RESTRUCTURE
Project ID: 283015
Funded under: FP7-ENERGY


From 2011-11-01 to 2016-01-31, closed project | RESTRUCTURE Website

Project details

<table>
<thead>
<tr>
<th>Total cost:</th>
<th>Topic(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUR 3 035 205,51</td>
<td>ENERGY.2011.2.5-1 - Thermal energy storage for CSP plants</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EU contribution:</th>
<th>Call for proposal:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUR 2 114 497,50</td>
<td>FP7-ENERGY-2011-1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coordinated in:</th>
<th>Funding scheme:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greece</td>
<td>CP - Collaborative project (generic)</td>
</tr>
</tbody>
</table>

Objective

ThermoChemical Storage (TCS) involves the exploitation of the heat effects of reversible chemical reactions for the “storage” of solar heat. Among gas-solid reactions proposed for such an approach the utilization of a pair of redox reactions involving multivalent solid oxides has several inherent advantages that make it attractive for large-scale deployment.

The new concept introduced in the current proposal is instead of using packed or fluidized beds of the redox material as the heat storage medium, to employ monolithic structures like honeycombs or foams, made entirely or partially from the redox oxide materials. The proposal stems from and capitalizes on a number of ideas, concepts and achievements materialized in previous co-operations among the current consortium members:

- The successful development, qualification and demonstration of honeycombs made of advanced ceramics to operate as effective volumetric solar thermal collectors/heat exchangers in Solar Thermal Power Plants.
- The successful demonstration and scale-up to the 100-kW of “structured” honeycomb reactors involving coating of mixed-iron-oxides-based redox materials on advanced ceramic supports for cyclic solar hydrogen production.
- The capability of several multivalent oxide-based redox systems to be used in thermochemical storage cycles in order to store and release heat in Concentrated Solar Power (CSP) plants.

The proposed concept combines the demonstrated technologies of ceramic volumetric receivers and structured solar reactors and promotes them one step further to the development of an integrated receiver/reactor/heat exchanger configuration with enhanced heat storage characteristics, through a series of innovations to be implemented concerning new reactor/reactor exchanger designs, enhanced incorporation of redox materials in the reactor’s structure, improved redox material compositions and utilization of industrial wastes as raw materials for the oxide redox systems synthesis.

Related information

Result In Brief
Innovative concept for thermochemical applications to store high temperature heat for later use

Report Summaries

News
Novel honeycomb design for better thermochemical energy storage capabilities
**Coordinator**

ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS  
CHARILAOU THERMI ROAD 6 KM  
57001 THERMI THESSALONIKI  
Greece  
**EU contribution:** EUR 755 300

**Activity type:** Research Organisations

**Administrative contact:** George Karagiannakis  
Tel.: +302310498198  
Fax: +302310498110

See on map

**Participants**

DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV  
Linder Hoehe  
51147 KOELN  
Germany  
**EU contribution:** EUR 787 597,50

**Activity type:** Higher or Secondary Education Establishments

**Administrative contact:** Georg Böhm  
Tel.: +4922036012972  
Fax: +4922036014141

See on map

AEIFOROS METAL PROCESSING S.A.  
12th klm. Thessaloniki-Veria Old National Road  
57008 Thessaloniki  
Greece  
**EU contribution:** EUR 74 358,40

**Activity type:** Private for-profit entities (excluding Higher or Secondary Education Establishments)

**Administrative contact:** Andreas Chasiotis  
Tel.: +302310790143

Contact the organisation
MOLYCORP CHEMICALS & OXIDES (EUROPE) LTD
BARTON LANE ABINGDON SCIENCE PARK UNIT 3 THE QUADRANT
OX14 3YS Abingdon
United Kingdom

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

Administrative contact: Karen Brown
Tel.: +44 1235 521 899
Contact the organisation

EU contribution: EUR 91 600

LIQTECH AS
GRUSBAKKEN 12
2820 GENTOFTE
Denmark

See on map

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

Administrative contact: Haris Kadrispahic
Tel.: +45 31232940
Contact the organisation

EU contribution: EUR 368 000

TOTAL S.A.
PLACE JEAN MILLIER 2
92400 COURBEVOIE
France

See on map

Activity type: Other

Administrative contact: Helene Bru
Tel.: +33147448257
Contact the organisation

TOTAL MARKETING SERVICES
COURS MICHELET 24
92800 PUTEAUX
France

See on map

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

Administrative contact: Helene Bru
Tel.: +33147448257
Contact the organisation

EU contribution: EUR 368 000
Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)

Administrative contact: Irma Mantilla
Tel.: +34954970427
Contact the organisation

Subjects

Energy Saving

Last updated on 2017-05-29
Retrieved on 2019-06-23

© European Union, 2019