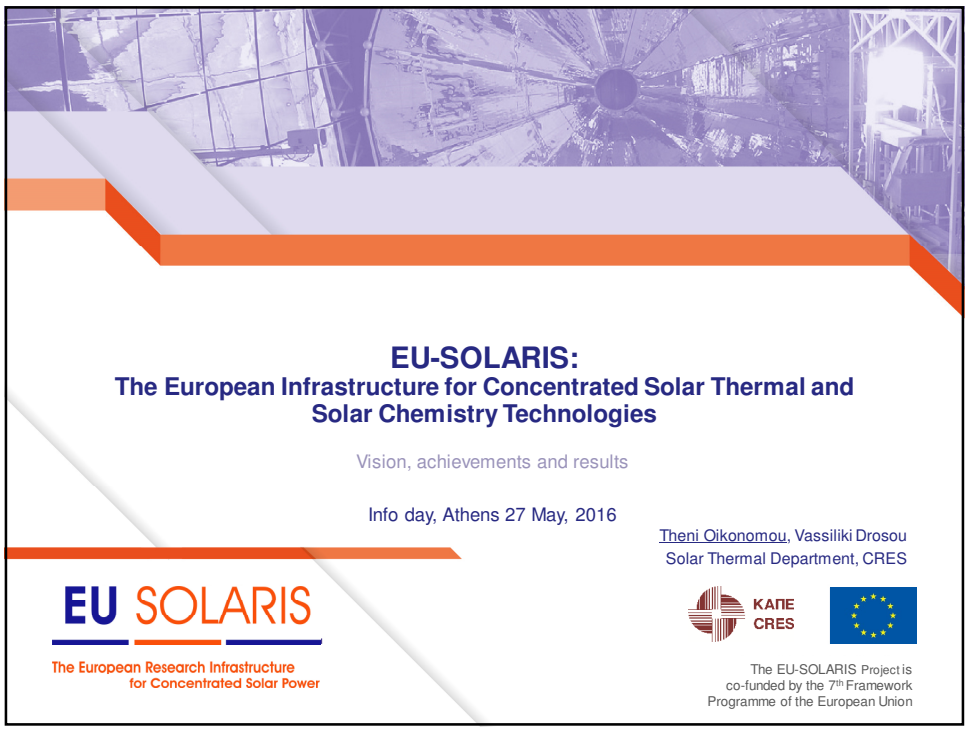


EU-SOLARIS:
The European Infrastructure for Concentrated Solar Thermal and Solar Chemistry Technologies

Vision, achievements and results

Info day, Athens 27 May, 2016

Theni Oikonomou, Vassiliki Drosou
Solar Thermal Department, CRES

EU SOLARIS
The European Research Infrastructure for Concentrated Solar Power

ΚΑΠΕ CRES

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.

EU SOLARIS

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.

EU SOLARIS

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

EU SOLARIS

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.

EU SOLARIS

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.

EU SOLARIS

EU-SOLARIS PREPARATORY PHASE

ΚΑΠΕ CRES

EU SOLARIS

Nov 2012 → Oct 2016

EU-SOLARIS Preparatory Phase

Duration
- 48 months, starting 1st November 2012

Composition:
15 partners from 9 countries:
- 13 key Scientific Centres
- The Spanish Ministry of Economy and Competitiveness
- The European STE Industry Association (ESTELA)

Budget:
- Total cost: 6 M€
- European Commission contribution: 4,45 M€

EU-SOLARIS Operational Phase

2016 onwards

ΚΑΠΕ CRES

EU SOLARIS

EU-SOLARIS Consortium (1/2)

Cyprus	**CyI** www.cyi.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*

ΚΑΠΕ CRES

EU SOLARIS

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*
	SELCUK U www.selcuk.edu.tr		*Selçuk University*
UE	**ESTELA** www.estelasolar.eu		*European Solar Thermal Electricity Association*

