



UNIVERSITÀ
DEGLI STUDI
DI PALERMO



The REAPower project: power production by Reverse Electrodialysis with seawater and brines

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Università e imprese: come progettare la ricerca
7° Programma Quadro (2012-2013): casi di successo, buone pratiche, nuovi¹bandi
Venerdì 21 Settembre 2012, Consorzio Arca, Palermo

The REAPower project

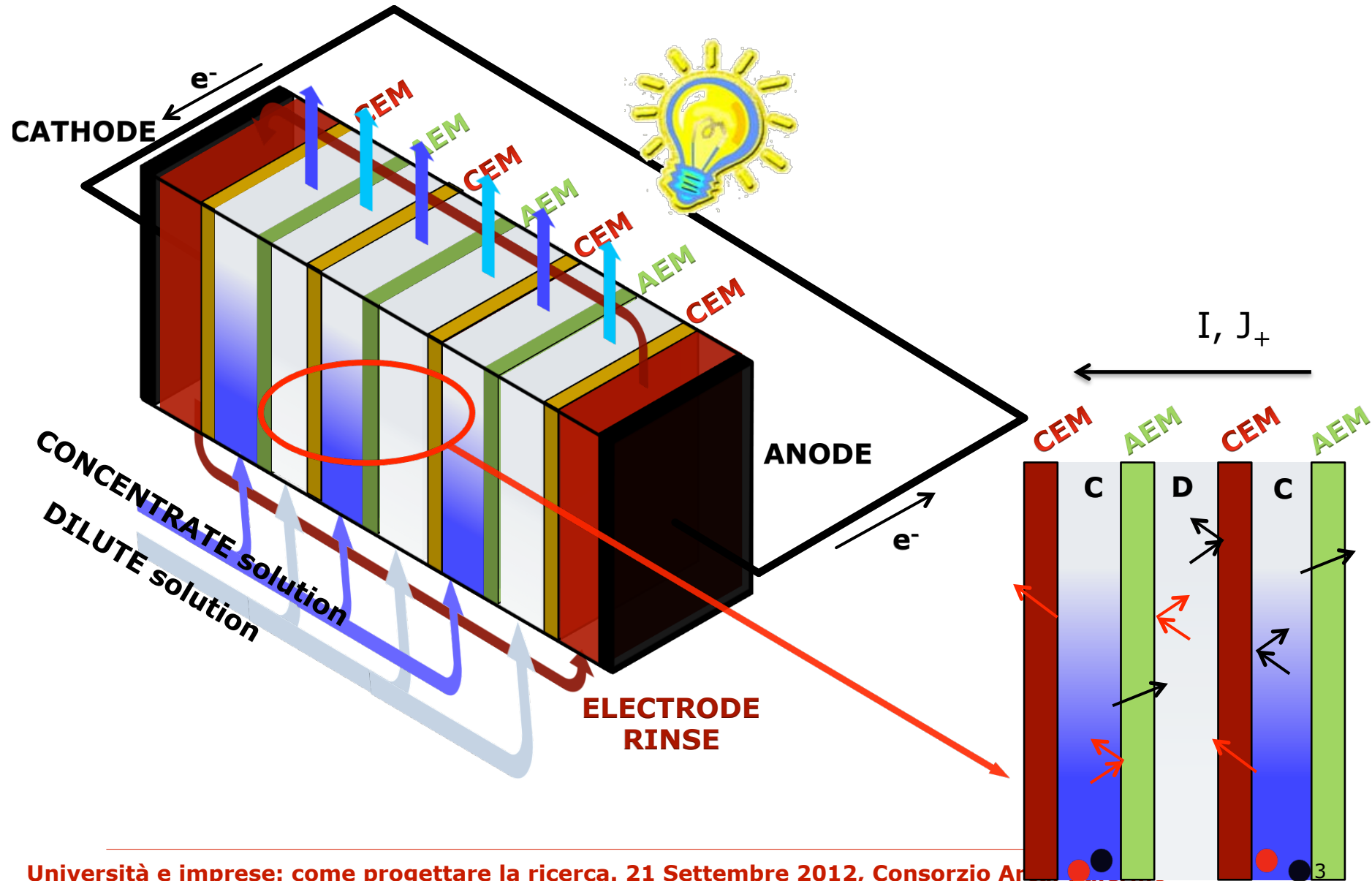


Main facts

- ❑ Project acronym: ***Reverse Electrodialysis for Alternative Power production***
- ❑ Cooperative project financed through the FP7 programme
- ❑ Theme Energy.2010.10.2-1, Future Emerging Technologies for Energy Applications (FET)

- ❑ Starting date: 1 October 2010
- ❑ Closing date: 30 September 2014

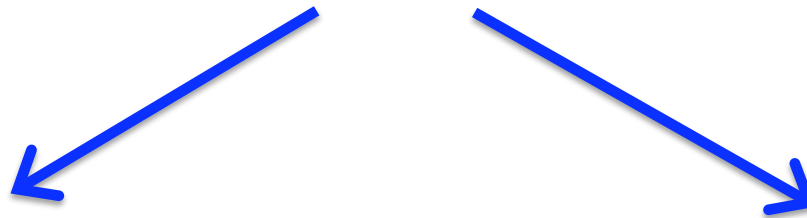
The Reverse Electrodialysis technology



The REAPower project

The idea . . .

