



CASE STUDY

The Challenge

Island Needs Water for Residents and Tourists



LOCATION

Shengsi, Zhejiang Province, China

PROJECT

Shengsi Municipal Water Company

CAPACITY

1,000 m³/day

ENERGY SAVINGS

US\$ 130,000 or 1.3 million kWh/ year*

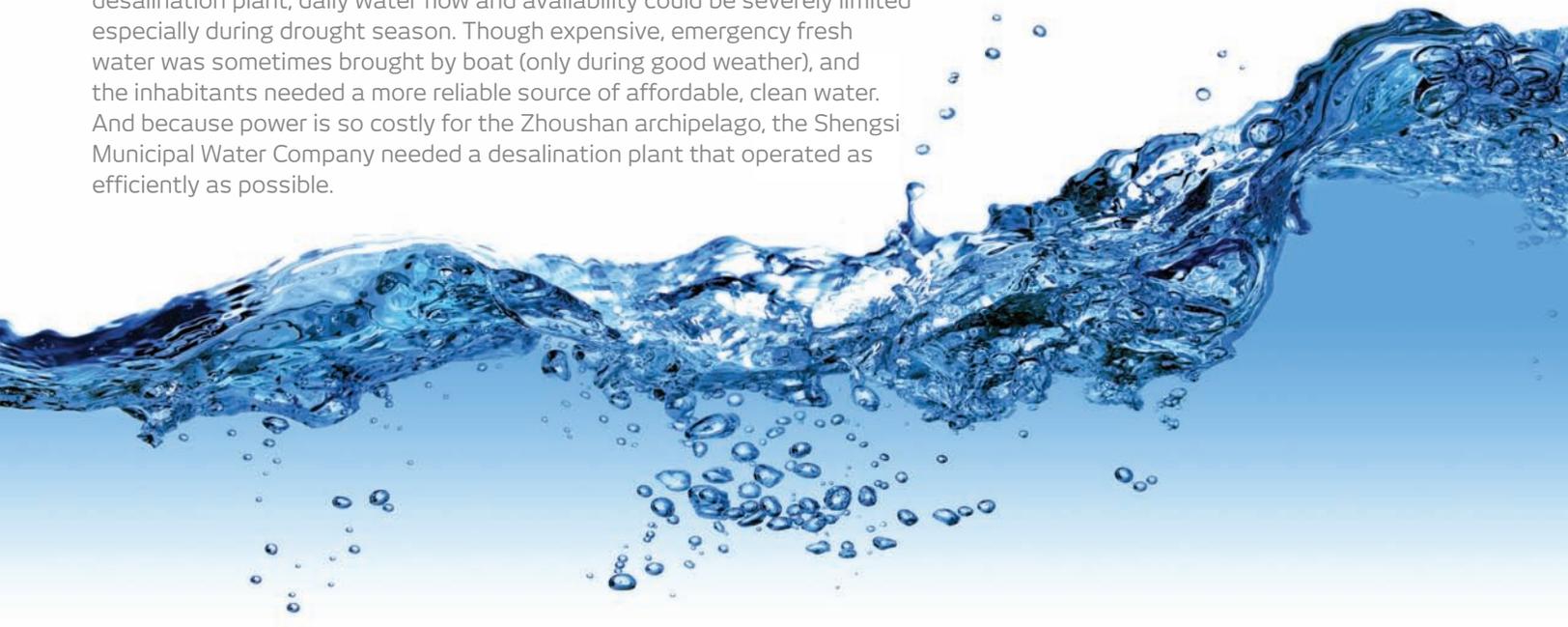
CO2 SAVINGS

748 tons CO₂/year**

Shengsi, an island in Zhoushan, China's largest archipelago, is known for its beaches, fishing, and salt production. The area has more than 79,000 residents and hosted more than 2.7 million tourists in 2012, a number that strains the island's minimal natural water supply. Before constructing a desalination plant, daily water flow and availability could be severely limited especially during drought season. Though expensive, emergency fresh water was sometimes brought by boat (only during good weather), and the inhabitants needed a more reliable source of affordable, clean water. And because power is so costly for the Zhoushan archipelago, the Shengsi Municipal Water Company needed a desalination plant that operated as efficiently as possible.

