



New desal technology goes inland to evaporate brackish water

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Israel-based Lesico CleanTech's CEO Nissim Asaf is seeing a marked shift of desalination plants away from seawater locations to inland sites to treat brackish groundwater.

He told the Cleantech Group his company is looking to capitalize on that market opportunity with its technology that helps to minimize liquid waste at inland desalination plants.

He said liquid waste disposal is under stringent regulations worldwide so it doesn't contaminate surface or groundwater.

“If they don’t come up with environmentally friendly ways to dispose of the brine, they can’t operate,” he said.

His early-stage company makes two complementary water treatment systems that it can subcontract to desal plants.

The first, more mature technology is a wind-aided intensified evaporation process, which serves as an alternative to conventional evaporation ponds. The thermodynamic system is based on wind energy that accelerates by 15 times the evaporation of liquid waste and uses less land than regular ponds, he said.

In June 2008, Israel’s national water carrier [Mekorot](#) [1] signed an agreement with Lesico CleanTech to help develop its second technology, a modular electro dialysis membrane stack that’s aimed at more efficient desalination.

The electro dialysis technology is expected to be introduced into the market by the end of 2010. It enables the efficient flow of the water, while reducing the amount of energy required for pumping and thus reducing the cost of desalination.

Mekorot supplies 80 percent of Israel's drinking water and 70 percent of its water supply (see [Israel plans largest desal plant in \\$513M deal](#) [2]).

“We know the industry is going toward zero discharge desalination to produce more water, less brine and to do it in an economic way,” Asaf said.

The two water technologies were developed in cooperation with Ben-Gurion University and commercialized under a technology transfer agreement with \$500,000 from the Israeli Chief Scientist’s Office. Those funds were matched by Lesico CleanTech’s parent company Lesico Group, a private Israel-based development and construction company, which includes water infrastructure.

But the university hasn't stopped with spinning out Lesico CleanTech. Earlier this month, scientists at Ben-Gurion University said they were working to develop a faster, cheaper method of reverse-osmosis desalination that can be used to clean brackish groundwater.

The technology is being commercialized by a new startup, ROTEC (Reverse Osmosis Technologies), which is in talks with Mekorot for R&D financial support (see [Israeli researchers start pilot for new desal technology](#) [3]).

But Lesico CleanTech appears to be a few steps ahead of ROTEC. Lesico CleanTech is seeking a Series A round of \$4 million from private investors by the end of 2009. The funding would be used to accelerate market penetration of its evaporation process and continue R&D of its electro dialysis membrane technology.

“The field of brine disposal is low competition. It is what we consider 'a blue ocean market' where the big sharks are not there yet,” said Asaf, comparing it to a bloody, red ocean already swimming with competition.

Competition could come from Israel-based BPT, which develops what is said are chemically-stable, membrane-based separation solutions that address needs of the water and waste water treatment industries.

BPT secured \$12 million in Series B funding yesterday for its technology, which allows waste water to be filtered so it can be reused and complies with environmental regulations. U.S. Venture Partners and Pitango Venture Capital co-led the round, joined by return investors Aurum Ventures and Elron Electronic Industries.

Founded in 2006, Lesico CleanTech has performed what it said have been successful commercial beta testing in Israel, Mexico and with Australia-based public water company Orica Watercare. Lesico CleanTech has an agreement with Orica to commercialize its technology in Australia and New Zealand.

Lesico CleanTech had nearly \$300,000 in sales in 2009, but anticipates projected sales of more than \$2 million next year and \$4 million in 2011. It has also established partnerships with suppliers, distributors, channel partners and customers around the world, gaining interest from companies including [Siemens Water Technologies](#) [4], Asaf said.

He said Lesico CleanTech plans to keep its manufacturing and R&D in Israel, but could profit from licensing agreements and partnerships with water-related companies.

Yale University spinout Oasys said earlier this year it developed a low-cost, low-energy desalination and purification technology for seawater, wastewater and industrial waste streams (see [Oasys develops energy-efficient osmosis for desalination](#) [5]).

California-based cleantech incubator Catalyx also uses forward osmosis before employing the traditional reverse osmosis to purify heavily polluted wastewater from the textile and other industries (see [Catalyx develops two-way osmosis to purify wastewater](#) [6]).

Lesico CleanTech is one of 20 potential new investment opportunities the Cleantech Group added to its innovation pipeline this week, available exclusively to members of its [Cleantech](#)

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- Salem, N.H.-based AmberWave Systems is seeking a \$12 million Series A round to fund its new BriteGaN technology through early production, which is expected to be used in the high brightness-LED market. The company has already established itself in advanced materials technologies in semiconductor devices. But it is looking to spin off its BriteGaN technology—expected to enable higher performance, lower cost, solid state lighting—through a newly formed company, AmberWave.

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