

# DRINC Summary

## DE-FOA-0001905 ENERGY WATER DESALINATION HUB



### Introduction

Energy efficient desalination, achieved through technological innovation, can substantially improve American water security and resiliency. The Desalination Research and INnovation Consortium (DRINC), a consortium of national labs, universities, and industry, has the innovation, technical expertise, and management experience to address the nation's water security needs.

### Key Technical Challenges and Opportunities

DRINC has identified many critical barriers that limit cost-effective use of desalination for both seawater and non-traditional water sources. Our approach to the key challenges and opportunities can be grouped into four topic areas:

**Materials R&D** creates advanced membranes, sorbents, catalysts, electrodes, and surfaces that enhance process performance and extend equipment lifetime. DRINC materials R&D develops materials with enhanced permeance, thermal conductivity, durability, and other desired properties.

**New Process R&D** develops novel processes and system designs that lower the cost and energy requirements of desalination. These technologies encompass novel configurations of membrane, thermal, and electrochemical processes, and span needs ranging from brackish water to high-salinity brines.

**Modeling and Simulation Tools** are needed to capture complex interactions between water, solutes, surfaces, desalination processes, and system performance.

**Integrated Data, and Analysis** establish and maintain the analytical framework for DRINC research. The team sets aggressive, yet achievable, pipe-parity goals for DRINC, informs the R&D portfolio, and tracks progress toward Hub-wide goals.

### DRINC's Innovative Approach

DRINC will advance technologies that complement the state-of-the-art (e.g., material, process, and system innovations that reduce cost and energy consumption in conventional RO desalination), as well as high-risk, high-reward research on step-change technology that could supplant state-of-the-art (e.g., thermal and electrokinetic separations) through a collaborative process that includes industry and university partners.

### Our Goals

DRINC aims to improve the energy intensity and overall cost of desalinating water. Doing so will enable industry to reduce water intensity and increase the use of non-traditional water, improving water security and resilience.

### Our Team

DRINC is led by three National Laboratories: Livermore, Argonne and Idaho National Laboratories. We have access to a network of almost 70 testbeds through our partnership with the Water Research Foundation. Our research team includes a bench of 2,500 experts with experience in the four Topic Areas. Our combined record of publications and patents demonstrates a passion and commitment to solving the nation's water security challenges with over 10,000 papers in the Topic Areas and, 500+ patents.

### Proposal Terms

Federal funding: \$100 M

Private cost share: 20% of total project costs

First project period: 5 years

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