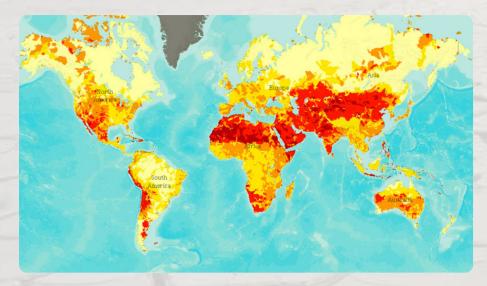


Sustainable Desalination. Making water from the sea & sun.

Water. Challenge of the century.



Water scarcity is rapidly increasing.

Already today, 4 billion people are affected by water shortages. Water is part of everything we do; the food we eat, the energy we consume and the products we use. By using more water than we receive, our aquifers, rivers and lakes are disappearing. Water shortages result in pressure on the supply of food and production of goods, leading to migration and possible conflict. With an increasing population and climate change accelerating water scarcity, water to me is the biggest challenge for humanity in the 21st century.

As water experts and cleantech specialists, it's our mission to be part of a sustainable solution for water scarcity. We believe it's possible to move from scarcity to abundance by implementing proven solutions with a positive, long-term impact.



Desalination using Earth's abundant resources.

How can water be scarce if 70% of the Earth's surface is covered by water? With only a small fraction fresh water and even a smaller fraction accessible for consumption, the key to water access lies in the sea. Desalination is the obvious solution, with reverse osmosis as the preferred technology. Standard reverse osmosis solutions need lots of energy, chemicals are used and they're a headache to maintain. This results in water with high cost and environmental impact.

Elemental Water Makers provides desalination solutions that make affordable water in a sustainable way. We use unique energy recovery technology to save 70% of the required energy, we avoid the use of chemicals and we can run off-grid on solar energy. Together, this results in a sustainable supply with the lowest cost of ownership. Join us in solving fresh water scarcity, using only the sea & sun!

Securing fresh water since 2012.

Without limiting tomorrow.

The right solution for your application. Desalination up to 100 m³ of clean water daily.



Off-grid or hybrid use Elemental Water Source.

- 70% less electricity
- 100% off-grid by solar, or hybrid
- Containerized, plug & play
- No chemicals
- Reduced brine salinity
- Easy operation & maintenance



On-grid or local use Efficient Water Maker.

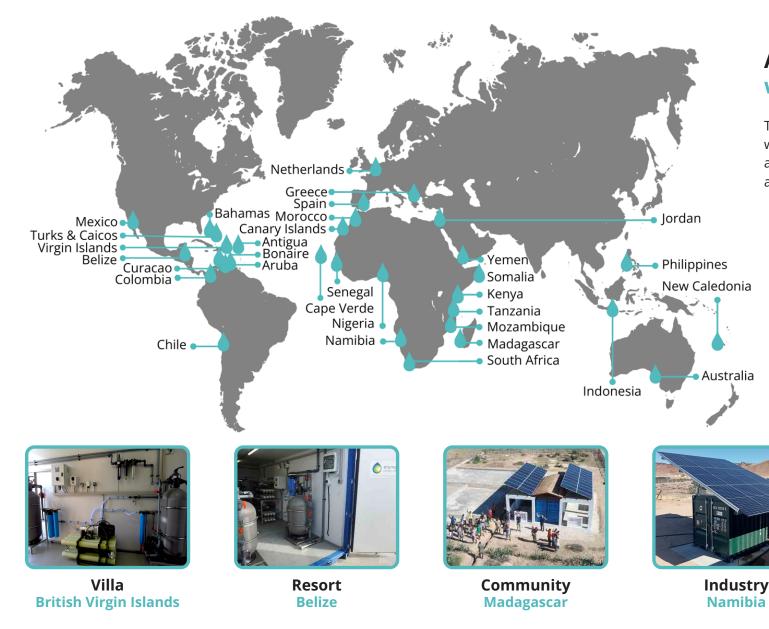
- 70% less electricity
- Grid-tied or locally powered
- Containerized or skid-built
- No chemicals
- Reduced brine salinity
- Easy operation & maintenance



Temporary & portable use Elemental Water Response.

