

## Workshop on seawater sourcing for renewable hydrogen and chemicals

In a joint workshop, the European Innovation Council, the Directorate-General Research and Innovation, the Clean Hydrogen Joint Undertaking, the EuroTech Universities Alliance and the EU project ANEMEL want to deep dive the pressing question of minimizing water impact for the future large-scale production of RFNBOs and valuable minerals in all regions.

The production of renewable fuels of non-biological origin (RFNBO) or the sustainable supply of valuable minerals is a highly promising pathway to climate mitigation. However, most of the conversion or extraction technologies necessitate fresh or highly pure drinking water as feedstock that, due to regular aridness, is becoming a scarce worldwide resource.<sup>1</sup>

The goal of this workshop is to explore the use of seawater sources with a multidisciplinary expert group from industry, academia and policy. Desalination methods will be discussed, as well as highly innovative techniques where seawater serves as direct feedstock for water electrolysis or as a source for valuable minerals. Circular concepts will be explored, where water is co-captured from the air, together with carbon dioxide, and where the necessary energy is provided by the subsequent production of certain e-fuels. As well exploiting desalination concentrate, so-called brine, for minerals recovery or using seawater and carbon dioxide for co-electrolysis will be discussed.

The workshop will contribute to build a white paper and an ambitious agenda on low-impact water sourcing for RFNBOs and chemicals to inspire future funding topics and set up data-driven policies.

**Date:** 8.-9. June 2023, Lunch-to-lunch conference

**Location:** DG RTD, Atrium, Rue du Champ de Mars 21, Brussels

**Format:** Plenum talks to bring everybody on the same level, discussions in dedicated working groups

---

<sup>1</sup> (see also [SUNERGY Strategic R&I Agenda](#), Appendix).

## Tentative Agenda

**Thursday, June 8, 2023**

11:30 - 12:00	<b>Welcome and Registration</b>
12:00 - 13:00	<b>Lunch</b>
13:00 - 13:20	<b>Opening Talks on trends and drivers for seawater utilization</b>
13:20 - 14:00	<b>Technological Pathways 1 &amp; 2</b>
14:00 - 15:00	<b>Working groups: which way to go?</b>
15:00 - 15:20	<b>Coffee Break</b>
15:20 - 16:00	<b>Technological Pathways 3 &amp; 4</b>
16:00 - 16:45	<b>How does it work in practice? Project pitches to showcase the state-of-the-art</b>
16:45 - 17:45	<b>Get together</b>

**Friday, June 9, 2023**

09:00 - 09:30	<b>Welcome Coffee</b>
09:30 - 09:50	<b>Opening Talks on trends and drivers for seawater utilization</b>
09:50 - 10:30	<b>Technological Pathways 5 &amp; 6</b>
10:30 - 11:30	<b>Working groups: which way to go?</b>
11:30-11:50	<b>Coffee Break</b>
11:50 - 12:10	<b>Technological Pathways 7</b>
12:10 - 12:30	<b>Summary from the working groups</b>
12:30 - 13:15	<b>Panel discussion: Which technological pathways to support?</b>
13:15 - 14:15	<b>Goodbye Lunch</b>

## Tentative programme:

### Confirmed Speakers - Vision & Trends

- Dr. Jan Mertens (Engie): CirculAir - Synergies between direct air capture and efuel production for water and heat management
- Dr. Philippe Schild (European Commission, DG RTD)
- Prof. Joanna Kargul (UWarsaw): SUNERGY Technological Roadmap on renewable fuels and chemicals
- To be completed

### Confirmed Speakers - Technological Pathways & Projects

- Marie-Laure Thielens (Engie): Industrial Desalination - from potable water to hydrogen economies
- Dr. Vincenzo Antonucci (CNR-ITAE): State-of-the-art of direct seawater electrolysis
- Dr. Alberto Figoli (CNR-ITM): State-of-the-art of brines exploitation
- Dr. Patrik Jones (Imperial College): Opportunities and Challenges for the production of chemicals using seawater-based microbial biotechnology
- Dimitri Xevgenos (TU Delft): Circular Desalination and Potential Links with Chemicals and hydrogen production
- Prof. Cédric Tard (École Polytechnique): XSeaO2
- Prof. Matthew Suss (Technion, MIT): State-of-the-art of desalination fuel cells
- To be completed

### Working Groups:

- Policy means to overcome challenges of seawater exploitation
- Environmental Impact of Future technologies
- Technological pathways for seawater usage in energy applications