3x32A (~22 kW), preferably 3x40A (~27–28 kW) to have a margin for peaks and inrush currents.

## 4) How much does Aqua Fission Weigh?

Each system weighs 9-10 tons empty depending on configuration. Filled, the weight is approximately 20-22 tons.





# 22 FAQs

Confidential

## 5) What is Aqua Fission's Footprint?

The ISO container is ~2.44 m x ~2.59 m. However, the site requires technical passage and space to accommodate maintenance and hauling bulk salt and must adhere to local codes. For example, in most parts of the EU, an Aqua Fission X200 water treatment plant of 75 units, requires approximately 4,000 m<sup>2</sup> when complying with technical / truck road access requirements.

## 6) What is Aqua Fission's Delivery Lead Time?

Delivery lead time depends on configuration, project size, and site requirements. In general, Aqua Fission systems can be manufactured in 16-20 weeks.

## 7) What Site Preparation is Required?

Site preparation depends on the application and number of units, but typically includes a stable foundation, access for delivery and service vehicles, feedwater connection, electrical connection, discharge and byproduct handling plan, and space for safe technical passage. For seawater and other open-source applications, pre-screening and a separation tank may also be recommended to optimize efficiency.





# 22 FAQs

Confidential

## 8) Does Aqua Fission require Discharge Infrastructure?

No. Aqua Fission is a Zero Liquid Discharge (ZLD) system and creates no toxic brine output or Reverse Osmosis Concentrates (ROC's). We can retrofit into existing Reverse Osmosis plants to double capacity, process brine reject, and eliminate toxic discharge.

## 9) Can Aqua Fission operate off-grid with solar power?

Yes. Aqua Fission's ultra-low energy platform is ideal for off-grid solar deployment.

## 10) Does Aqua Fission Experience Corrosion or Scaling?

No, this is another important differentiator. Aqua Fission operates in an anaerobic environment, eliminating risk of rust or scaling.

## 11) Remote Monitoring and Reporting?

Yes. Aqua Fission uses advanced software, sensors, and controls to monitor operating conditions and optimize performance and ensure system security. Operators track key metrics such as volume, energy, stability, and output quality. Customers are provided access to a reporting dashboard.





# FAQs

Confidential

## 12) How much water is required to produce 200 m<sup>3</sup>?

Aqua Fission is highly efficient. To output 200 m<sup>3</sup> of clean water, we process ~202.6 m<sup>3</sup> water. This varies based on water density, saline percentage, or other contaminants. On the other hand, on average, Reverse osmosis must process approx. 400-500 m<sup>3</sup> to achieve 200m<sup>3</sup> of clean water output while leaving behind 200-300 m<sup>3</sup> of toxic brine and chemical-laden Reverse Osmosis Concentrates (ROCs).

## 13) What Types of Water can Aqua Fission Process?

Aqua Fission treats virtually any type of water without chemicals, consumables, or toxic brine discharge.

## 14) Filter or Membrane Replacement?

No. Aqua Fission uses no membranes, filters, chemicals or other costly consumables.

## 15) Does Aqua Fission Help Meet ESG Goals?

Yes! Aqua Fission helps organizations meet ESG goals by turning contaminated or saline water streams into reusable water while reducing waste, discharge, and environmental risk.





# 22 FAQs

Confidential

## 16) Can I Choose Between Potable or Irrigation Water?

Yes. Unlike reverse osmosis, our technology is non-linear and mimics the natural water cycle: just as clouds rising from the sea carry light minerals, the vacuum distillation process entrains only the lightest ions, producing naturally mineralized “living” water without artificial additives or post-processing. Aqua Fission uses proprietary, AI-driven software that can be configured for different water outputs, such as irrigation water, that require higher levels of mineralization, mineralized potable water, or de-mineralized H<sub>2</sub>O.

## 17) Environmental Impact Considerations?

Aqua Fission remediates the environment. We can decontaminate leachate from landfills, water containing arsenic, mercury, and heavy metals, remediate contaminated boreholes and aquifers, and retrofit into existing Reverse Osmosis plants to process brine and eliminate toxic discharge. Aqua Fission’s ultra-low energy platform is off-grid ready eliminating CO<sub>2</sub> emissions, meeting ESG and COP30 goals.

## 18) Does Aqua Fission use Chemicals?

No. Aqua Fission requires no consumables.





# 22 FAQs

Confidential

## 19) Does Aqua Fission Require Pre- or Post-Treatment?

No. Aqua Fission uses no filters or membranes and requires no pre- or post-treatment. For optimal performance, we recommend a screen and separation tank to prevent fish, sand, sargassum, and other debris from entering the system.

## 20) Can Units be Moved for Emergencies?

Yes. Aqua Fission units can be relocated when needed and are easy to deploy and mobilize, making them suitable for rapid deployment in emergency situations.

## 21) Has Aqua Fission been Tested by Third-Parties?

Yes. Aqua Fission has successfully completed multiple industrial-scale pilot projects, producing hundreds of millions of liters of clean water. The technology has been audited and validated by SGS and the University of Athens and is manufactured in the European Union under CE-compliant production standards.

## 22) Does Aqua Fission Need to Heat Water?

No. Unlike Reverse Osmosis, there is no need to heat source water. In addition, Aqua Fission can intake hot water and cool it.





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Social Responsibility



# Aqua Fission Technical Sports Division

The TTL USA Inc. Aqua Fission Technical Sports Division is dedicated to identifying, supporting, and fostering the long-term development of exceptional young talent in technical sports.

The initiative goes beyond traditional sports sponsorship. Building on TTL USA's technological and engineering expertise, the Division provides professional support, engineering knowledge, international competition opportunities, and a structured development pathway for young talents whose abilities, commitment, and performance demonstrate the potential to reach the international elite in their respective sports.

The Division's first flagship driver development program supports the international racing career of **Ádám Hideg**. Its long-term objective is to build a professional program combining technical development, physical preparation, and international competition experience, creating a pathway toward the highest levels of motorsport. The Division is led by **Péter Nemes**, who also serves as Manager of Ádám Hideg. **Technology drives progress. Talent shapes the future.**





# SpaceBuzz -Inspiring the Next Generation



An important part of TTL USA Inc.'s social responsibility is supporting the education, technological curiosity, creativity, and environmental awareness of the next generation. István Zentai, a member of the TTL USA Inc. team, also serves as Chairman of the Board of Trustees of the SpaceBuzz Hungary Foundation, which inspires the next generation through an innovative, experience-based educational program.

SpaceBuzz Hungary is a free STE(A)M educational program, primarily designed for children aged 10–12, connecting space exploration and technology with knowledge about our planet, climate, and environmental responsibility. A central element of the program is the Hungarian-developed VR space cabin, which allows young participants to experience a virtual journey into space and discover the unique perspective astronauts gain when viewing Earth from space – the Overview Effect.



Through technology and experiential learning, the program develops communication, collaboration, creativity, and problem-solving skills, while inspiring young people to explore science and technology and to think responsibly about the future of our planet. 400+ schools • 15,000+ students reached • 800+ trained volunteer teachers. **Inspiring young minds to explore technology, understand our planet, and shape the future.**







AQUA FISSION

Clean Water. Smarter.

Redefining Sustainable Water Desalination and Water Treatment



[www.aquafission.com](http://www.aquafission.com)

e-mail: [agnesbozi@aquafission.com](mailto:agnesbozi@aquafission.com)

[www.technologytransferlabs.org](http://www.technologytransferlabs.org)