- 70% less electricity
- 100% off-grid by solar or locally powered
- Portable pelicases, 1x solar 1x water
- Deployed in minutes
- Reduced brine salinity
- Easy operation & maintenance

Dutch expertise. Global impact.



A proud tradition of water engineering.

The Dutch are well known for their water skills. Water is in their genes, with a history that revolves around water adaptation. Bring in the Dutch!



Crises Response Philippines

Water for all.

Numerous applications. Ready to quench your thirst.

Water is a part of everything we do. Reliable access to high-quality water is crucial for any resort, community, municipality, government or industry.

Expenses of a resort can be quite significant. The utility companies charge high water rates to resorts. A private desalination solution contributes heavily to the electricity bills. What if the water supply could become good for your wallet and for the Earth?

Today, 1 in 9 people lack access to safe water. Women are disproportionately affected, as they are often responsible for collecting water. It's also a matter of health; every 90 seconds a child dies from a water-related disease. What if we can improve health and enable empowerment & education? It's time to break the cycle of poverty for communities.



Villas



Resorts

Municipalities or utility companies are responsible for the water supply. Efficient desalination technology lowers the operational expenses and opens the door to decrease the region's water tariffs. Decentralized water supply avoids transportation losses, unwanted tapping or sending trucks. It's possible to realize sustainability and water goals through desalination by renewable energy.



Communities



Industries

Water is the passion of island owners and the playfield for architects and developers. It's an essential part of the stunning vistas and key to privacy. But it also creates an expensive sustainability issue. Cutting electric cost entirely and using remote monitoring, fresh water is delivered without concerns. Fresh water has never been so easily obtainable or this free of guilt.

We do reverse osmosis. Without the downsides.

Powered by nature with solar or your energy.

Reverse osmosis has been used for decades to provide drinking water from seawater. We provide efficient reverse osmosis technology powered by the sunshine or your electricity supply.

Desalination without the huge energy bills.

Reverse osmosis can be quite energy intensive, leading to high operational expenses. We enable affordable water by realizing energy efficient solutions powered by solar energy.

A nightmare to maintain and operate? Not anymore.

Membrane fouling, rusty components, an empty water storage in the morning, these worries are in the past. Through constant operation and automated fresh flushes, the membrane lifetime is maximized. All components in contact with salt water have been carefully selected to resist corrosive environments and have a minimum of maintenance. Operation becomes stress-free through remote monitoring, control and automation.



Save up to 70% on water expenses

Enjoy big savings by avoiding the use of electricity, attractive return on investment.



Reliable & independent water supply

Independent on the availability and price of electricity, with a reliable water supply throughout the year.



Sustainable using unlimited resources

Utilizing the abundant resources of the sea and sun. No chemical required.



Stress-free operation & remote monitoring

You can check-in on your water supply, anywhere, anytime. No more surprises thanks to automated messages.

Energy recovery technology. We re-use to reduce the required energy up to 75%.

Traditional desalination uses a lot of energy, making it expensive.

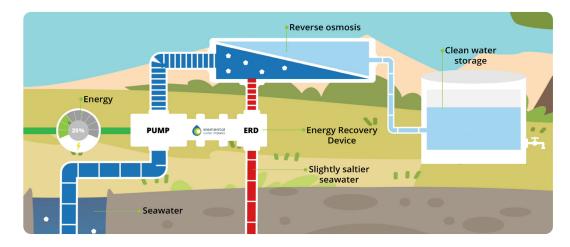
With 97% of all water on Earth being salty, the key to solving freshwater scarcity lies in the sea. However, traditional small-scale reverse osmosis technology uses a lot of energy, making desalinated water expensive. Fossil-fuels used for desalination contribute to climate change, which accelerates freshwater scarcity, making matters worse.

Reliable & affordable water by innovative Energy Recovery Technology.

