


EU-SOLARIS:
The European Infrastructure for Concentrated Solar Thermal and
Solar Chemistry Technologies



Vision, achievements and results

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The European Research Infrastructure
for Concentrated Solar Power


The EU-SOLARIS Project is
co-funded by the 7th Framework
Programme of the European Union


EU SOLARIS



Scope


- To *create a new legal entity* to explore and implement new and improved rules and procedures for Research Infrastructures (RI) *for Concentrating Solar Thermal (CST) and Solar Chemistry technologies*, in order to optimise RI development and Research and Technology Development (RTD) coordination;
- EU-SOLARIS *is expected to be the first of its kind*, where industrial needs will play a significant role and private funding will complement public funding.


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Vision

- To establish EU-SOLARIS as the *reference European Research Infrastructure* in Solar Thermal Electricity (STE) and in the rest of CST technologies, including Solar Chemistry;
- To *support excellence* in scientific and technological development.


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Goals


- Provide the most complete, high quality *scientific infrastructure portfolio* at international level, facilitating researchers' access to highly specialised research infrastructure through *a single access point*;
- Link the scientific communities, industry and universities involved in the CST sector;
- Increase the efficient use of the economic and human resources required throughout the European research context;
- Provide efficient *resources management* to complement research and to *avoid* unnecessary technological *duplication and repetition*;
- Maintain *Europe at the forefront* of CST technologies development


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Suitable Governance Model


- Ensuring an integrated and effective management of the EU RI as a whole;
- Involving relevant National/Regional Governments, funding organisations and relevant international organisations;
- Securing close participation of the industrial sector.


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Suitable Funding Model


- Securing the necessary commitment and support from Member States;
- Considerable funding limitations in current economic situation;
- Synchronisation with the diverse national and European funding cycles;
- Close participation of the industrial sector;
- Access to global market in a joint effort.

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EU-SOLARIS PREPARATORY PHASE


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Nov 2012 Oct 2016




EU-SOLARIS Preparatory Phase	EU-SOLARIS Operational Phase
<p>Duration</p> <ul style="list-style-type: none"> o 48 months, starting 1st November 2012 <p>Composition:</p> <p>15 partners from 9 countries:</p> <ul style="list-style-type: none"> o 13 key Scientific Centres o The Spanish Ministry of Economy and Competitiveness o The European STE Industry Association (ESTELA) <p>Budget:</p> <ul style="list-style-type: none"> o Total cost: 6 M€ o European Commission contribution: 4,45 M€ 	<p>2016 onwards</p> <div style="text-align: center; margin-top: 10px;">  </div>


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EU-SOLARIS Consortium (1/2)			
Cyprus	Cyl www.cyl.ac.cy		The Cyprus Institute
France	CNRS www.cnrs.fr		National Centre for Scientific Research
Germany	DLR www.dlr.de/sf		German Aerospace Centre
Greece	CRES www.cres.gr		Centre for Renewable Energy Sources and Saving
	APTL www.certh.gr		Centre for Research and Technology Hellas
Italy	ENEA www.enea.it		National Agency for New Technologies, Energy and Sustainable Economic Development
Israel	WEIZMANN www.weizmann.ac.il		Weizmann Institute of Science
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EU-SOLARIS Consortium (2/2)			
Portugal	LNEG www.lneg.pt		National Laboratory for Energy and Geology
	U.EVORA www.uevora.pt		University of Evora
Spain	CTAER www.ctaer.com		Advanced Technology Centre for Renewable Energies
	CIEMAT-PSA www.psa.es		Centro de Investigaciones Energéticas, Medioambientales y Tecnología. Plataforma Solar de Almería
	MINECO www.mineco.gob.es		Ministerio de Economía y Competitividad
Turkey	GUNAM www.metu.edu.tr		Middle East Technical University
	SELÇUK U www.selcuk.edu.tr		Selçuk University
UE	ESTELA www.estelasolar.eu		European Solar Thermal Electricity Association
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Geographical distribution of EU-SOLARIS partners