**To produce energy from salinity gradients
generated by ultra-concentrated brines
and sea- or brackish-water**



Technological benefits for
the SGP-RE process

New potentials for the
exploitation of brines

Which brines for the SGP-RE process?












Environmental issues related to brine discharge have become more and more crucial in a number of different situations such as:



Solutions so far proposed can be:

- Novel and low-impact brine disposal strategies to be implemented;
- Re-use and exploitation of brines as a non-conventional source of minerals and energy.

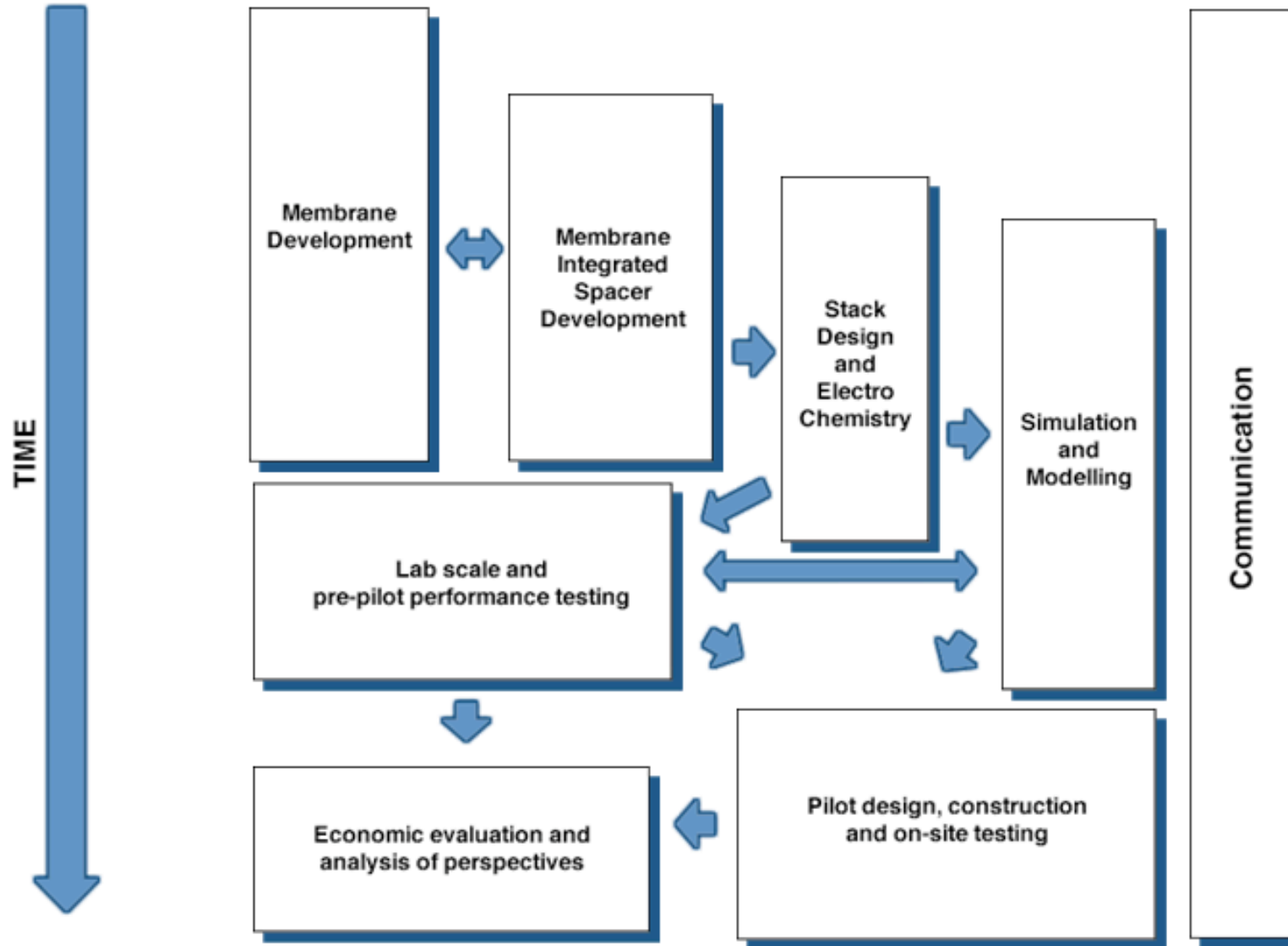
Project partners

Participant	Country	Logo
Wirtschaft und Infrastruktur GmbH & Co Planungs-KG (WIP) - more info -	DE	
Vlaamse instelling voor technologisch onderzoek N.V (VITO) - more info -	BE	
Università Degli Studi Di Palermo (UNIPA) - more info -	IT	