By re-using the saltier water flow of the reverse osmosis process, we are able to reduce the amount of required energy up to 75%. In large desalination plants, this is already mainstream. We have made this unique technology available for small-scale desalination, allowing us to work with much less energy. Our energy recovery technology is maintenance-free.

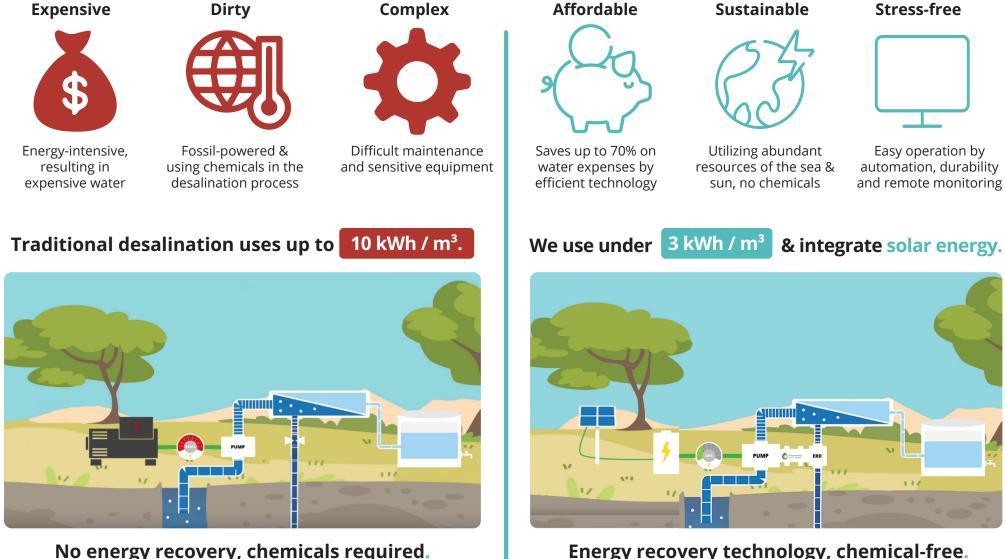
Solar energy integration for sustainable off-grid water.

To ensure off-grid clean water at places where energy is either expensive or unavailable, we have developed the desalination technology to benefit solar energy. This means no fossil-fuels are required for its operation, making it a truly sustainable solution by only using unlimited resources of the sea & sun.





Traditional versus our technology.



No energy recovery, chemicals required.

When it comes to water quality

no one can afford to compromise.

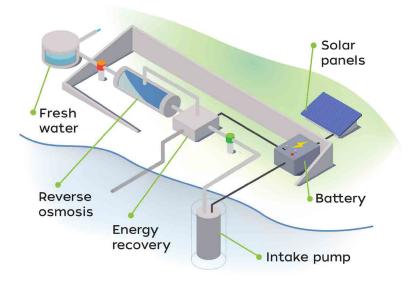
Solar off-grid & hybrid desalination.

Elemental Water Source: Plug & play solar desalination.

The Elemental Water Source turns seawater into fresh water using only solar energy. It runs completely off-grid or hybrid, providing a constant water output by utilizing state-of-the-art battery technology to ensure a long-lifetime of the equipment. By innovative Energy Recovery Technology, the system uses 70% less energy than standard desalination, and therefore requires 3x less solar panels. Using a unique water treatment design, the system runs completely without any chemicals and has a minimized brine salinity. Sustainability and limited cost go hand-in-hand, producing water for the lowest water rates using only seawater and sunshine.

The solution can be deployed quickly due to its containerized, plug & play nature. It's very easy to operate through a single button interface. Maintenance is made as simple by the use of durable components, remote monitoring & automation. After commissioning, we train the local operator(s) to operate and maintain the system. Ongoing support during operation is available.

	Elemental Water Source	Standard solar desalination
Chemicals Used	No, free of chemicals	Yes, anti-scalants & CIP
Use of Surplus Energy	Yes, battery modules	No energy storage
Constant Operation	Yes, at maximum flow	No, fluctuating flows, start/stop
Membrane Life	Maximum by flush & constant	Decreased by fluctuating flows
Energy consumption	3 kWh/m³	10 kWh/m³
Free Support for 1 year	Yes	No





Namibia.