ΚΑΠΕ CRES

EU SOLARIS

Geographical distribution of EU-SOLARIS partners

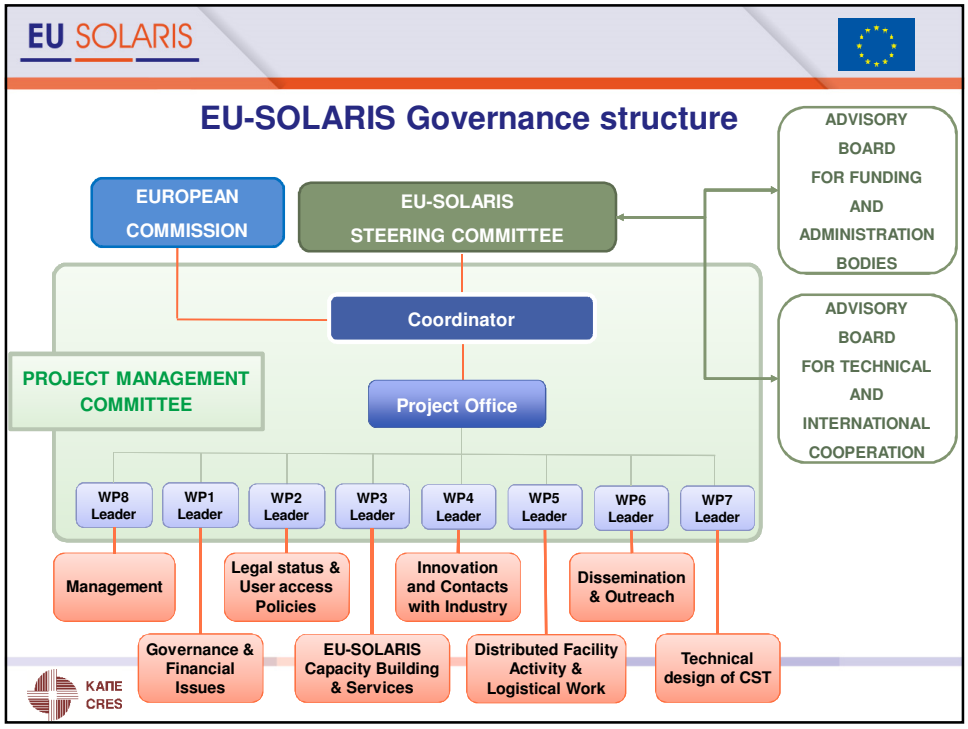
KAПE CRES

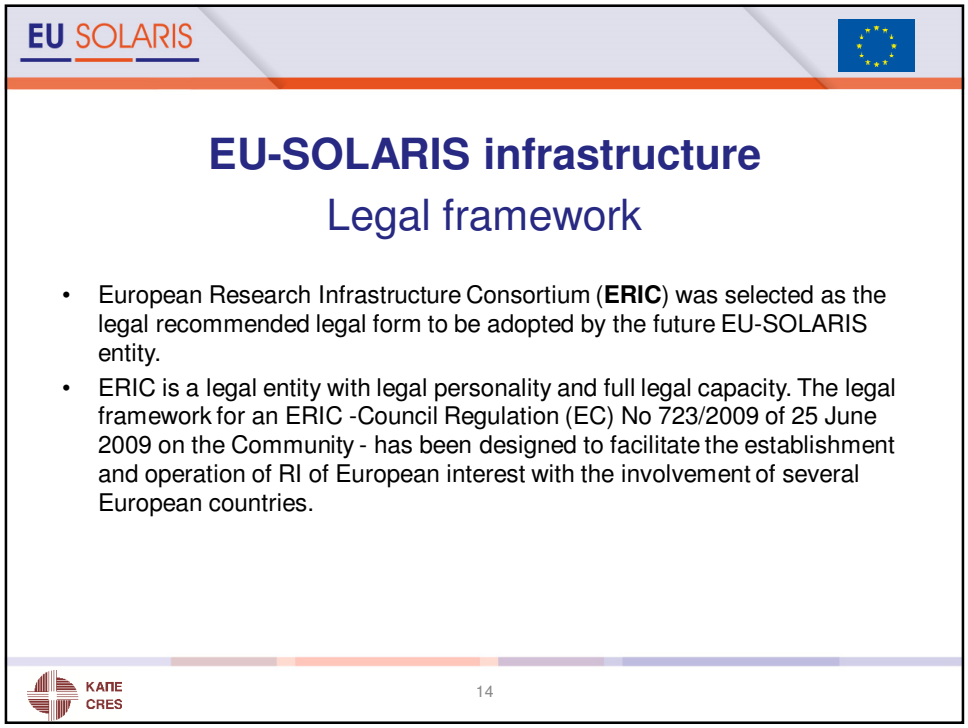
EU SOLARIS

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).

KAПE CRES


EU SOLARIS
EU-SOLARIS Governance structure
EUROPEAN COMMISSION
EU-SOLARIS STEERING COMMITTEE
ADVISORY BOARD FOR FUNDING AND ADMINISTRATION BODIES
ADVISORY BOARD FOR TECHNICAL AND INTERNATIONAL COOPERATION
Coordinator
PROJECT MANAGEMENT COMMITTEE
Project Office
WP8 Leader
WP1 Leader
WP2 Leader
WP3 Leader
WP4 Leader
WP5 Leader
WP6 Leader
WP7 Leader
Management
Legal status & User access Policies
Innovation and Contacts with Industry
Dissemination & Outreach
Governance & Financial Issues
EU-SOLARIS Capacity Building & Services
Distributed Facility Activity & Logistical Work
Technical design of CST
ΚΑΠΕ CRES


EU SOLARIS
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.
ΚΑΠΕ CRES
14

