

Membrion, Inc.

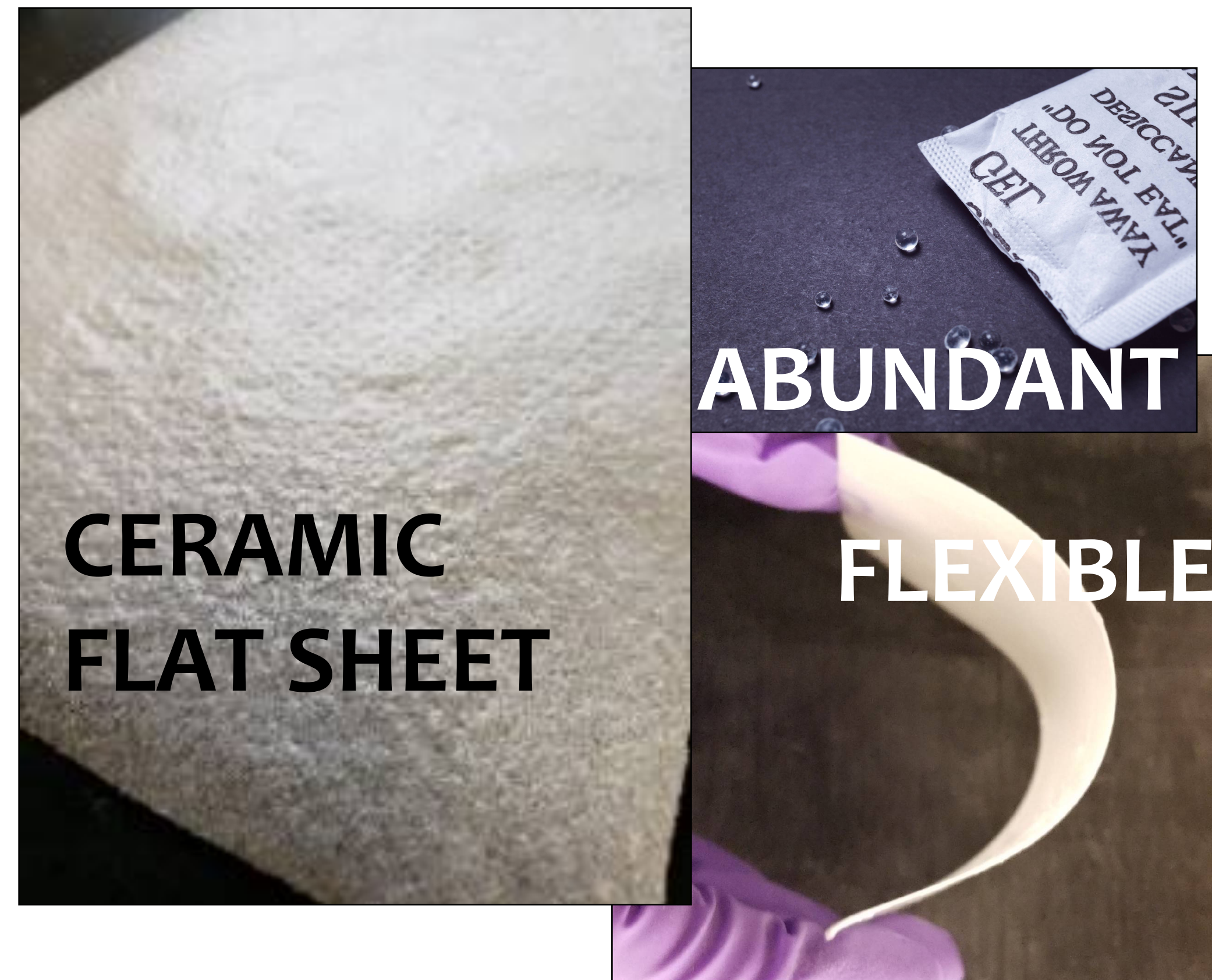