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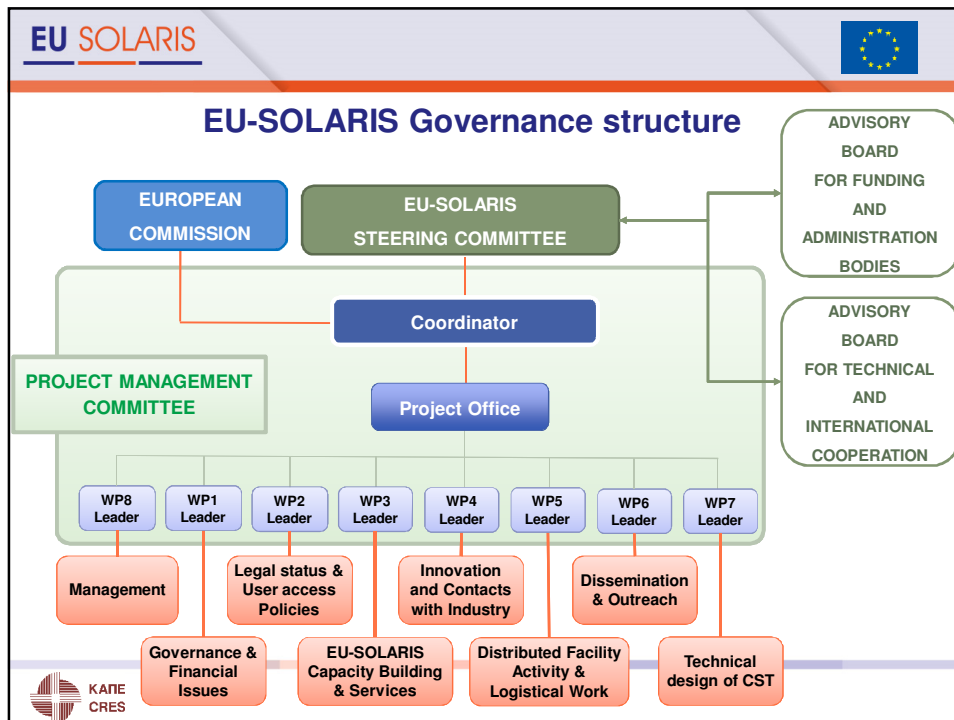
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EU-SOLARIS



- EU SOLARIS initiative is integrated in the frame of European Strategy Forum on Research Infrastructures (**ESFRI**) in the EU.
- EU-SOLARIS project is conducted as part of the EU 7th Framework Programme and is partly financed by European Commission under the co-ordination of CTAER (Advanced Technology Centre for Renewable Energies, Spain).

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EU-SOLARIS infrastructure

Legal framework

- European Research Infrastructure Consortium (**ERIC**) was selected as the legal recommended legal form to be adopted by the future EU-SOLARIS entity.
- ERIC is a legal entity with legal personality and full legal capacity. The legal framework for an ERIC -Council Regulation (EC) No 723/2009 of 25 June 2009 on the Community - has been designed to facilitate the establishment and operation of RI of European interest with the involvement of several European countries.

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Legal framework

ERIC entity main characteristics:

- It is structured as a legal tool for high-level RI of a European and international dimension.
- It is an entity with its own legal personality and full legal capacity, recognised by all of the Member States of the EU. An ERIC is also an international organisation for the purposes of Article 15, letter c), of Directive 2004/18/CE.
- Its members may come from:
 - the Member States of the EU;
 - associated countries,
 - third party countries
 - intergovernmental organisations.

