

# WATER DESALINATION REPORT

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## Company News

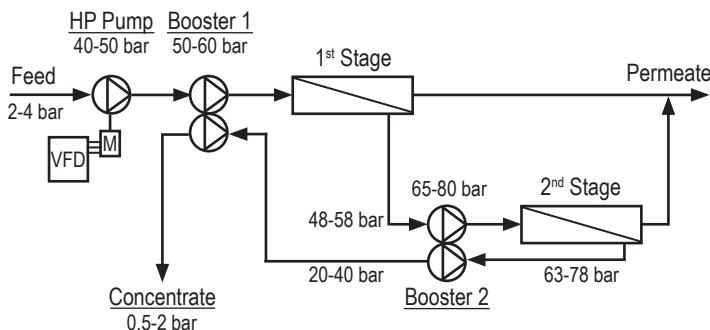
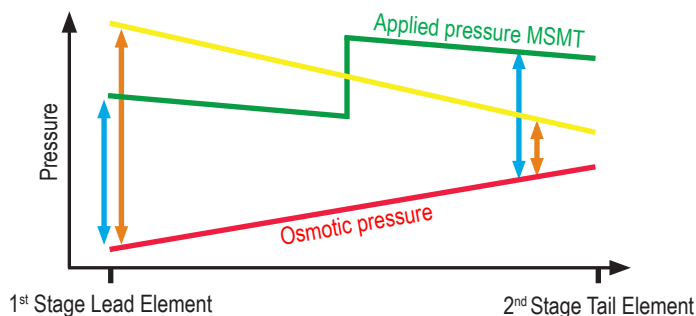
### DOUBLING UP TO SAVE ENERGY

In a 2006-2007 SWRO energy benchmarking study, researchers found that the lowest specific energy consumption (SEC) for a single-stage SWRO system at a specific site occurred at a 42 percent recovery rate and a flux of 9.6 Lmh (6.0 gfd). However, based on a total NPV analysis, it was concluded that the most *affordable* operating point was achieved at a 48 percent recovery and a flux of 15.3 Lmh (9.0 gfd).

Those tests, which were conducted by the California-based Affordable Desalination Collaboration, illustrate that evaluating a SWRO project's efficiency based solely on its SEC may not always give a true picture of its optimum performance. It also shows that operating at a higher recovery—which invariably means a higher feed pressure—may result in significantly lower CapEx as a result of the reduced size and cost of its intake, pretreatment, chemicals and building footprint, not to mention the lower amortization costs realized when financing the reduced capital cost.

FEDCO founder and CEO Eli Oklejas told *WDR* that the ability to operate SWRO systems at higher recovery rates and lower water costs drove the company to develop its patent-pending Multi-Stage Multi-Turbo (MSMT) configuration. “Toray was the first to promote higher SWRO recoveries with its Brine Conversion Process in the late-1990s, and several companies now use a ‘closed cycle’ BWRO arrangement to operate at recoveries of over 85 percent,” he explained.

higher production elements, while two turbochargers manage the flow and pressure [hydraulic energy] between stages to avoid concentration polarization and provide flux balancing. The optimal NPV for a two-stage system appears to range from 57 to 62 percent, depending on the feedwater salinity and temperature.”



Multi-Stage Multi-Turbo (MSMT) Arrangement