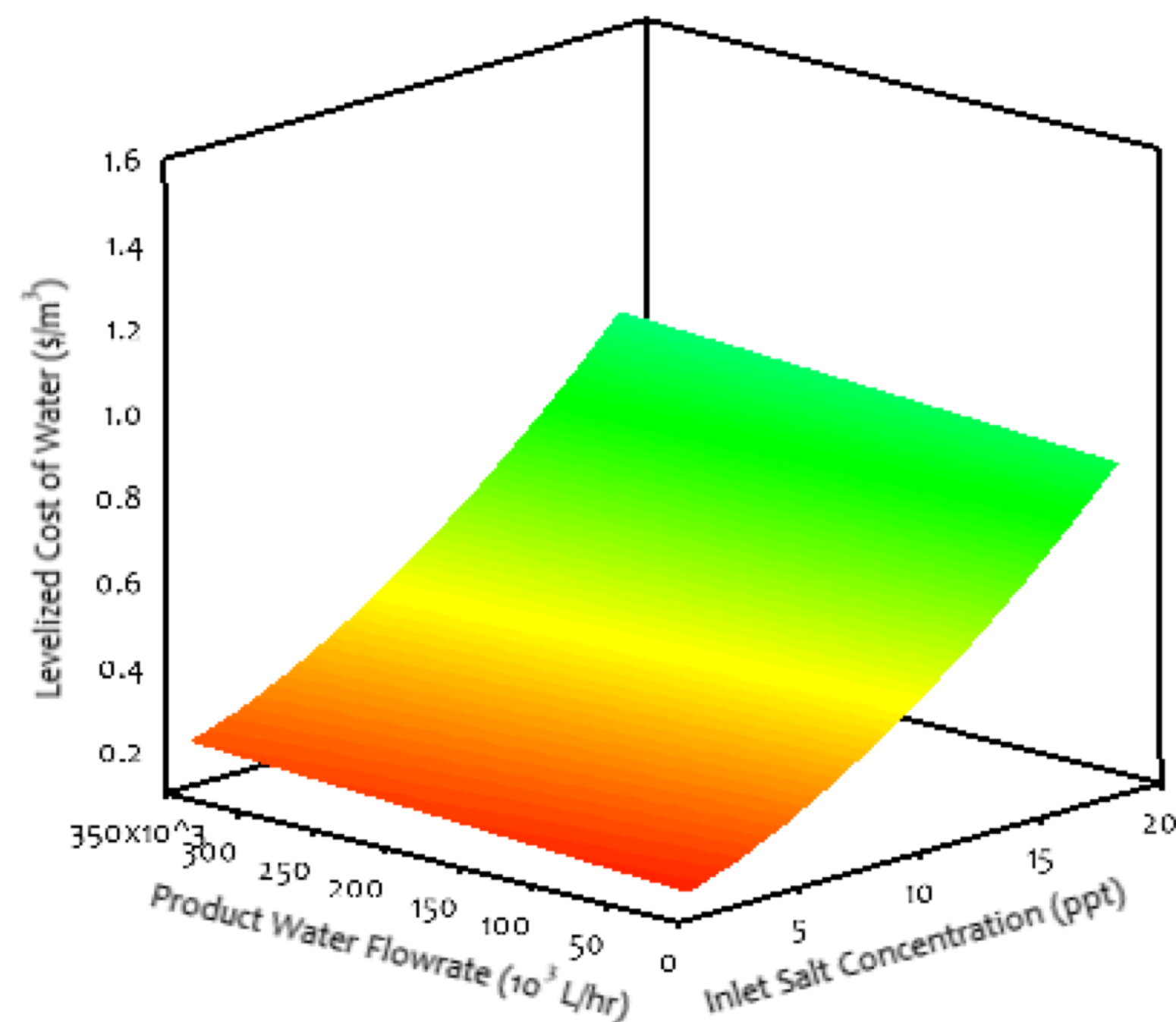
Ion Exchange Membranes for Brackish Water Treatment

