



Microbial Desalination for Low Energy Drinking Water

Fact Sheet

Project Information

MIDES

Grant agreement ID: 685793

[Project website](#)

DOI

[10.3030/685793](https://doi.org/10.3030/685793)

Project closed

EC signature date

8 March 2016

Start date

1 April 2016

End date

30 September 2020

Funded under

INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies – Nanotechnologies

Total cost

€ 8 019 583,04

EU contribution

€ 6 328 164,13

Coordinated by

FCC AQUALIA SA



Spain

Objective

Shortage of fresh water has become one of the major challenges for societies all over the world. Water desalination offers an opportunity to significantly increase the freshwater supply for drinking, industrial use and irrigation. All current desalination technologies require significant electrical or thermal energy, with today's Reverse Osmosis (RO) desalination units consuming electric energy of at least 3 kWh/m³ – in extensive tests about ten years ago, the Affordable Desalination Collaboration (ADC) in California measured 1.6 kWh/m³ for RO power consumption on the best commercially available membranes, and total plant energy about twice as high. To overcome thermodynamical limitations of RO, which point to 1.09 kwh/m³ for

seawater at 50 % recovery, Microbial Desalination Cells (MDC) concurrently treat wastewater and generate energy to achieve desalination. MDCs can produce around 1.8 kWh of bioelectricity from the handling of 1 m³ of wastewater. Such energy can be directly used to i) totally remove the salt content in seawater without external energy input, or ii) partially reduce the salinity to lower substantially the amount of energy for a subsequent desalination treatment.

MIDES aims to develop the World's largest demonstrator of an innovative and low-energy technology for drinking water production, using MDC technology either as stand-alone or as pre-treatment step for RO.

The project will focus on overcoming the current limitations of MDC technology such as low desalination rate, high manufacturing cost, biofouling and scaling problems on membranes, optimization of the microbial-electrochemical process, system scaling up and economic feasibility of the technology. This will be achieved via innovation in nanostructured electrodes, antifouling membranes (using nanoparticles with biocide activity), electrochemical reactor design and optimization, microbial electrochemistry and physiology expertise, and process engineering and control.

Fields of science (EuroSciVoc)

[engineering and technology](#) > [electrical engineering, electronic engineering, information engineering](#) > [electrical engineering](#) > **[electric energy](#)**

[engineering and technology](#) > [environmental engineering](#) > [water treatment processes](#) > **[drinking water treatment processes](#)**

[engineering and technology](#) > [environmental engineering](#) > [water treatment processes](#) > **[wastewater treatment processes](#)**

[engineering and technology](#) > [civil engineering](#) > [water engineering](#) > **[irrigation](#)**

[engineering and technology](#) > [chemical engineering](#) > [separation technologies](#) > [desalination](#) > **[reverse osmosis](#)**



Programme(s)

[H2020-EU.2.1.2. - INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies – Nanotechnologies](#) MAIN PROGRAMME

Topic(s)

[NMP-24-2015 - Low-energy solutions for drinking water production](#)

Call for proposal

[H2020-NMP-2014-2015](#) 

[See other projects for this call](#)

Sub call

H2020-NMP-2015-two-stage

Funding Scheme

[IA - Innovation action](#)

Coordinator



FCC AQUALIA SA

Net EU contribution

€ 2 137 701,56

Total cost

€ 3 102 604,29

Address

CALLE FEDERICO SALMON 13

28016 Madrid

 **Spain** 

Region

Comunidad de Madrid > Comunidad de Madrid > Madrid

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Participants (12)

HIDROTEC TECNOLOGIA DEL AGUA SL

 Spain

Net EU contribution

€ 34 121,44

Address

AVENIDA KANSAS CITY 9

41007 Sevilla 

Region

Sur > Andalucía > Sevilla

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 48 744,91



FUJIFILM MANUFACTURING EUROPE BV

 Netherlands

Net EU contribution

€ 530 582,33

Address

OUDENSTAART 1

5047 TK Tilburg 

Region

Zuid-Nederland > Noord-Brabant > Midden-Noord-Brabant

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 757 974,75



FUNDACION IMDEA AGUA



Spain

Net EU contribution

€ 965 258,75

Address

AVENIDA PUNTO COM N2

28805 Alcala De Henares Madrid



Region

Comunidad de Madrid > Comunidad de Madrid > Madrid

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 965 258,75



SGL CARBON GMBH



Germany

Net EU contribution

€ 451 937,50

Address

WERNER VON SIEMENS STRASSE 18

86405 Meitingen



Region

Bayern > Schwaben > Augsburg, Landkreis

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

Total cost

€ 645 625,00



ACONDICIONAMIENTO TARRASENSE ASSOCIACION

 Spain

Net EU contribution

€ 835 581,25

Address

CARRER DE LA INNOVACIO 2

08225 Terrassa 

Region

Este > Cataluña > Barcelona

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 835 581,25



MIKROLIN HUNGARY TERMELO ES SZOLGALTATO KFT

 Hungary

Net EU contribution

€ 160 300,00

Address

Buzavirag utca 7

2800 Tatabanya 

SME 

Yes

Region

Dunántúl > Közép-Dunántúl > Komárom-Esztergom

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

- Contact the organisation Website
- Participation in EU R&I programmes
- HORIZON collaboration network

Total cost

€ 229 000,00



ONCONTROL TECHNOLOGIES LDA

Portugal

Net EU contribution

€ 274 756,30

Address

RUA CIDADE DE POITIERS, N.155, 1.ANDAR
3000-108 COIMBRA

SME

Yes

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

- Contact the organisation
- Participation in EU R&I programmes
- HORIZON collaboration network

Total cost

€ 392 509,00



SIMTECH GMBH

Austria

Net EU contribution

€ 357 245,00

Address

RIESSTRASSE 120
8010 Graz

SME

Yes

Region

Südösterreich > Steiermark > Graz

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

- Contact the organisation
- Participation in EU R&I programmes
- HORIZON collaboration network

Total cost

€ 510 350,00



ROOD WIT BLAUW WATER SERVICES BV

Netherlands

Net EU contribution

€ 0,00

Address

AMBACHTSTRAAT 20
7609 RA ALMELO

SME

Yes

Region

Oost-Nederland > Overijssel > Twente

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

- Contact the organisation
- Participation in EU R&I programmes
- HORIZON collaboration network

Total cost

No data



STICHTING IHE DELFT INSTITUTE FOR WATER EDUCATION

 Netherlands

Net EU contribution

€ 430 680,00

Address

WESTVEST 7

2611 AX Delft 

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 430 680,00



ECOLE NATIONALE D'INGENIEURS DE GABES

 Tunisia

Net EU contribution

€ 150 000,00

Address

OMAR IBN EL KHATTAB

6029 Zrig Gabes 

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 150 000,00



UNIVERSIDAD DE CHILE

 Chile

Net EU contribution

€ 0,00

Address

Av. Libertador Bernardo O'Higgins 1058
10 Santiago 

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

No data

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European Union, 2025