

WaterWorX System

**Scalable Distilled, Potable, Sweet Water Production
from Environmental-Challenged Feedwater Sources**

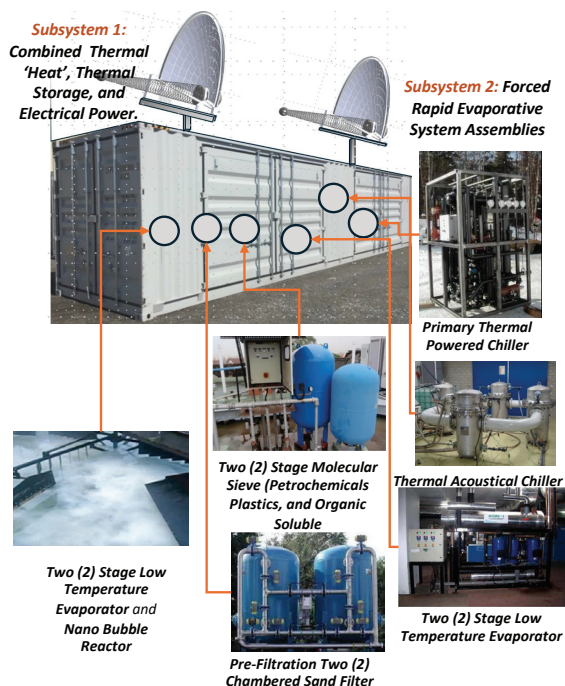
PRODUCT INFORMATION

Global water challenges demand new solutions. One in ten people on our planet – 771 million people – lack access to clean water. More than 800 children under age five die every day from illness caused by contaminated water and poor sanitation. Women and girls around the world spend an estimated 200 million hours carrying water every day.

Onyx Scientific Inc. brings an alternative to legacy reverse osmosis (RO) sea water desal production. Our Energy & Power Systems (E&PS) WaterWorX System advances simultaneous 24x7 energy and power, emulating “Earth’s natural water cycle” to satisfy a range of feedwater types – including sea, brackish, river and lakes. We focus on improving living conditions through availability and quality of water.

WaterWorX integrates two (2) subsystems to bridge timely, thermal rapid evaporation challenges to produce scalable, quality water volume/day.

- **Forced Rapid Evaporative System (FRES)** provides scalable distilled, potable or basis for sweet water used in Hydrogen (H₂) production.
- **Concentrated Thermal Collector and Power Subsystem (CTC&PS)** provides thermal collection, transfer, storage, and thermal-to-electrical power required for rapid evaporative processes in conjunction with site infrastructure need.



WaterWorX FRES and CTC&PS General Subsystems and Assemblies



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Why WaterWorX?

VALUE PROPOSITION

Produce life-essential potable, distilled and / or sweet water from otherwise unusable water sources.

CONTRACTOR SUPPLIED FEEDWATER INFRASTRUCTURE

Pipelines, valves, pump and inlet feed tank and outlet utility tanks, salt and OR sediment spiral line auger

SITE CLIENT REQUIREMENTS

- **Feedwater Access** - Sea, bay, brackish, river, lake water service pipeline, valves, pump, mooring anchor assembly, lighted marker buoy and warning notices.
- **Designated Workforce** - Management plus operations and maintenance (O&M)

Benefiting the Environment & the Bottom Line

The WaterWorX design can help industry and government entities alleviate water scarcity and achieve a well-managed water market – providing economic flexibility, encouraging water saving measures and bringing a variety of stakeholders to the table to find balance between human water needs and natural ecosystems.

Designed for Performance

The WaterWorX Forced Rapid Evaporative System enables production sites to be designed for specific performance needs.

- **System Computing and Comm Network Connectivity** - Site WaterWorX systems to designated water utility management
- **System Performance** - 500³m (or 132,000 gallons) per day of potable, distilled or sweet water
- **System Energy and Storage** - Combined Heat Power (CHP) using 24x7 concentrated passive solar collectors and thermal energy storage
- **System Energy to Electrical Power Conversion** - Proprietary NO loss technology
- **Electrical Power Consumption** - Highly efficient 0.000000000672 kW plus 0.000864 kW of thermal energy per liter of processed water
- **System Containerized Footprint** - less than forty-five (45) ²m – not including onsite drinking water polishing, salt or sediment recovery containers, or water storage tanks
- **System Packaging** - Containerized and/or steel butler building
- **System Standards** - International (ISO), World Health (WHO) and American Standards (ASTM)
- **System Operational Life Expectancy** - Thirty (30) years

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Putting FRES to Work

Deploying the Forced Rapid Evaporative System has the potential to yield varying quantities and qualities of water, as well as other valuable products.

- **Scalable Site Designs** - A complement of 1 to 10 WaterWorX units producing 500³m to 5,000³m (132,000 to 1,320,000 gallons) per day or more
- **Water Production Yield** - Potable water compliant with National Primary Drinking Water Regulations (NPDWR); distilled water compliant with ASTM Standards and Water Quality Handbook (WQH) and ISO standards
- **Feedwater Third-Party Off-Take Products** - Seawater derived sea salt, river water derived sediments

Site-Specific Tailoring

Our Energy and Power Systems (E&PS) team understands that your goals and site(s) will guide the configuration of the flexible and scalable FRES system for your unique needs.

We will collaborate to assure that a comprehensive site survey captures all the necessary details to define your requirements, assess existing or needed infrastructure and enable complete and accurate system specification.

WaterWorX Past Performance

During the third quarter of 2018, one (1) baseline FRES 500³m system was packaged, delivered, tested, commissioned in India for purposes of seawater desalinization use in high volume commercial fish processing and packing. This baseline WaterWorX system in India is still producing distilled water to specification today.



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About Onyx Scientific Inc.

Onyx Scientific Inc. specializes in making connections, both scientific and engineering focused. Scalable WaterWorX architectures implementing Forced Rapid Evaporative System (FRES) with Combined Heat Power (CHP) continues to promote a design for producing efficient distilled, potable or sweet water (*water volume/day*) and at an affordable unit cost.

Our Concentrated Thermal Collector and Power Subsystem (CTC&PS) integrates two (2) subsystems:

- **Thermal Energy Collection:** Thermal IR sub-bands NIR, SWIR, MWIR, and LWIR; Visible band (VIS) and Near Ultraviolet sub-band (N UV-A)
- **Thermal Energy-to-Power Management:**
 - 1) Solid Thermal Transfer System (STTS) pipe, thermal control valves, manifolds, cores, and system computer management
 - 2) Double vacuum walled and insulated Thermal Vessel
 - 3) Thermal Storage material
 - 4) Thermal-to-Electric AC/DC power generator

Contact Us

To learn more about our WaterWorX System and its integrated Forced Rapid Evaporative System (FRES) with Concentrated Thermal Collector and Power Subsystem (CTC&PS), our ONYX Scientific Energy and Power Systems (E&PS) division, or to obtain current pricing information, please contact us.

Executive Contact

Jerrold Hutton, Ph.D.
Vice President, Energy and Power Systems
Phone 970.596.0291
Email huttonj@onyxscientificinc.com

Engineering & Technical Contact

Randy Stewart
Director, E&PS WaterWorX Systems
Phone 989.289.3673
Email stewartr@onyxscientificinc.com

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