



# DESOLINATION

A partnerships between Europe and  
Gulf Countries

## OVERVIEW

Presenter: Giampaolo Manzolini - Politecnico di Milano

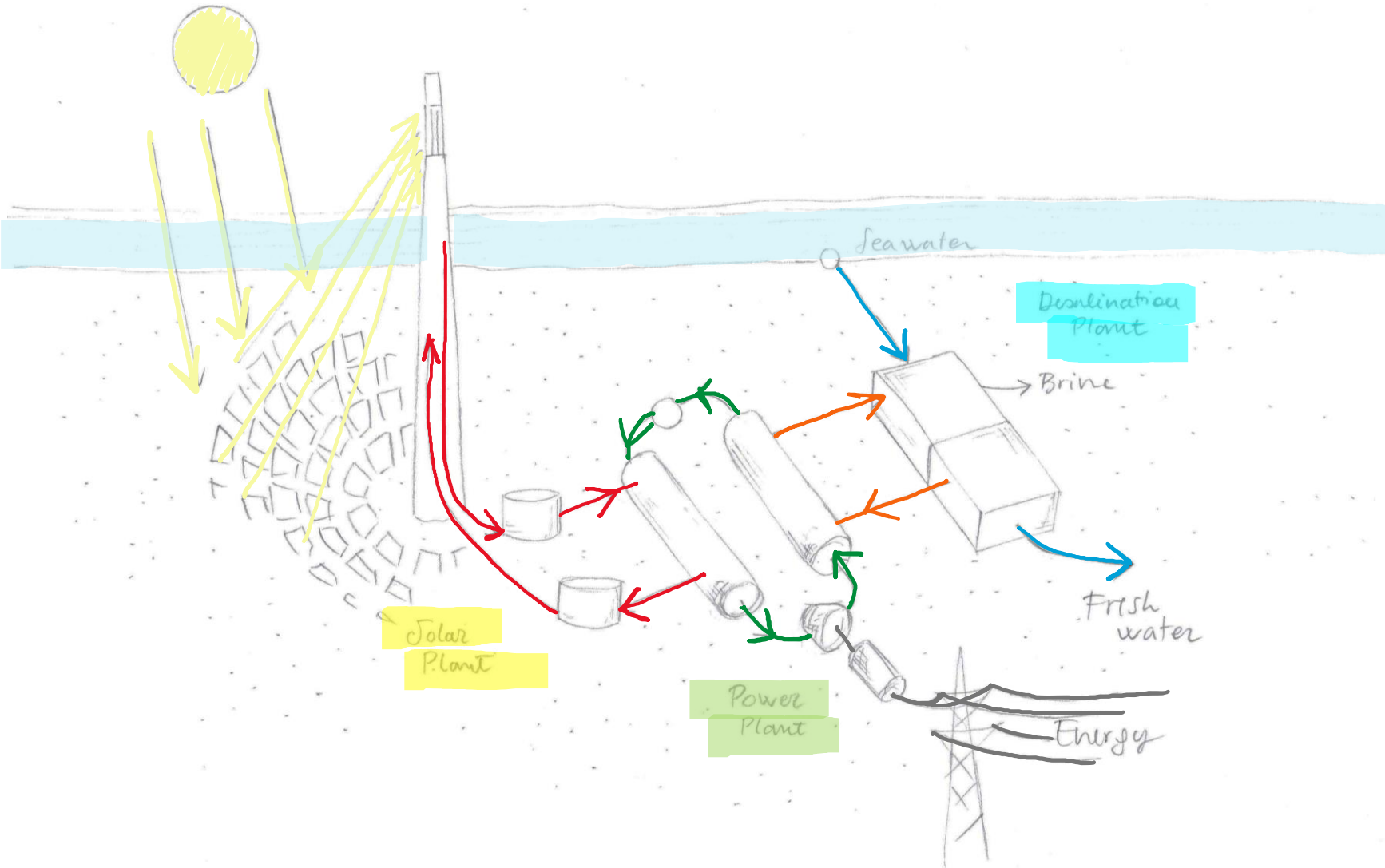
**EU GREEN DEAL**  
**RESEARCH AND INNOVATION AS A DRIVER TOWARDS CLIMATE NEUTRALITY**

Expo 2020 Dubai, UAE  
October 3-4, 2021

# The concept



DESOLINATION



- CO<sub>2</sub> blends in power block
  - higher performance
  - lower costs
- Forward Osmosis and membrane distillation:
  - low energy cost
- Symbiosis
  - No energy waste
  - No efficiency penalty