■ Ion Exchange Membranes

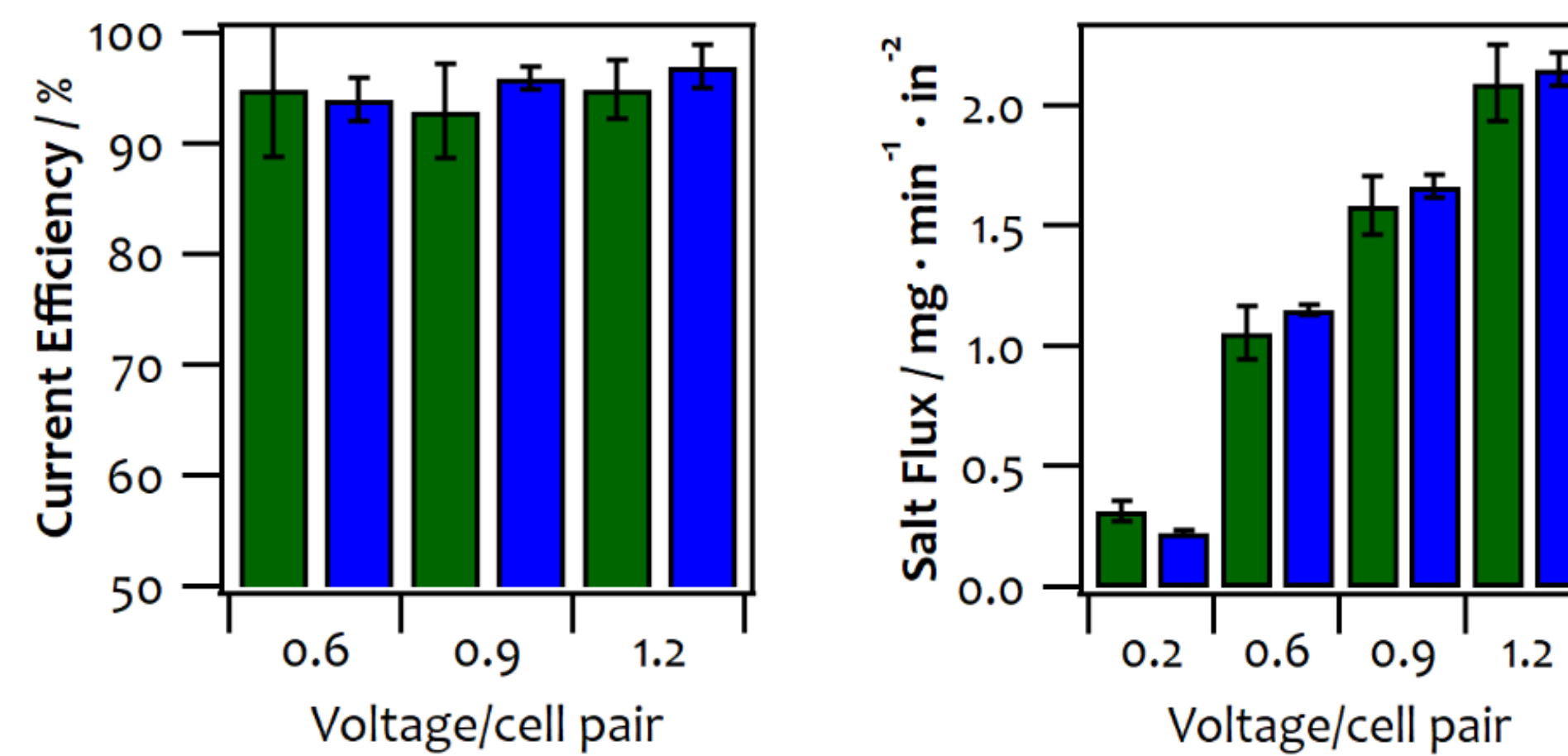
Reverse osmosis uses high pressures to push water across a membrane while rejecting ions. This is advantageous until you have smaller quantities of salt (*i.e.*, brackish conditions) where it becomes more efficient to draw the small amounts of salt across the membrane instead of pushing large quantities of water. **Ion exchange membranes (IEM) use electricity to remove ions from a water stream and in brackish conditions can be more energy efficient with higher water recovery.**

■ Enabling Lower Costs

Historically, the modest performance and high costs of IEMs have limited their commercial potential to niche applications. Emerging techno-economic models, such as the one seen below, show that the combination of low-cost, high performance IEMs leads to attractive levelized costs of water for a broad range of TDS and water flow rates.



