

## EDS WEBINAR

# Brine Concentration & High Recovery RO

Thursday 1. December 2022, 16:00-17:30 CET

Welcome Message: Ursula Annunziata, President EDS



**Moderator: Felix Broens**

CTO at Convergence BV

University of Twente - Master in Membrane Science and Technology

### Bio

I studied chemical engineering at the University of Twente in The Netherlands. My specialization in membrane technology was done in the group of Prof. Matthias Wessling in 2008-2009.

After my studies I founded Convergence, a company that focuses on making automated pilot units for a wide range of membrane applications, including RO processes. I have the function as CTO in Convergence and will continue in this position for the coming years.

Since 2010 I have attended all EUROMED/EDS conferences, with the first one being the EUROMED # 5 in Tel Aviv. Since 2020 I have joined the EDS board.

## Abstracts / Program

**Ángel Rivero Falcón**

Senior Engineer at the ITC Water Department

Canary Island, Spain

❖ **Brine Valorization Open Testbed Platform in the Canary Island – DESAL+ LIVING LAB**

**Christos Charisiadis**

Brine Innovation Manager - NEOM portfolio

Delft, South Holland, Netherlands

❖ **Separation and Concentration of Monovalent & Polyvalent Streams within the NEOM project**

**Rolando Bosleman**

Technical Director, Water Applications Energy Recovery

Madrid, Spain

❖ **ERD solutions for High Recovery RO Systems using Isobaric PX**



**Ángel Rivero Falcón**  
Senior Engineer - Technical Research at ITC  
Canary Island, Spain

#### Bio

Ángel Rivero Falcón is a Chemical Engineer working as a Senior Engineer at the ITC Water Department since March 2020. His work within the DESAL+ LIVING LAB platform has been focused on technical solutions related to desalination brine valorization, identifying and analyzing actual challenges and limitations. Complementary to this task, Ángel is directly involved in the design, development and experimentation of several pilot plants. Previously, he developed his professional career as a Process Engineer in the UK for more than 7 years.

#### **Abstract: Brine Valorization Open Testbed Platform in the Canary Island – DESAL+ LIVING LAB**

The Canary Islands Institute of Technology (ITC) is currently developing an open testbed platform in relation to desalination brine valorization, within the framework of the existing DESAL+ LIVING LAB platform, in Pozo Izquierdo (Gran Canaria). Related to this topic, ITC leads the E5DES project (85% ERFD - INTERREG MAC 2014-2020) and receives support by the Cabildo de Gran Canaria. The main objectives are to analyze, test and optimize different stages of SWRO brine valorization processes, including the required pre-treatment as well as diverse emerging and disruptive brine valorization technologies. The resulting area will also be able to offer high quality services and space to technical companies willing to test and validate their innovative solutions regarding brine valorization.

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**Christos Charisiadis**  
**Brine Innovation Manager - NEOM portfolio**  
**Delft, South Holland, Netherlands**

### **Bio**

Close to 7 years of experience in the desalination sector and almost all of them working with innovation for brine treatment and zero liquid discharge (ZLD). Some of you may already know me from my free online ZLD booklet, others from the conferences, interviews and podcasts I participated or simply I may have helped you to find solutions to your brine discharge problems during my office hours.

Despite holding a BSc in Civil Engineering, my path to water and 2 relevant MScs seemed always like a natural choice for me. That along with my natural thinking out of the box approach to problems led me to getting on board with NEOM since July 2022 in order to help the most ambitious water project worldwide which has the potential to change the way we understand water treatment.

### **Abstract: Separation and Concentration of Monovalent & Polyvalent Streams within the NEOM project**

For better valorization of the brine streams within the NEOM project, the application of Nanofiltration is ensuring the separation of Polyvalent & Multivalent ion streams. The Monovalent streams are further concentrated on a case-by-case scenario with accordingly appropriate membrane concentrators allowing for the streams to reach a concentration of 250g/L.

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**Rolando Bosleman**  
Technical Director, Water Applications Energy Recovery  
Madrid, Spain

#### **Bio**

Rolando Bosleman is Energy Recovery's Technical Director of Water Applications, with over 20 years of technical experience in operations & management with multinational companies for SWRO desalination projects and water treatment. He has traveled to 20+ countries and participated in negotiations over 10 Million USD in equipment supply contracts..

#### **Abstract: ERD solutions for High Recovery RO Systems using Isobaric PX**

Achieving higher recovery in RO systems allows maximizing the production output, while minimizing the brine that is discharged. However, this requires more energy and can be cost intensive to operate. This presentation will cover ERD solutions using isobaric PX that can minimize the energy consumption for high recovery RO systems.

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