EU SOLARIS

EU-SOLARIS infrastructure

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 form:
  - the Member States of the EU;
  - associated countries,
  - third party countries
  - intergovernmental organisations.

ΚΑΠΕ CRES

15

EU SOLARIS

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.

ΚΑΠΕ CRES

16

EU SOLARIS

EU-SOLARIS infrastructure

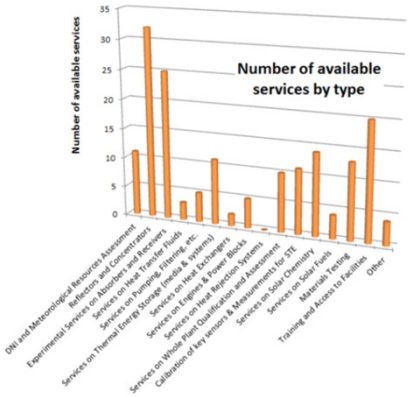
Facilities and technical services

- 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

EU SOLARIS

EU-SOLARIS infrastructure

Facilities and technical services



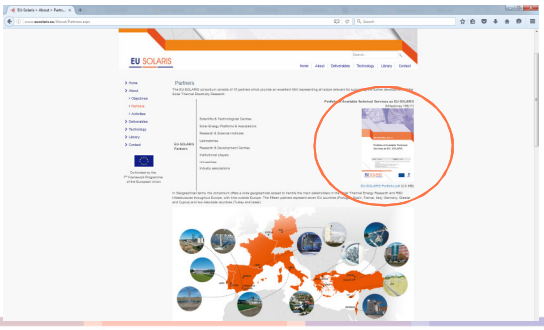
ΚΑΠΕ CRES

EU SOLARIS

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



ΚΑΠΕ CRES

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
  - Introductive page for CST and solar chemical technologies;
- Library
  - Reports, legislation, CST links, interactive CST toolkits, multimedia gallery, educational video
- Contact

