Renewable Energy Desalination

Presented by:
Dr. Guillermo Zaragoza
CIEMAT - Plataforma Solar de Almería (Spain)

Grand Resort Hotel, Limassol, Cyprus,
EDS Conference: Desalination for the Environment, Clean Water and Energy
12 May 2014
EIP Water

9 priorities

Water-Energy Nexus: Approaches for reducing energy consumption related to drinking water production, wastewater treatment, industrial water use, and irrigation for agriculture.
Water-Energy Nexus

“National energy and water policies need to be compatible and coherent. Policies in response to climate change are a specific case in point: efforts to mitigate GHG emissions (e.g. through hydropower or biofuels) may place greater strain on water resources, and development of new water sources (e.g. through desalination) imperils national emissions targets”.

→ Use renewable energy for desalination

Energy requirement to deliver 1 m$^3$ water safe for human consumption from various water sources

- Lake or river: 0.37 kWh/m$^3$
- Groundwater: 0.48 kWh/m$^3$
- Wastewater treatment: 0.62–0.87 kWh/m$^3$
- Wastewater reuse: 1.0–2.5 kWh/m$^3$
- Seawater: 2.58–8.5 kWh/m$^3$

Note: This diagram does not incorporate critical elements such as the distance the water is transported or the level of efficiency, which vary greatly from site to site.


Desalinated water involves the use of at least 75.2 TWh/year (about 0.4% of global electricity consumption)
By 2035, Kuwait may have to allocate 2.5 million barrels of oil per day for water desalination (equal to entire 2011–2012 oil production).

Saudi Arabia has more than 18% of the world’s desalination capacity. 25% of domestic oil and gas production is used to produce water. If current trend continues, will reach 50% by 2030.

→ King Abdullah Initiative has the ultimate goal of ensuring that all seawater desalination in the country will rely on solar energy alone by 2019.

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Action Group

Renewable Energy Desalination
Renewable Energy
Desalination

Members

Agricultural University of Athens (AUA)

Contact Person: Georgios Papadakis
Renewable Energy Desalination

Members

Aston University

Contact Person: Philip A. Davies
Centre for Energy, Environment and Technology Research (CIEMAT) 
Plataforma Solar de Almería

Contact Person: Guillermo Zaragoza
Centre for Renewable Energy Sources and Saving (CRES)

Contact Person: Eftihia Tzen
University of Évora

Contact Person: Pedro Horta
Fraunhofer – Institut für Solare Energiesysteme (ISE)

Contact Person: Joachim Koschikowski
Instituto Tecnológico de Canarias (ITC)

Contact Person: Vicente J. Subiela
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Members

Università degli Studi di Palermo
(Departamento di Ingegneria Chimica, Gestionale, Informatica, Meccanica)

Contact Person: Giorgio Micale
Technische Universität München
Chair of Thermodynamics

Contact Person: Markus Spinnler
Abengoa Water

Contact Person: Francisco J. Muñoz
Renewable Energy
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Members

Aquaver B.V.

Contact Person: Enrique Méndez
Contact Person: Javier de Coca
Elemental Water Makers B.V.

Contact Person: Sid Vollebregt
Solar Spring GmbH

Contact Person: Martin Rolletschek
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Trunz Water Systems AG

Contact Person: Hans-Georg Krönert
Members

WIP Wirtschaft & Infrastruktur GmbH & Co Planungs-KG

Contact Person: Michael Papapetrou
European Desalination Society (EDS)

Contact Person: Miriam Balaban
Main Objectives

• **Improve** RE-desalination technology and reduce its costs.

• Establish an **economic and institutional support** system for RE-desalination.

• **Increase awareness** on RE-desalination.

• Bring new technologies to the **market**.

Desalination market global CAPEX is presently about 6 billion $ but the forecast to 2016 exceeds 16 billion $ (GWI, vol 13, issue 10, October 2012)
Main Activities

• Coordinate and promote **research, development** and **innovation** on RE-Desalination.

→ Scientific papers
→ R&D project proposals
→ Public document on research priorities for RE-Desalination
Main Activities

• Support the development and commercialization of RE-Desalination products.

  Cooperation between companies and research centres of the water and energy sectors
  Support of industrial stakeholders and relevant networks

  → Develop fully functional integrated products for RE-Desalination
  → Promote systems available in the market
Main Activities

- **Raise awareness** about the technology and **demonstrate** its market potential

  Education and training activities
  Demonstration of technologies
  Dissemination of R&D results and operational data

  → Roadmap for the implementation of RE-Desalination
  → Courses (EDS)
  → Report of existing RE-Desalination units, performance and lessons learnt from operation

*(presentation by A. Cipollina, Session 25, Room B, Tuesday 16, 16:00)*
Main Activities

• Support the development and promotion of legal structures and policies to facilitate the deployment of RE-Desalination

Target policy makers
Governments and other institutions responsible for water and energy
Cooperation between energy and water sector

→ Seminars and workshops with policymakers and industrial stakeholders
→ EU policy consultations
Main Activities

• Establish a **long-term network to act** on specific areas that face water problems.

  Engage communities and local organisations in target areas
  Provide technical advice
  Transfer know-how
  Seek for funding opportunities

→ **RE-Desalination packages for specific locations**
Main Activities

• **Disseminate** the activities of the AG and increase **networking** to multiply the impact

→ Annual report summarizing activities of members
→ RE-Desalination sessions on EDS conferences

*(Sessions 20 and 25 on Tuesday 16 afternoon, Room B)*
Renewable Energy Desalination

EIP Water Action Group
Pooling resources – Innovating water

EIP Water Online Market Place
Matchmaking for water innovation

http://www.eip-water.eu