Sustainable water supply in the desert.



"Working with Elemental Water Makers has been an absolute pleasure. Their proactive approach and support throughout the various project phases enabled us to implement a no-nonsense solution in one of the most arid places on this planet. Thank you for enabling life in the desert!

> Oliver Rust Jojoba for Namibia Trust





4m³/day fresh water

75% total savings



Components.

Containerized, plug & play solar desalination solution that comes pre-assembled as one complete package.





Solar panels & frame

High-performance, corrosive resistant & theft-proof solar panels with 25 years warranty, mounted on wind resistance frame up to loads of 158 km/hr.



Flush water storage

Temporary water storage for clean water before distribution on-site. It feeds the automatic fresh flush to maximize membrane lifetime during standstill.



Intake pump

Highly corrosive resistant intake pump for shallow intakes that provides sufficient pressure & flow. For a deeper intake, a submersible pump will be used.



Pre-treatment

Multi-media filter with glass media that can be manually backwashed, followed by cartridge filters that together remove all particles larger than 5 microns.



Reverse osmosis incl. energy recovery

Desalination step that removes salts, bacteria, and viruses. Energy consumption reduced by 70% using maintenance-free energy recovery technology, leading to 3x less solar panels.



Post-treatment

Remineralisation of the desalinated water plus a UV and activated carbon filtration before the point of use to ensure the water quality after storage.

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Remote monitoring & control

Both the water and energy system are standard equipped with remote monitoring and control. Water quality is measured 2x per second and performance can be monitored.



Energy storage

Maintenance-free LiFePO4 batteries that can cope with warm climates, used to overcome solar fluctuations during the day, ensure the water quality and allow for additional options.



Container

Protects equipment from external influences and can be easily locked. Several custom modifications are possible here. Doors can be closed during operation.



Automated fresh flush

To ensure a long membrane lifetime, the unit has an integrated automated fresh flush that cleans the membranes with a small amount of fresh water during periods of standstill. This avoids bio-fouling.

Possible add-ons.



Wi-Fi Get people connected to the internet.



Additional solar panels & energy storage Electricity supply, charging lights, mobile, etc.



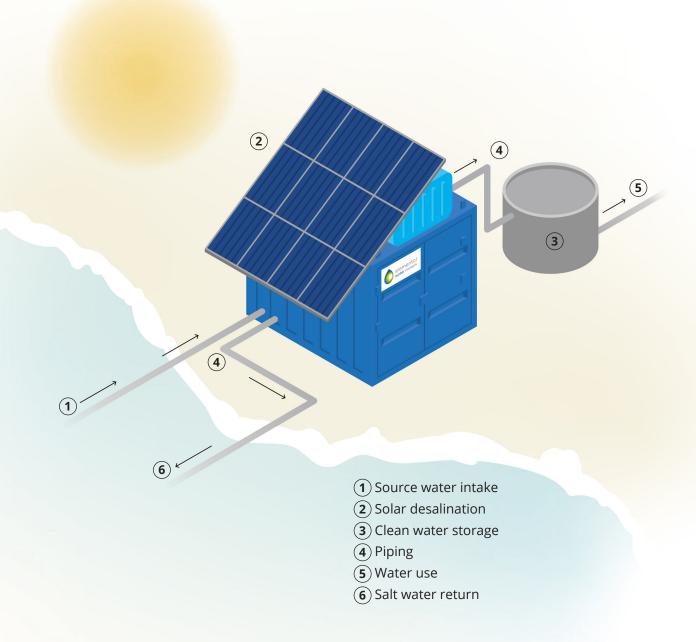
Smart Water Tap Water dispenser solution for off-grid dispensing and management.



Water Storage Tank

High corrosive resistant modular tank with bladder liner, easily shipped on a pallet and constructed on-site.