* Energy savings estimates based on China's power cost of \$0.10/kWh

** Based on Energy Recovery's proprietary Power Model analysis



The Innovation Solution PX Pressure Exchanger®

When Hangzhou Torch designed and built a seawater reverse osmosis (SWRO) plant for Shengsi in 2001, the plant included Energy Recovery's PX®60 that has now been in operation for more than 60,000 hours (it is one of Energy Recovery's oldest and longest running PX solutions, operating without maintenance or downtime for more than twelve years). On a second installation, Shengsi Municipal Water tried a competitor's energy recovery device on a 600m³/day train but quickly decommissioned it. All subsequent installations at Shengsi's SWRO plant (1,000 m³/d in 2004, 4,000m³/d in 2005, and 4,000m³/d in 2012) have been equipped with Energy Recovery's PX-140s and PX-220s, all of which have been operating at full capacity and efficiency. Unparalleled longevity with the PX means it may be the one part of the SWRO plant that will never need replacement.



The Result Twelve Years without Maintenance

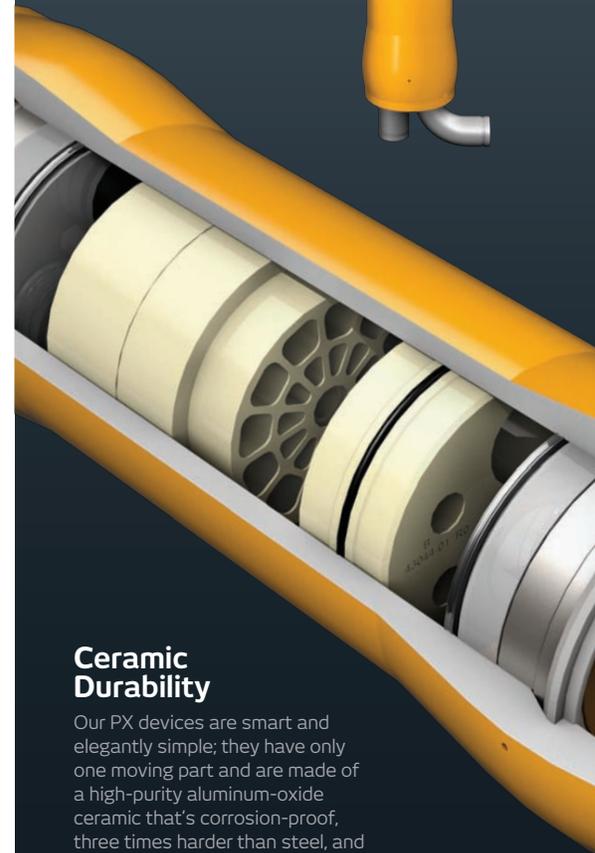
A reliable source of clean water in Shengsi has helped the residents, tourists, and island economy. After checkups in 2008 and 2010, Energy Recovery and Shengsi Municipal Water Company were pleased that the maintenance-free, lifetime design of the PX® has yielded virtually no wear to the device, and an estimated \$1.5 million savings over its twelve years of operation. Shengsi's PXs are still operating with maximal efficiency and are recycling 1.3 million kWh per year to keep the cost of water low enough to supply up to 80% of the island's water needs, and will continue to recapture and recycle fluid-flow energy for the remaining life of the plant.

WHERE DESIGN MEETS ECONOMICS

After a quarter of a century, we're still raising the bar with innovative desalination solutions. Our flagship PX® isobaric technology is the most efficient and reliable solution on the market in energy recovery for desalination.

PX S Series®

- Designed for any size reverse osmosis desalination plant
- Delivers 96.8% efficiency
- Scalable solution



Ceramic Durability

Our PX devices are smart and elegantly simple; they have only one moving part and are made of a high-purity aluminum-oxide ceramic that's corrosion-proof, three times harder than steel, and provides unmatched durability.

About Energy Recovery Energy Recovery Inc. (NASDAQ: ERII) technology harvests the power of pressure from high-pressure fluid flows and pressure cycles. Through collaboration with industry, Energy Recovery helps make industrial processes within water, oil & gas, and chemical industries more profitable and environmentally sustainable. Headquartered in the San Francisco Bay Area, Energy Recovery has offices in Madrid, Shanghai, and Dubai. For more information, visit energyrecovery.com

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MK-W040018-R00

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