Fujifilm Manufacturing Europe B.V. (FUJI) - more info -	NL	
Next Technology TECNOTESSILE Società Nazionale di Ricerca r.l. (NTT) - more info -	IT	
KEMA NEDERLAND BV (KEMA) - more info -	NL	
Università della Calabria (DICEM-UNICAL) - more info -	IT	
The University of Manchester (UNIMAN) - more info -	UK	
REDstack B.V. - more info -	NL	
Kraton Polymers, LLC (KRATON) - more info -	US	
SolarSpring GmbH - more info -	DE	

Private companies

Research entities

Project workplan



Project subcontractor

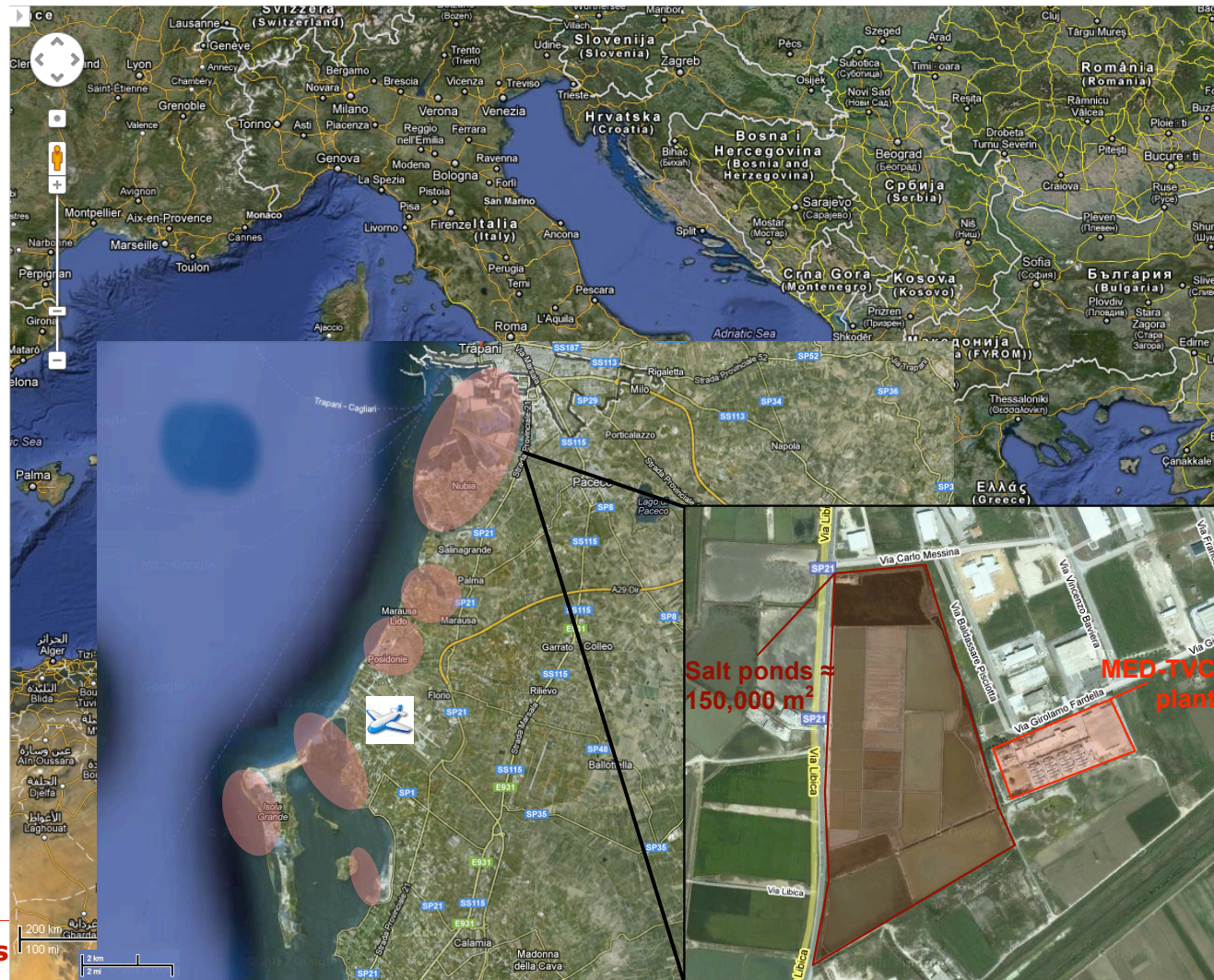


- Largest salt company in Sicily;
- Almost 100 years of production history;
- About 800 hectares of saltworks;
- About 100,000 tonn/year salt production

Sosalt is offering a unique framework for the installation site of the final SGP-RE prototype

Which brines for the SGP-RE process?