Overview & applications.







Community water kiosk







Industry



Temporary applications (Emergency response, camps, festivals)



Technical specifications.

Water production off-grid by solar (liters/day & gallons/day)	4.300 1.135	10.000 2.640	20.000 5.285	40.000 10.570	75.000 19.815	100.000 <i>26.420</i>
Nominal (24 hr) capacity desalination solution (m³) ¹⁾	11	11	22	44	88	110
Water production per hour (liters)	458	458	917	1.833	3.667	4.583
Daily average off-grid water production on solar (m ³)	4,3	10	20	40	75	100
Running time per day on solar (hrs)	9	22	22	22	20	22
Solar panels included (kW)	4,4	10,5	17,8	33,1	63,1	81,8
Battery storage included (kWh)	5	36	56	102	184	251
Container size* (ft)	8*	8	20	20	40	40
Battery type	LiFePO4					
Pre-treatment	Media filtration & cartridge filtration up to 5 µm					
Product water quality (TDS)	< 500 ppm					
Post-treatment	Remineralisation, activated carbon & UV sterilization					
Energy Consumption ²⁾ (kWh/m ³)	3,0 2,7					
Membrane type RO	DOW-seawater					
Membrane lifetime	3-5 years					
Recovery ratio	33%					
Saltwater exposed parts	Duplex & super duplex, plastic					
Feed water TDS	3.000-42.000 ppm					
Feed water contamination that will be filtered	Fluoride, chloride, calcium, sodium, salt (up to 42.000 TDS), bacteria, viruses, etc.					
Fresh water storage included	500 liters					
Feed water temperature	0.5-45 °C (32.9–113°F)					
Sensors included in remote monitoring	Flows, pressures, water quality, solar panel performance, battery state-of-charge, energy use					
Weight incl. container (kg)	2.600	3.100	6.300	11.000	22.000	27.500
Automatic features		te monitoring & contro embranes during stand	l system still to preserve lifetime		vater temperature and s n timer or water tank lev	
Applications	Drinking water, All-purpose water, Irrigation, Industry, Custom					

* Solar panels fit on the top of the container. In the other cases, they will have to be placed next to the container.

¹ Water production in 24 hours when an additional electricity source (grid, generator, etc.) is available to increase water production beyond only off-grid using solar energy.

² Specific Energy Consumption of the Desalination Unit for Seawater Salinity at 32.000 mg/I TDS and 25 °C, excluding the feed pump. Actual performance will depend on feed water temperature/ amount of feed water solids (TDS).

Financials: Elemental Water Source. A community gaining access to safe & affordable water.

The problem

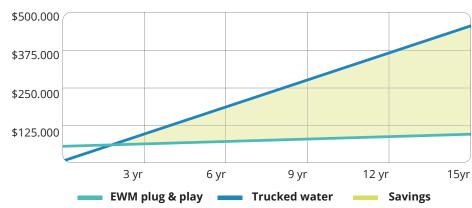
The community relies on water that is trucked in on a daily basis. The results is a questionable quality upon delivery and a high water tariff of 6 \$/m³. Lacking an alternative, the people are forced to spend a majority of their limited income on water, without the assurance of good quality and sufficient availability.

The solution

This changes completely when the Elemental Water Source is put in place. It's a plug & play desalination unit which can be operated to produce 4,3 m³/d fully solar energy driven off- grid. There is also the option to produce 11 m³/day in hybrid mode making use of grid or generator power during the night. The solution allows the people to enjoy savings on the water expenses of 75% and total savings of over 300.000 \$. The solution's payback is 2.5 years.

The benefits

The community now has high-quality potable water on-site, without the dependency of water trucking and associated carbon emissions, saving 8 tons CO₂ per year. The solution leads to empowerment, jobs and possibilities for education.



Water expenses



EWS solar-grid hybrid

Operational costs
Electricity
Inflation

EWS

Investment

water truck

Assumptions: costs including installation and training | Yearly inflation of 2% | Trucked water price: 6 \$/m³ | Local electricity price: 0.3 \$/kWh | Water intake available | Financial lifetime 15 yrs | Technical lifetime >20 yrs | OpEx include consumables, spare parts and membrane replacement.