■ Improving Performance

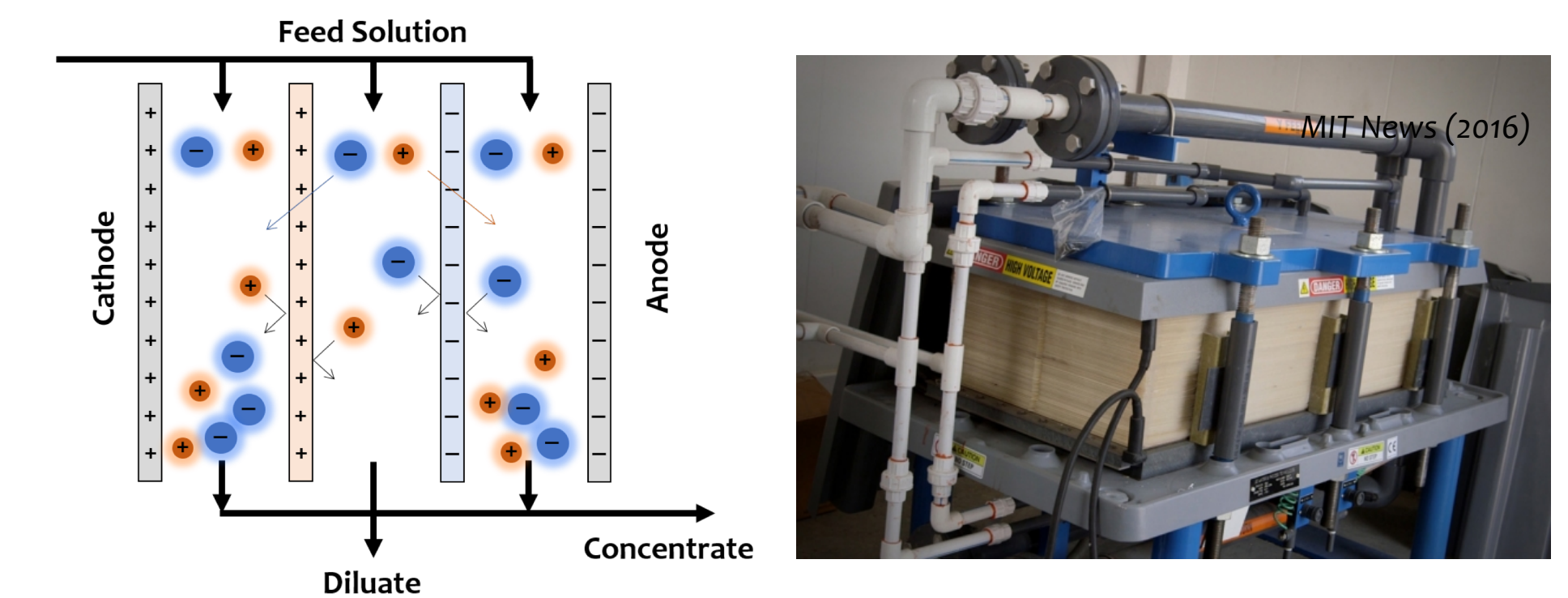


BLUE = Membrion **GREEN** = Competitor

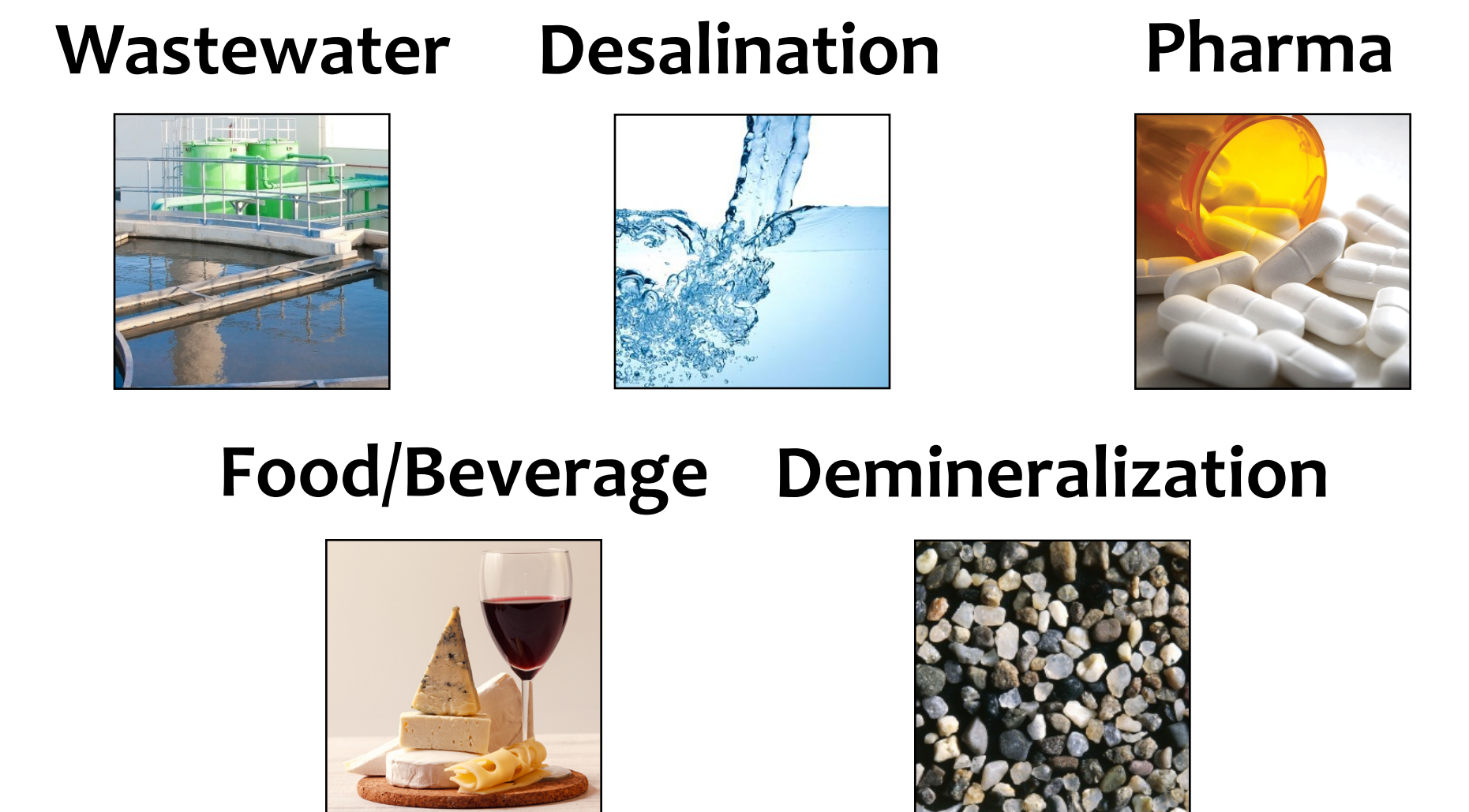
Membrion's core innovation is the use of ceramic materials to make IEMs. As seen above, improvements in current efficiency yield higher water recovery and higher salt flux delivers lower energy costs!

■ Electrodialysis Processes

Electrodialysis (ED) stacks are typically used in the final stage of a water purification process, similar to reverse osmosis, and can only remove ions. Stacks are comprised of 100+ alternating positively and negatively charged flat sheet membranes to achieve high water flow rates.



■ Problems We Solve



Membrion partners with systems integrators and ED stack manufacturers to deploy our membranes. However, we also work with end-user to help them solve challenging purification problems in a variety of applications.