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EU-SOLARIS infrastructure


Legal framework

ERIC main advantages are:

- It is a tailor-made legal form for ESFRI projects;
- It has its own legal personality and is a figure recognised in all of the Member States of the EU. In the third party countries that also wish to form part of ERIC, no further recognition action being required.
- It is a figure with Community and institutional backing and support, insofar as its members are States and international organisations;
- In turn, the direct participation of States in an ERIC redounds to the benefit of its better financing, given the institutional backing and the greater credibility and reliability that they offer vis-à-vis third party financial backers.

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EU-SOLARIS infrastructure


Facilities and technical services

- EU-SOLARIS infrastructure technical services portfolio includes a list of about **170 available services** as result of an iterative process of identification and definition among EU- SOLARIS participated organizations
- The available services have been **classified in a total of 16 types of services** covering the different key subsystems of STE, the other applications of CST technology and the associated horizontal activities.
- The **largest amount** of available services **are related to the testing and qualification** of reflectors, concentrator, absorbers and receivers

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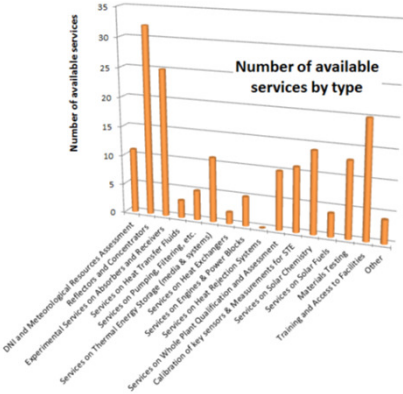
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Facilities and technical services




Number of available services by type

Service Type	Number of available services
DNI and Meteorological Resources Assessment	11
Reflection and Concentration	32
Services on Absorbers and Receivers	25
Services on Heat Transfer Fluids	3
Services on Pumping, Storage, etc.	4
Services on Heat Exchangers	10
Services on engines & power blocks	2
Services on Whole Plant Qualification and Assessment	3
Calibration of sensors & Measurements for STE	7
Services on Solar Chemistry	8
Services on Solar Fuels	11
Materials Testing	2
Training and Access to Facilities	17
Other	2

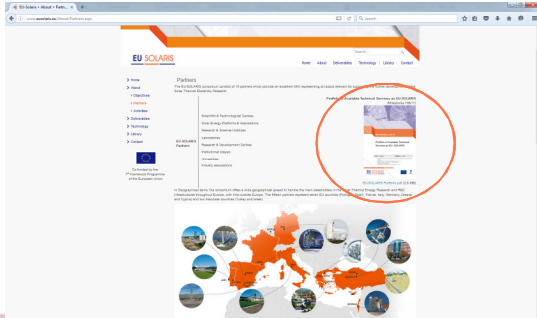
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EU-SOLARIS infrastructure Facilities and technical services

- Portfolio of Available Technical Services as EU-SOLARIS available in project website: <http://www.eusolaris.eu/About/Partners.aspx>





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EU SOLARIS 

EU- SOLARIS project website www.eusolaris.eu

- Home page
 - Welcoming page and description of EU-SOLARIS project, access to the event calendar and news
- About EU-SOLARIS project
 - Objectives, partners, EU-SOLARIS activities
- Deliverables
 - Leaflets, posters, presentations, progress reports, public reports and events
- Technology
 - Introductory page for CST and solar chemical technologies;
- Library
 - Reports, legislation, CST links, interactive CST toolkits, multimedia gallery, educational video
- Contact


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EU-Solaris > Deliverables > ...


www.eusolaris.eu/Deliverables/Leaflets.aspx

Search...