OCE SOLODO

GET A QUOTE - ELEMENTAL WATER SOURCE

Gried-tied desalination.

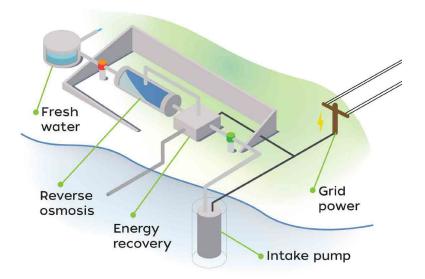
Efficient Water Maker: Low energy & no chemicals.

Conventional reverse osmosis has several downsides. It needs lots of energy, chemicals are used and it's a headache to maintain. This results in high water cost..

The Efficient Water Maker produces affordable in a sustainable way using 3 simple innovations. First, energy recovery technology is used to save 70% energy. Second, there's a chemical-free water treatment process. Last but not least, we enable stress-free operation & maintenance. Together, this result in the lowest costs to desalinate water. We save on average 70% on the water bills for resorts, industries, villas, communities or other water users.

Our Efficient Water Makers range for water production capacities between 5-150 m³ or 1.300-40.000 gallons per day. All our solutions enjoy unparalleled energy efficiency of around 2,7 kWh/m³ for seawater desalination. They can provided on a skid for a utility room or plug & play as a containerized solution. It's up to you.

Footprint indication	11 m³/day 2.900 gallons/day	44 m³/day 11.600 gallons/day	110 m³/day 29.000 gpd
Container size (ft)	8	8	20
Energy use (kW)	1.4	5.0	12,4
Cost savings	60%	70%	80%
CO₂ savings (tons/year)	210	950	2300





Tanzania.

Efficient Water Maker for island resort.





70% total savings



"We operate a island of the coast of Zanzibar where water is not an easy commodity. We cannot afford to be without it. From the moment of sending our enquiry up to the installation of our new desalination plant, the team has been nothing but professional. They are extremely knowledgeable and flexible. I really enjoyed working with them and we are currently looking into extending our system.

> Kenneth Malcomess Manager &Beyond Mnemba Island



88 t/yr CO₂ savings

Financials: Efficient Water Maker. A private island enjoying guilt-free water.

The problem

The resort has a water demand of 90 m³/day due to all-purpose use in the rooms, landscaping, laundry and swimming pools. The local water supplier is expensive and sometimes unreliable. Two options are available, which first appears to be an easy decision as the conventional reverse osmosis solution is about 40% cheaper in the purchase price.

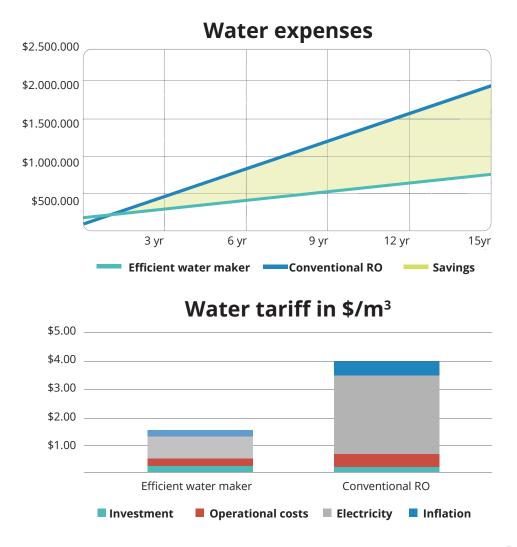
The solution

Luckily, the energy efficiency is considered before making a decision. By choosing the 3x more efficient water maker offered by Elemental Water Makers, water savings of 70% are realised, equal to 1.170.000 \$. Despite the 40% higher purchase price the payback is still less than 1,5 years, as energy generation on the island is expensive with 0.3 \$/kWh.