# Context



DESOLINATION

6 CLEAN WATER AND SANITATION



2.3 billion people live in water-stressed countries

13 CLIMATE ACTION



Rising GHG emissions requires shifting economies



DESOLINATION

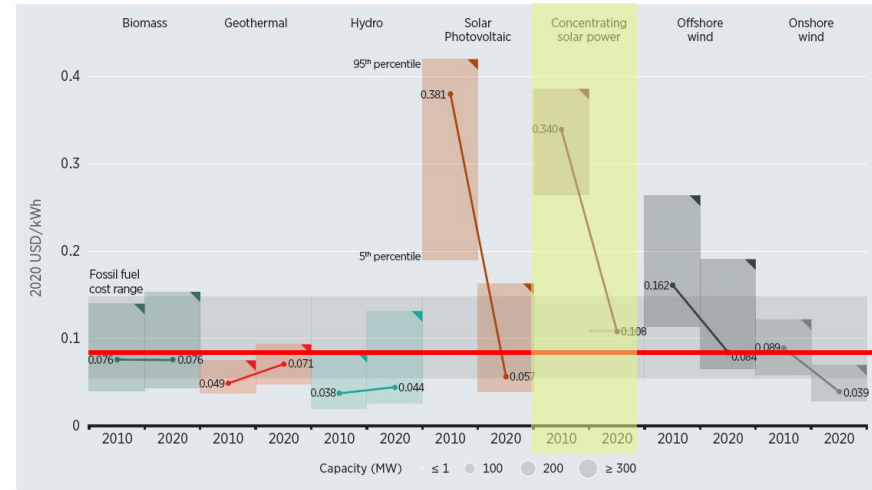
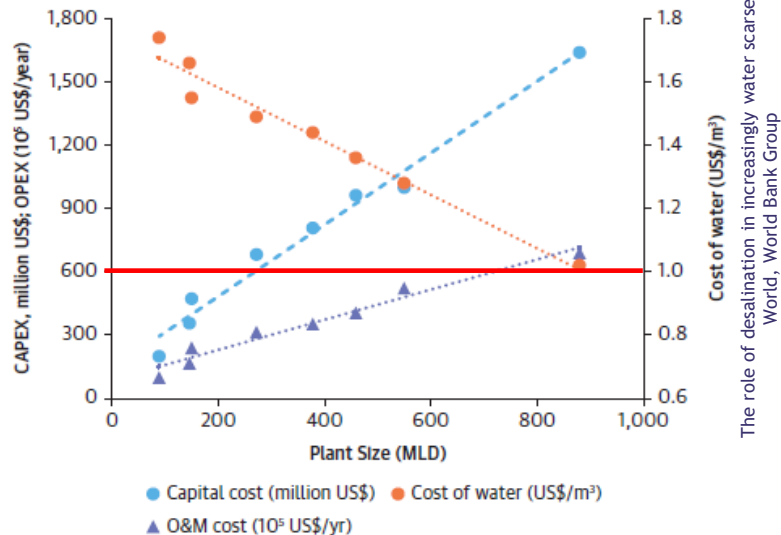
7 AFFORDABLE AND CLEAN ENERGY



Electricity sector only 25%



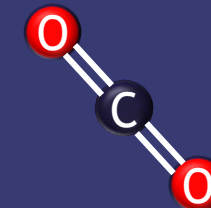
40% Ren. energy target  
Reducing GHG em. by >55%