Prototype installation site:
the singular framework of Trapani saltworks



Which brines for the SGP-RE process?

Prototype installation site: The MED-TVC plant

4 MED-TVC units with total nominal production: **36000 m³/d**

MED units with **12 effects** and a Vapor Ejector for the

Thermal Vapor

Compression;

Brine available:

- **80,000 m³/d;**
- **35-38°C;**
- **52-55 gr/lit**



Which brines for the SGP-RE process?

Prototype installation site: Ettore-Infersa saltworks



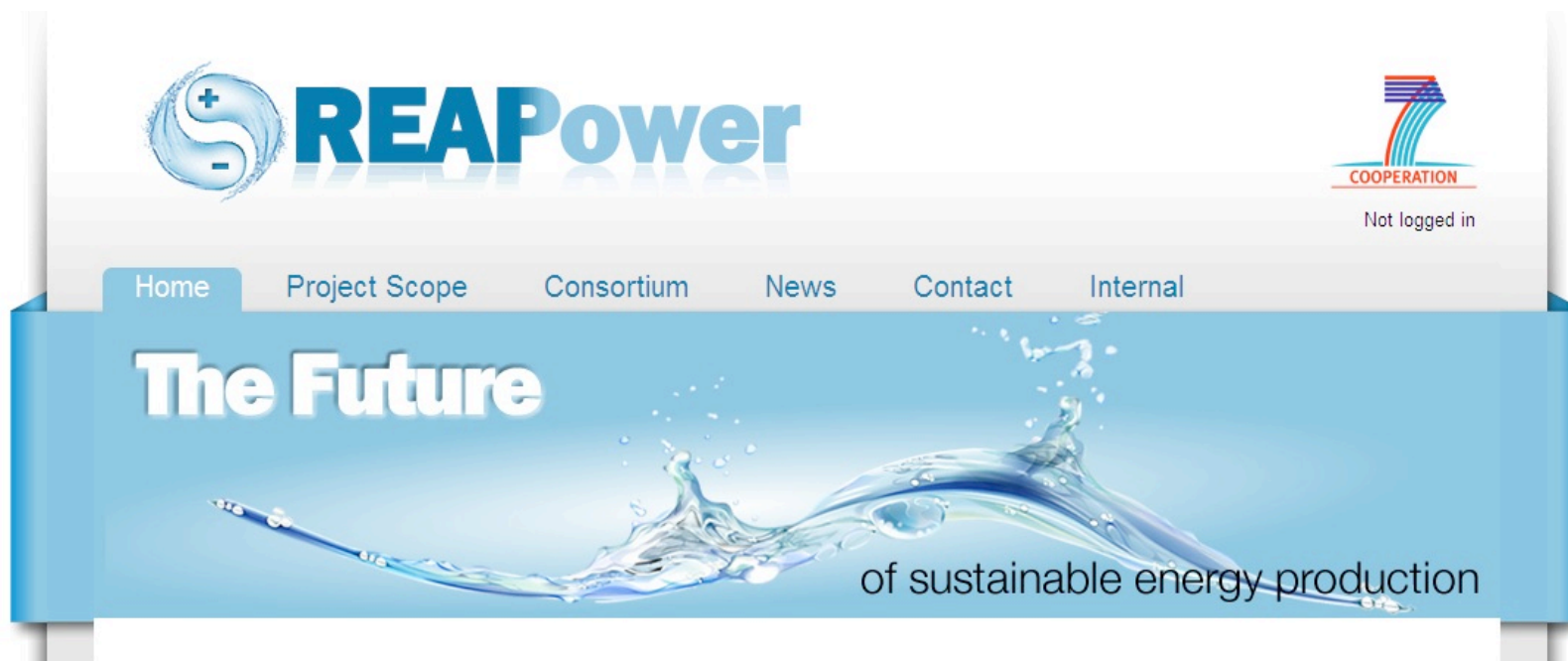
Direct access to both saturated brine and seawater from open channels

Installation place within an old, restructured WINDMILL



REAPower website

<http://www.reapower.eu/>





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Facoltà di Ingegneria

Dipartimento di Ingegneria Chimica, Gestionale, Informatica, Meccanica

**Thanks for your
kind attention**

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