The benefits

The efficient desalination solution allows the resort to enjoy high-quality water on-site, with stress-free operation & remote monitoring, whilst still saving 180 ton CO₂ per year, adding to the sustainability for the guests.

Assumptions: costs including installation and training | Yearly inflation of 2% | Reference RO energy consumption: 10 kWh/m³ | Water intake available | Financial lifetime 15 yrs | Technical lifetime >20 yrs | OpEx include consumables, spare parts and membrane replacement.



Over \$1.000.000 in total savings.

GET YOUR QUOTE - EFFICIENT WATER MAKER

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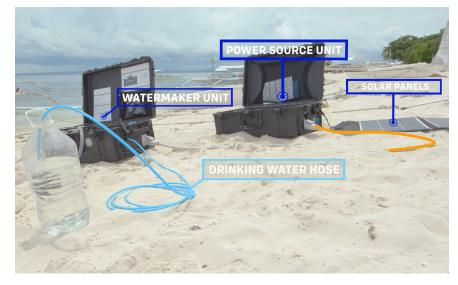
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Portable solar desalination.

Elemental Water Response: Portable & temporary clean water supply.

The Elemental Water Response is an efficient, portable solution to produce fresh water basically from any source such as: lakes, rivers, ponds & the sea. It comes pre-assembled into a tough military grade wheels case, that includes the watermaker itself, the pre-filter and the connection hoses to the water source (10 m long). It is available in 2 versions; the EWR30, that produces 30 liters/h (7.9 gph) of fresh water with an electric consumption of 110 Wattt only, and EWR50, that produces 50 liters/h (13.2 gph) with an electric consumption of 240 Watt. Both units are powered by 12 V and can be connected to any external battery.

We also offer the PowerBox. It is assembled in a strong case as well, and includes a special Lithium battery, a charger that can accept all DC/AC standards to activate the recharging cycle of the battery, and a folding solar panel that allow to charge the battery, and power the watermakers, directly from the sun. The EWR Powerbox is therefore an ideal complement to both EWR 30 and 50 for off-grid applications.



ELEMENTAL WATER RESPONSE

Water production (liters/hour)	EWR 30	EWR 50	PowerBox	
Capacity	30 liters / hour	50 liters / hour	40 Ah	
Weight	38 kg	48 kg	25 kg	
Power Supply	12 V DC	12 V DC	120 Watt	
Energy consumption	110 W - 9 A	240 W - 20 A		



Philippines.

Government uses Elemental Water Response.

5_{PowerBoxes} used per day

The Local Government Unit of a region in the Philippines had been facing numerous disasters in which the water supply was strongly affected. Cyclones would put vulnerable communities at the faith of rainfall and unsafe water supplies, leading to costly and logistically challenging operations to get safe water to the people in need. The LGU decided to go for resilience and now has a series of Elemental Water Response units and PowerBoxes ready for emergency situations. This allows both the LGU and the communities to be prepared for disaster, rapidly providing clean water from the sea & sun when required." Local Government Unit



5x50_{I/h} fresh water

70% total savings

10 tons CO₂ savings

The security of clean water is priceless.

Yet we make it really affordable.

Securing fresh water today.



Without limiting tomorrow.

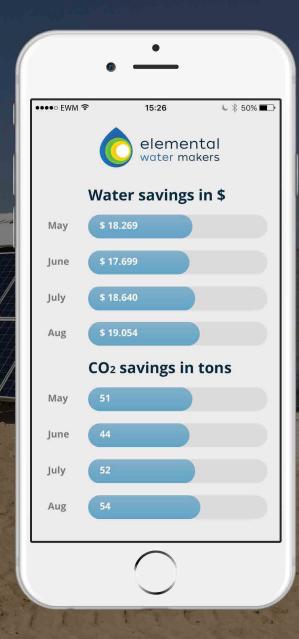
Good for the Earth. Good for your budget.

Securing fresh water today, without limiting tomorrow.