Lower cost of water  
< 1 €/m<sup>3</sup>



Lower cost of electricity  
< 90 €/MWh



Reduced CO<sub>2</sub> emissions by  
>30%

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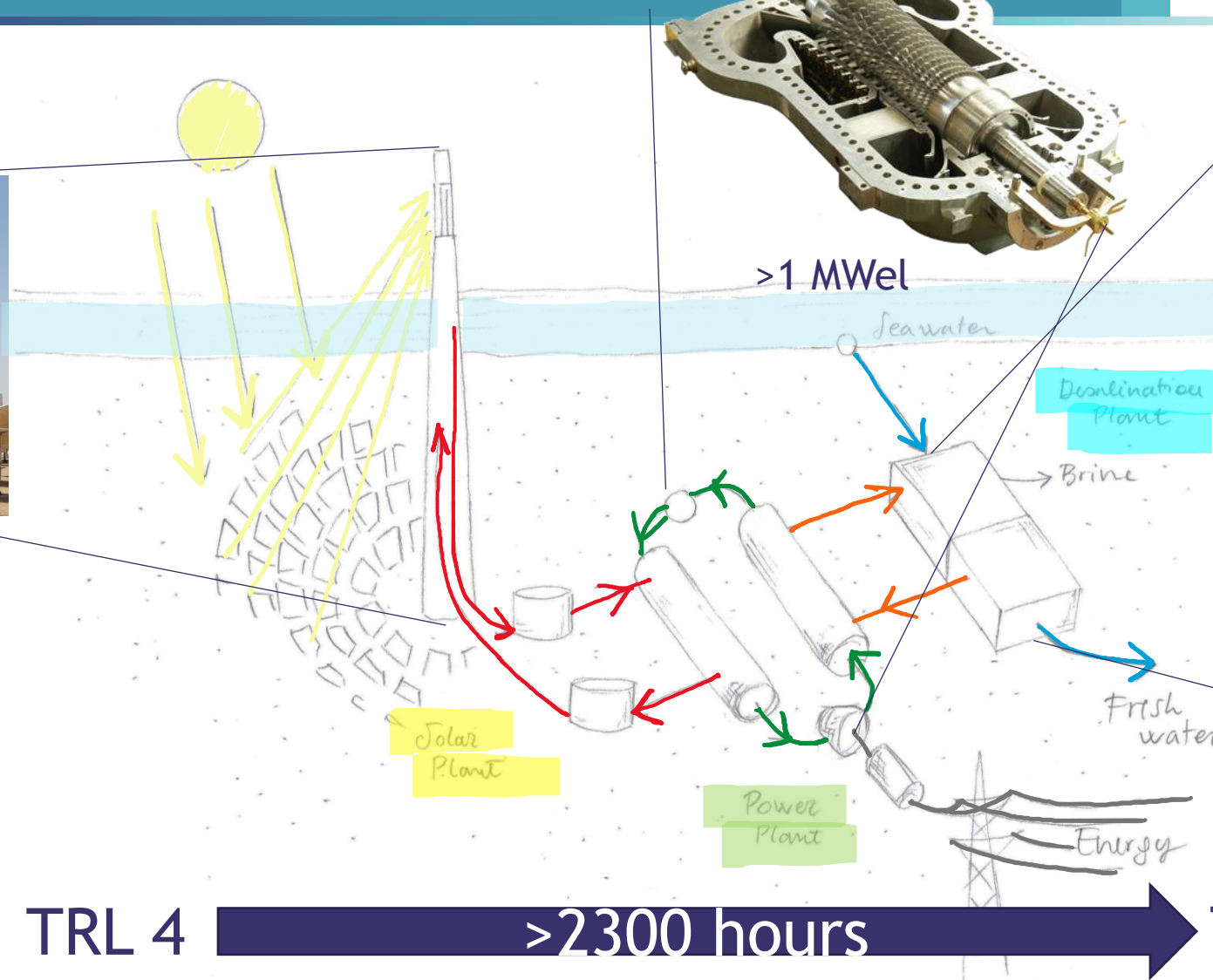
October 3-4, 2021