Home About Deliverables Technology Library Contact

Project Leaflets

- > Home
- > About
- > Deliverables
 - > Leaflets
 - > Posters
 - > Presentations
 - > Progress Reports
 - > Public Reports
 - > Events
- > Technology
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EU-SOLARIS Project Leaflet (2.2 MB)

EU-SOLARIS Project Leaflet (1.4 MB)

EU-SOLARIS industry-oriented leaflet (1.7 MB)

EU-SOLARIS Project Leaflet in A4 format pdf (1.4 MB)

EU-SOLARIS Project Leaflet in A3 format pdf (376 KB)


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The screenshot shows the EU SOLARIS website with the 'Deliverables' menu selected. The main content area is titled 'Project Posters' and features two posters: 'EU-SOLARIS Project Poster' (1.2 MB) and 'EU-SOLARIS Project Roll-up' (2.7 MB). The website header includes the EU SOLARIS logo, a search bar, and navigation links for Home, About, Deliverables, Technology, Library, and Contact. A sidebar on the left contains a navigation menu with options like Home, About, Deliverables, Leaflets, Posters, Presentations, Progress Reports, Public Reports, Events, Technology, Library, and Contact. The footer includes the KANE CRES logo and the page number 23.

The screenshot shows the EU SOLARIS website with the 'Deliverables' menu selected. The main content area is titled 'Project Presentations' and features two presentations: 'EU-SOLARIS Official Presentation' (6.7 MB) and 'EU-SOLARIS Project Presentation_Sep 2015' (3 MB). The website header includes the EU SOLARIS logo, a search bar, and navigation links for Home, About, Deliverables, Technology, Library, and Contact. A sidebar on the left contains a navigation menu with options like Home, About, Deliverables, Leaflets, Posters, Presentations, Progress Reports, Public Reports, Events, Technology, Library, and Contact. The footer includes the KANE CRES logo, the page number 24, and a copyright notice: 'Copyright © 2016 EU-SOLARIS All Rights Reserved Terms and Conditions'.


The screenshot shows the 'EU SOLARIS' website interface. At the top, there is a navigation bar with 'HOME', 'ABOUT', 'DELIVERABLES', 'TECHNOLOGY', 'LIBRARY', and 'CONTACT'. The main content area is titled 'Project Progress Reports' and features a grid of report thumbnails. The first report is 'First Project Periodic Report' (ID: D 8.1.1). Below it, there are reports for 'EU SOLARIS 1st Project Periodic Report' and 'EU SOLARIS 1st Project Periodic Report Summary'. The footer includes the 'KANE CRES' logo and the page number '25'.


The screenshot shows the 'EU SOLARIS' website interface, specifically the 'Public Project Reports' section. The navigation bar is identical to the previous screenshot. The main content area lists reports organized by Work Package (WP).
Work Package 8: Management (WP leader: CTAER)
 D 8.1.1: First Annual Management Report (1.4 MB)
 D 8.1.2: First Annual Management Report.pdf (1.4 MB)
 D 8.2: Second Annual Management Report (3.9 MB)
 D 8.2: Second Annual Management Report.pdf (3.9 MB)
Work Package 1: Governance and financial issues (WP leader: CTAER)
 ID 1.3: Extensive report on funding sources: EU-SOLARIS Grant Map
 ID 1.3: Extensive report on funding sources: EU-SOLARIS Grant Map.pdf (2.3 MB)
Work Package 3: Capacity building and services (WP leader: WEIZMANN)
 MS15: Status report on existing capacities, technological and human Resources
 MS16: Status report on existing capacities, technological and HR.pdf (1.3 MB)
 MS16&17: Report portfolio of existing available technical services of partner centres and Report containing the portfolio of available technical services as EU-SOLARIS
 MS16&17: Report portfolio of existing available techn. services of partner centres - Report containing the portfolio of available technical services as EU-SOLARIS.pdf (2.8 MB)
Work Package 4: Innovation and contacts with industry (WP leader: ESTELA)
 ID 4.3: Report of previous experience of spin-off activity, and applicable conclusions
 ID 4.3: Report of previous experience of spin-off activity, and applicable conclusions.pdf (1.1 MB)
 MS21: Report on improved system for spin-off activities
 MS21: Report on improved system for spin-off activities.pdf (896 KB)
 MS22: Report on the new mechanisms for increasing future collaboration between centres and industry
 MS22: Report on the new mechanisms for increasing future collaboration between centres and industry.pdf (814 KB)
Work Package 5: Distributed facility activity and logistical work (WP leader: CNRS)
 ID 5.3: Report questionnaire: EU-SOLARIS user requirements/needs
 ID 5.3: Report questionnaire: EU-SOLARIS user requirements/needs.pdf (595 KB)
 The footer includes the 'KANE CRES' logo and the page number '26'.