We believe that reducing expenses will always play an important role in the decision making and therefore strive to provide the most cost attractive renewable energy driven desalination solutions for fresh water production. At the same time, we want to deliver a long-term sustainable solution for the water supply. Therefore we provide solutions that utilize renewable energy sources. We also understand that offering a care-free fresh water supply is important, while providing an outstanding level of service and reliability.

A truly sustainable solution by overcoming the brine issue.

To prevent environmental impact and to assure a long lifetime of the reverse osmosis membranes, we operate on a lower recovery ratio than standard desalination units. This means the brine flow concentration does not differ much from the original source water salinity, minimizing its impact. It doesn't influence the water costs, due to the extremely high energy efficiency of our energy recovery technology. Local regulations are always taken into account for the brine flow and no chemicals are being used during operation. By avoiding negative impact, desalination of seawater by the sun becomes a sustainable source of freshwater for generations to come.



Elemental Water Foundation. Providing clean water for the ones that need it most.

People without access to safe water live in rural areas.

Today 1 in 3 people or 2.2 billion people around the world lack safe drinking water. The large majority of these people live in rural areas in developing countries, where economic interest is limited, development aid is often lacking and problems are ignored. Our founders consider it of utmost importance to enable clean water in a sustainable way for everybody. Water is a human right, not a privilege.

The Foundation that powers change.

The Elemental Water Foundation is a certified & independent non-profit organization that enables safe and affordable water by realizing projects that provide water for people that face water scarcity in developing countries. The Foundation has been established by our founders and several other like-minded individuals. The organization is dedicated to helping the rural communities get safe access to affordable drinking water using the sea and sun by financing water projects.

The community of Madagascar overcomes water scarcity.

Madagascar is one of the least developed nations in the world, and the 3,000 inhabitants of the village of Efoetsy, located on the dry south-western coast, have been struggling with declining rainfall over the past years. Especially women and children, who bear the responsibility of securing water for their households.

Thanks to the work of the Elemental Water Foundation, the community now operates and maintains its drinking water supply of 15,000 liters/day, together with a local NGO, to ensure the sustainability of the project over time. By distributing and selling the water for a price that matches the ability of the community, it's ensured that value is added to the community and that maintenance can be covered for years to come.



Madagascar.

Sustainable water kiosk in rural community.



"The community in Madagascar now obtains drinking water by the sea using only the sun by Dutch sustainable off-grid desalination technology. Madagascar is one of the least developed nations in the world, and the 3000 inhabitants of the village of Efoetsy, have been struggling with increasing water scarcity over the past years. Thanks to the work of the consortium, they now have daily access to 15,000 liters of affordable clean drinking water year-round using the naturally available resources of the sea and sun."

Elemental Water Foundation



11_{kW} solar panels

15m³/day fresh water

80% total savings

15_{t/yr} CO₂ savings

Join us.

Work with us. Benefit from unlimited resources.

Water is not an exact science, it's almost an art. Add energy to the equation and two completely different fields of expertise are required to merge, without causing a short-circuit. Without proper pre-filtration, the membranes will quickly have to be replaced. Without the correct energy supply, the motors won't be able to turn. As a system integrator with patented technology, this is where we thrive, creating tailored solutions to fit your needs.



Expert intake

Our engineers analyse your daily water demands, the project location and information regarding potential infrastructure. We get a basic understanding of your situation.

Design and planning

Once we are on the same page, we will design your custom project solution and plan the installation together.

Maintenance training

A training for operation & maintenance is provided and support will be available for troubleshooting.







Get in touch today to secure your water supply.

CONTACT ELEMENTAL WATER MAKERS



Elemental Water Makers HQ

Elemental Water Makers B.V. Hellingweg 9a 2583 DZ The Hague The Netherlands

www.elementalwatermakers.com info@elementalwatermakers.com vater makers

Local representation

Caribbean caribbean@elementalwatermakers.com

Central America centralamerica@elementalwatermakers.com

South America southamerica@elementalwatermakers.com

SE-Asia & Pacific seasia@elementalwatermakers.com

Africa southafrica@elementalwatermakers.com