SUNlight-to-LIQUID: Integrated solar-thermochemical synthesis of liquid hydrocarbon fuels

Resultados

Información del proyecto

SUN-to-LIQUID

Identificador del acuerdo de subvención:
654408

Sitio web del proyecto

DOI
10.3030/654408

Proyecto cerrado

Fecha de la firma de la CE
14 Diciembre 2015

Fecha de inicio
1 Enero 2016

Fecha de finalización
31 Diciembre 2019

Financiado con arreglo a
SOCIETAL CHALLENGES - Secure, clean and efficient energy
Make bio-energy more competitive and sustainable
New alternative fuels

Coste total
€ 6 150 031,25

Aportación de la UE
€ 4 450 618,00

Coordinado por
BAUHAUS LUFTFAHRT EV
Germany

CORDIS proporciona enlaces a los documentos públicos y las publicaciones de los proyectos de los programas marco HORIZONTE.

Los enlaces a los documentos y las publicaciones de los proyectos del Séptimo Programa Marco, así como los enlaces a algunos tipos de resultados específicos,

como conjuntos de datos y «software», se obtienen dinámicamente de OpenAIRE.

Resultado final

Documents, reports (5)

Techno-economic and environmental analysis of CO2 provision from various sources

D1.3 Techno-economic and environmental analysis of CO2 provision from various sources (M24) BHL Report on various aspects of CO2 feedstock provision for solar thermochemical fuel production. Serves as common basis for economic analysis in T1.4 and environmental analysis in T1.5

Economic analysis and life-cycle assessment of MW scale design

D1.8 Economic analysis and life-cycle assessment of MW scale design concept (M42) BHL, Report on T1.4 and T1.5

Life-cycle analysis, social benefits and environmental impact analysis

D1.7 Life-cycle analysis, social benefits and environmental impact analysis (M39) BHL, Report on T1.5

Economic analysis and risk assessment

D1.6 Economic analysis and risk assessment (M36) BHL, Report on T1.4

Report on SUN-to-LIQUID Demonstration Event involving the TTSEP

D8.5 Report on SUN-to-LIQUID Demonstration Event involving the TTSEP (M44) ARTTIC. Executive summary of the event and its outcomes from strong participation of relevant stakeholders in energy, transport and aviation. Dissemination of these results to relevant CSAs, advisory councils of the EC, platforms and initiatives.

Websites, patent fillings, videos etc. (2)

SUN-to-LIQUID Scientific Workshop

D8.3 SUN-to-LIQUID Scientific Workshop (M24) IMDEA. Implementation of scientific workshops to present specific technology advances and obtain feedback

SUN-to-LIQUID public website

D8.2 SUN-to-LIQUID public website (M6) ARTTIC. Create and maintain a public web site providing details and results of the project. Maintained to the end of the project.

Other (1)

SUN-to-LIQUID summer schools and seminar programme for master students

D8.4 SUN-to-LIQUID summer schools and seminar programme for master students (M30) IMDEA. The summer schools and training events will be implemented for comprehensive training in the field of thermochemical energy conversion to students from participating organisations and beyond.

Publicaciones

Peer reviewed articles (11)

Modeling counter-flow particle heat exchangers for two-step solar thermochemical syngas production

Autores: Christoph P. Falter, Robert Pitz-Paal
Publicado en: Applied Thermal Engineering, Edición 132, 2018, Página(s) 613-623, ISSN 1359-4311
Editor: Pergamon Press Ltd.
DOI: 10.1016/j.applthermaleng.2017.12.087

A generic solar-thermochemical reactor model with internal heat diffusion for counter-flow solid heat exchange

Autores: Christoph P. Falter, Robert Pitz-Paal
Publicado en: Solar Energy, Edición 144, 2017, Página(s) 569-579, ISSN 0038-092X
Editor: Pergamon Press Ltd.
DOI: 10.1016/j.solener.2017.01.063

Reactive stability of promising scalable doped ceria materials for thermochemical two-step CO 2 dissociation

Autores: R. Jacot, J. Madhusudhan Naik, R. Moré, R. Michalsky, A. Steinfeld, G. R. Patzke
Publicado en: Journal of Materials Chemistry A, Edición 6/14, 2018, Página(s) 5807-5816, ISSN 2050-7488

Editor: Royal Society of Chemistry
DOI: 10.1039/c7ta10966k

Additive-Manufactured Ordered Porous Structures Made of Ceria for Concentrating Solar Applications

Autores: Marie Hoes, Simon Ackermann, David Theiler, Philipp Furler, Aldo Steinfeld
Publicado en: Energy Technology, Edición 23 May 2019, 2019, Página(s) 1900484, ISSN 2194-4288
Editor: Wiley Online Library
DOI: 10.1002/ente.201900484

Water Footprint and Land Requirement of Solar Thermochemical Jet-Fuel Production

Autores: Christoph Falter, Robert Pitz-Paal
Publicado en: Environmental Science & Technology, Edición 51/21, 2017, Página(s) 12938-12947, ISSN 0013-936X
Editor: American Chemical Society
DOI: 10.1021/acs.est.7b02633