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EU- SOLARIS Publishable reports

#	Name of report
1	First annual management report
2	Second annual management report
3	Extensive report on funding sources: EU-SOLARIS Grant Map
4	Status report on existing capacities, technological and human resources
5	Report portfolio of existing available technical services of partner centres and report containing the portfolio of available technical services
6	Report of previous experience of spin-off activity and applicable conclusions
7	Report on improved system for spin-off activities
8	Report on the new mechanisms for increasing future collaboration between centres and industry
9	Report questionnaire: EU-SOLARIS user requirements/needs
10	Report (listing) of existing users amongst EU-SOLARIS partners
11	Analysis of the results of the user questionnaire
12	Survey of existing offer of training on STE and proposal of an EU-SOLARIS course schedule


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Home | About | **Technology** | Library | Contact

Technology

Concentrating Solar Thermal (CST) Technologies are expected to become a considerable supplier of green energy throughout the world.

Should Concentrating Solar Technologies are deployed with thermal energy storage, they can provide a dispatchable source of renewable energy.

CST Technologies use mirrors or lenses to concentrate the sunlight onto a small area. According to the focusing principle, there are two main concentration principles, line focus and point focus. Line focus principle is represented mainly by the Parabolic Trough and the Linear Fresnel, whereas point focus principle by the Central Receiver and the Parabolic Dish.

The different types of concentration mechanisms produce different peak temperatures and correspondingly varying thermodynamic efficiencies, due to the differences in the way that they track the sun and focus the light. Therefore, each technology is used for specific applications. The basic applications of the CST technologies are Power, Steam, Cooling, Desalination and Thermochemical plants.

Electricity Steam Cooling Desalination Thermochemical

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- Solar Irradiation maps**
 Links to available maps are available in the website here:
<http://www.eusolaris.eu/Library/CSTLinks.aspx>

Solar irradiation maps	DLR - Global Concentrating Solar Power Potentials
	Radiation map of the Mediterranean basin
	IRENA Solar Irradiation maps
	World Map of Direct normal Irradiation (DNI)
	Europe Map of Direct normal Irradiation (DNI)
	Meteonorm - Meteorological reference for worldwide weather data
Meteonorm Demo Datasets and Maps	
REN21 - Renewable Energy Policy Network for the 21st Century	
REN21 Interactive Map	
SolarGIS database and online system - Geolmodel Solar	




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EU- SOLARIS project website

www.eusolaris.eu

- Interactive toolkit for identification of an optimal scheme**
 Links to two available free of charge toolkits are available in the website here:
<http://www.eusolaris.eu/Library/CSTLinks.aspx>
 - > **System Advisor Model (SAM)**, created by the National Renewable Energy Laboratory (NREL) of the U.S. Department of Energy
 - > **Greenius:The Green Energy System Analysis Tool**, created by the German Aerospace Center (DLR)

Concentrating Solar Thermal (CST) toolkits	National Renewable Energy Laboratory (NREL) - System Advisor Model (SAM)
	German Aerospace Center (DLR) - Greenius:The Green Energy System Analysis Tool




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- **Multimedia Gallery and Educational CST video** are available in “Library” menu

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Info-day questionnaire

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The EU-SOLARIS Project is co-funded by the 7th Framework Programme of the European Union under Grant Agreement no. 312833

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For more information: www.eusolaris.eu

Thank you for your attention!

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