

## Energy-Water Nexus EC-15

**Program Title:** Israel-U.S. Collaborative Water-Energy Research Center (Israel-US CoWERC)



	<b>U.S. Entities</b>	<b>Israeli Entities</b>
<b>Leaders</b>	Northwestern University	Ben-Gurion University of the Negev
<b>Consortium Members</b>	Argonne National Laboratory	Technion Research & Development Foundation Ltd.
	Yale University	Mekorot-Israel National Water Company
	AECOM	Fluence Corporation
	Metropolitan Water Reclamation District of Greater Chicago (MWRD)	Galilee Society
	Current Innovation	

The Israel-U.S. Collaborative Water-Energy Research Center (Israel-U.S. CoWERC) will evaluate, develop, and demonstrate new technologies to solve critical challenges at the energy-water nexus. Water and energy are inextricably linked: water purification and distribution are primary uses of energy, while water is essential for energy production and wastewater also contains substantial energy. There is a central challenge to enable secure, cost-effective water provision in integrated energy-water systems, including water supply, primary water use, wastewater treatment, energy recovery, and water reuse. Israel-US CoWERC will leverage recent advances in both the U.S. and Israel to reduce energy intensity and cost of water across the entire water spectrum. CoWERC will focus on three areas of technology development for the Energy-Water Nexus: Theme 1. Energy-efficient Enhanced Water Supply, Theme 2. Wastewater reuse and resource recovery, and Theme 3. Energy-Water Systems.

CoWERC Theme 1 will develop new technologies for ion-selective separations and enhanced water recovery in brackish water desalination. Theme 2 will integrate biotechnologies for nutrient and energy recovery with low-energy strategies for wastewater polishing and broad-spectrum removal of trace organic pollutants for safe water reuse. Theme 3 will evaluate and demonstrate the energy and cost performance of the proposed new technologies in integrated water systems.

Israel-US CoWERC is a consortium of leading research institutions, water utilities, and private companies. The US team is led by Northwestern University and includes Argonne National Laboratory, Yale University, DuPont Water Solutions, AECOM, the Metropolitan Water Reclamation District of Greater Chicago (MWRD), Hampton Roads Sanitation District (HRSD), Current, and CycloPure. The Israeli team is led by Ben-Gurion University of the Negev and includes the Technion – Israel Institute of Technology, Mekorot-Israel National Water Company Fluence Corporation, and The Galilee Society. The primary objectives of CoWERC are to deploy binational resources to develop water technologies, and demonstrate performance of the new technologies in both Israel and the US. Binational teams will develop, integrate, and test technologies originating from CoWERC members. The consortium will leverage core competencies of each partner to demonstrate high-value water purification and reuse technologies in both countries. Successful technology demonstrations, supported by techno-economic assessment and systems analysis, will deliver new energy-water solutions for Israel and the US, and open global markets for CoWERC technologies.

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