Energy analysis of solar thermochemical fuel production pathway with a focus on waste heat recuperation and vacuum generation

Autores: Christoph Falter, Robert Pitz-Paal
Publicado en: Solar Energy, Edición 176, 2018, Página(s) 230-240, ISSN 0038-092X
Editor: Pergamon Press Ltd.
DOI: 10.1016/j.solener.2018.10.042

Performance Assessment of a Heat Recovery System for Monolithic Receiver-Reactors

Autores: Stefan Brendelberger, Philipp Holzemer-Zerhusen, Henrik von Storch, Christian Sattler
Publicado en: Journal of Solar Energy Engineering, Edición 141/2, 2019, Página(s) 021008 (1-9 pages), ISSN 0199-6231
Editor: American Society of Mechanical Engineers
DOI: 10.1115/1.4042241

Thermochemical oxygen pumping for improved hydrogen production in solar redox cycles

Autores: Stefan Brendelberger, Josua Vieten, Martin Roeb, Christian Sattler
Publicado en: International Journal of Hydrogen Energy, Edición 44/20, 2019, Página(s) 9802-9810, ISSN 0360-3199
Editor: Pergamon Press Ltd.
DOI: 10.1016/j.ijhydene.2018.12.135

Heat Transfer Model of a 50 kW Solar Receiver–Reactor for Thermochemical Redox Cycling Using Cerium Dioxide

Autores: S. Zoller, E. Koepf, P. Roos, A. Steinfeld
Publicado en: Journal of Solar Energy Engineering, Edición 141/2, 2019, Página(s) 021014 (1-11 pages), ISSN 0199-6231
Editor: American Society of Mechanical Engineers
DOI: 10.1115/1.4042059

Geographical Potential of Solar Thermochemical Jet Fuel Production
Autores: Falter, Christoph; Scharfenberg,Niklas; Habersetzer,Antoine
Publicado en: Geographical Potential of Solar Thermochemical Jet Fuel Production, Edición 13(4), 802, 2020, ISSN 1996-1073
Editor: Multidisciplinary Digital Publishing Institute (MDPI)
DOI: 10.3390/en13040802

Thermodynamics of paired charge-compensating doped ceria with superior redox performance for solar thermochemical splitting of H 2 O and CO 2
Autores: Marie Hoes, Christopher L. Muhich, Roger Jacot, Greta R. Patzke, Aldo Steinfeld
Publicado en: J. Mater. Chem. A, Edición 5/36, 2017, Página(s) 19476-19484, ISSN 2050-7488
Editor: Royal Society of Chemistry
DOI: 10.1039/c7ta05824a

Conference proceedings (5)

Perspectives of advanced thermal management in solar thermochemical syngas production using a counter-flow solid-solid heat exchanger
Autores: Christoph Falter, Andreas Sizmann, Robert Pitz-Paal
Publicado en: AIP Conference Proceedings volume 1850, Edición 27 June 2017, 2017, Página(s) 100005
Editor: Falter, Christoph; Sizmann, Andreas; Pitz-Paal, Robert;
DOI: 10.1063/1.4984462

Ultra-modular 500m2 heliostat field for high flux/high temperature solar-driven processes
Autores: Manuel Romero, José González-Aguilar, Salvador Luque
Publicado en: AIP Conference Proceedings volume 1850, Edición 27 June 2017, 2017, Página(s) 030044
Editor: Author(s)
DOI: 10.1063/1.4984387

Reticulated porous ceramic ceria structures with modified surface geometry for solar thermochemical splitting of water and carbon dioxide

Autores: Marie Hoes, Erik Koepf, Patrick Davenport, Aldo Steinfeld
Publicado en: SOLARPACES 2018: International Conference on Concentrating Solar Power and Chemical Energy Systems, Edición 2126, Edición 1. 26.07.2019, 2019, Página(s) 180010
Editor: AIP Publishing
DOI: 10.1063/1.5117690

3D modelling of a solar thermochemical reactor for MW scaling-up studies
Autores: Stylianos Kyrimis, Patrick Le Clercq, Stefan Brendelberger
Publicado en: SOLARPACES 2018: International Conference on Concentrating Solar Power and Chemical Energy Systems, Edición Volume 2126, Edición 1, 26.07.2019, 2019, Página(s) 180013
Editor: AIP Publishing
DOI: 10.1063/1.5117693

Liquid fuels from concentrated sunlight: An overview on development and integration of a 50 kW solar thermochemical reactor and high concentration solar field for the SUN-to-LIQUID project
Autores: Erik Koepf, Stefan Zoller, Salvador Luque, Martin Thelen, Stefan Brendelberger, José González-Aguilar, Manuel Romero, Aldo Steinfeld
Publicado en: SOLARPACES 2018: International Conference on Concentrating Solar Power and Chemical Energy Systems, Edición 2126, 26 July 2019, 2019, Página(s) 180012
Editor: AIP Publishing
DOI: 10.1063/1.5117692

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Permalink: https://cordis.europa.eu/project/id/654408/results/es