Intelligent water treatment technologies for water preservation combined with simultaneous energy production and material recovery in energy intensive industries - intelWATT

Istituto per la Tecnologia delle Membrane
Consiglio Nazionale delle Ricerche

With a consortium of 20 partners from 8 countries IntelWATT project aims to develop innovative, cost efficient, smart separation technologies applied in energy and water intensive industries.

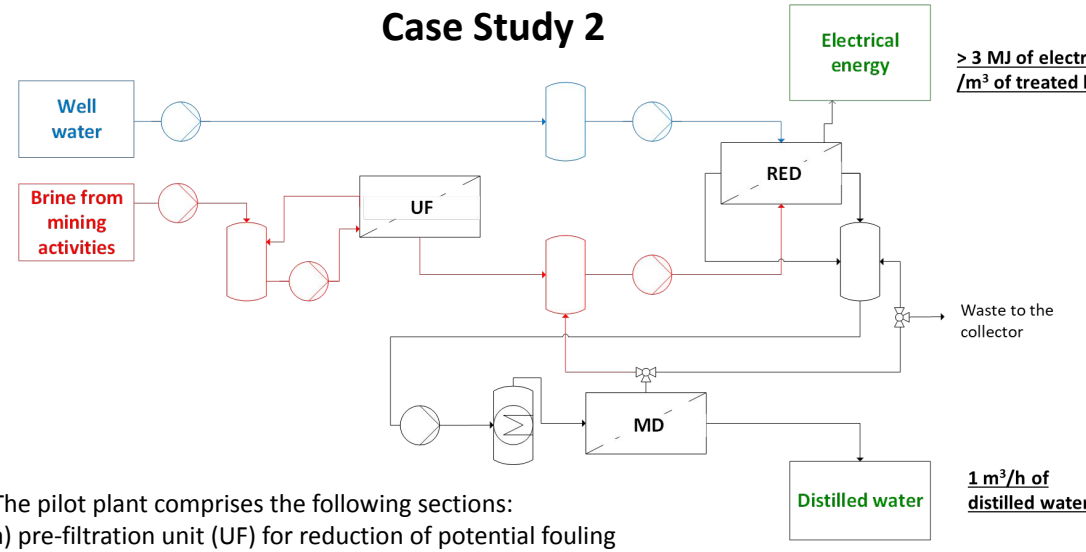
The main objective of the project is to demonstrate **3 case studies at TRL 7** that will achieve **water preservation along with green energy conversion and material recovery**

The CNR-ITM unit is responsible of the Case Study 2 (CS2) targeting to valorise brine streams from mining activities in order to recover energy and water, exploiting renewable energy resources (solar and salinity gradient power) in an **integrated pilot unit comprised by Reverse Electrodialysis (RED) and solar assisted membrane distillation (MD) systems**.

The CS2 pilot plant is currently under construction and it will be installed by December 2023 in **Castellgalí (Spain),** which hosts the intersection point of a **brine collector** which picks up the brines from different salt mining industries.

Tailor made sensors and automated decision-making mechanisms will optimize the process conditions in real time during pilot operation.

Case Study 2



The pilot plant comprises the following sections:
a) pre-filtration unit (UF) for reduction of potential fouling
b) RED unit for SGP harvesting
c) solar assisted MD unit for water recovery

https://www.intelwatt.eu/

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Partners

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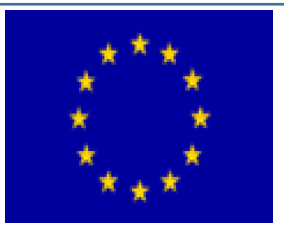

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