# Demonstrator



DESOLINATION

جامعة الملك سعود  
King Saud University



>1 MWe

Seawater

Desalination Plant

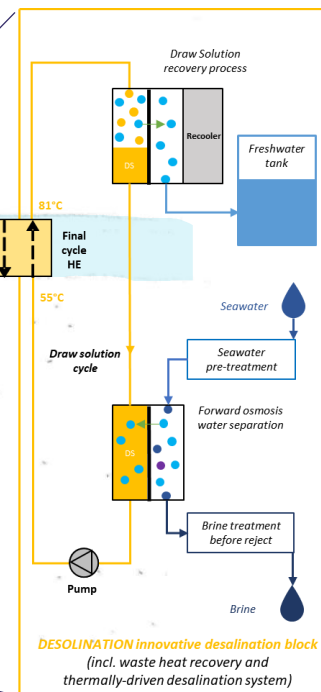
Brine

Fresh water

Energy

Solar Plant

Power Plant



Up to 1 m³/h

TRL 4

>2300 hours

TRL 6



# 19 Partners

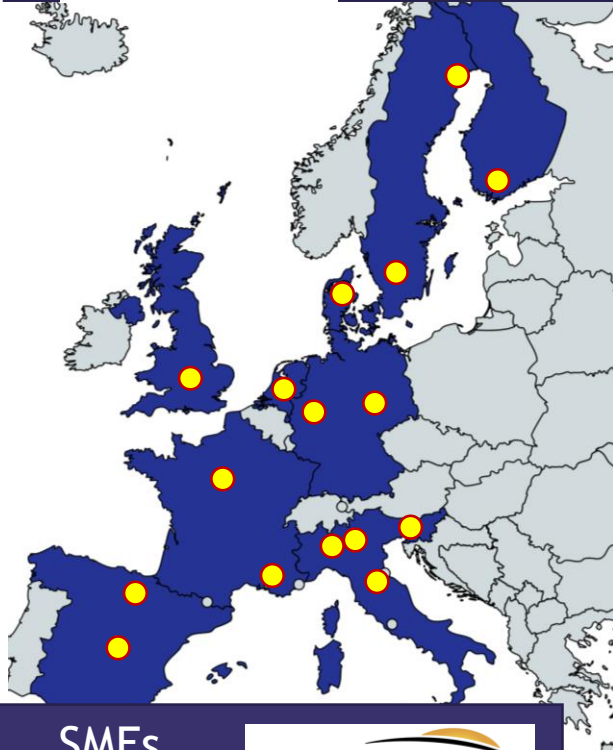


DESOLINATION

## Research Centre



## Large Companies



SMEs



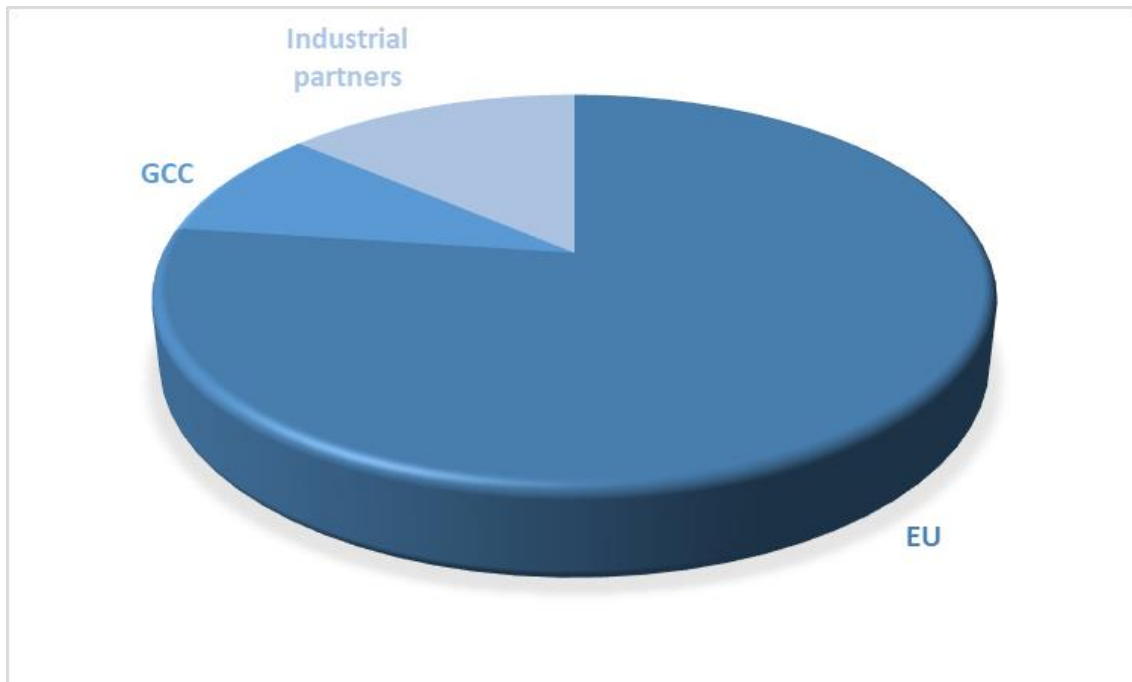
## Universities



Call: H2020-LC-SC3-2020-NZE-RES-CC

Efficient combination of Concentrated Solar Power and desalination (with particular focus on the Gulf Cooperation Council (GCC) region)

Overall project budget: 12.951 M€



- International collaboration increases the impact
- Private investments are required
- Projects are typically budget constraint

# Timeline



DESOLINATION

June 2021

May 2025



1<sup>st</sup> of a kind plant

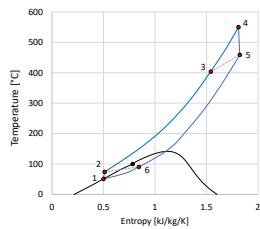
1<sup>st</sup> year

2<sup>nd</sup> year

3<sup>rd</sup> year

4<sup>th</sup> year

Cycle design



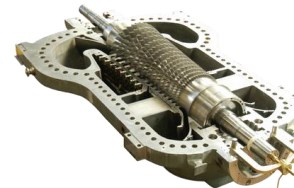
Component development



Plant commissioning



Testing





The DESOLINATION project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101022686