ΚΑΠΕ CRES

EU SOLARIS

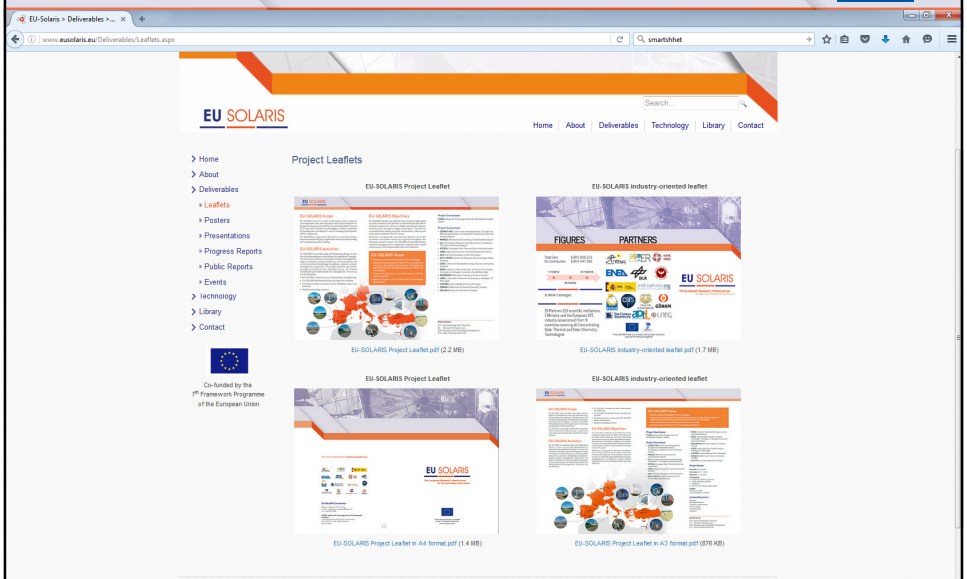
EU- SOLARIS project website
www.eusolaris.eu

- 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
  - Introductive page for CST and solar chemical technologies;
- Library
  - Reports, legislation, CST links, interactive CST toolkits, multimedia gallery, educational video
- Contact

ΚΑΠΕ CRES

21

EU SOLARIS



ΚΑΠΕ CRES

22


EU SOLARIS
EU SOLARIS
Home
About
Deliverables
Technology
Library
Contact
Project Posters
EU-SOLARIS Project Poster
EU-SOLARIS Project Roll-up
KAПE
CRES
23


EU SOLARIS
EU SOLARIS
Home
About
Deliverables
Technology
Library
Contact
Project Presentations
EU-SOLARIS Official Presentation
Project Presentation_September 2015
EU-SOLARIS
The European Research Infrastructure for Concentrated Solar Power
KAПE
CRES
24


EU SOLARIS
Project Progress Reports
First Project Periodic Report
Publishable Summary
ΚΑΠΕ
CRES
25


EU SOLARIS
Home
About
Deliverables
Technology
Library
Contact
Public Project Reports
Work Package 8: Management (WP leader: CTAER)
Work Package 1: Governance and financial issues (WP leader: CTAER)
Work Package 3: Capacity building and services (WP leader: WEIZMANN)
Work Package 4: Innovation and contacts with industry (WP leader: ESTELA)
Work Package 5: Distributed facility activity and logistical work (WP leader: CNRS)
ΚΑΠΕ
CRES
26

EU SOLARIS

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

ΚΑΠΕ CRES

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**
  - **Introductive page for CST and solar chemical technologies;**
- Library
  - Reports, legislation, CST links, interactive CST toolkits, multimedia gallery, educational video
- Contact

ΚΑΠΕ CRES

EU SOLARIS

ΚΑΠΕ CRES

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
  - Introductive page for CST and solar chemical technologies;
- **Library**
  - **Reports, legislation, CST links, interactive CST toolkits, multimedia gallery, educational video**
- Contact

ΚΑΠΕ CRES

EU SOLARIS

EU- SOLARIS project website
www.eusolaris.eu

- **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 - GeoModel Solar

ΚΑΠΕ CRES

EU SOLARIS

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)

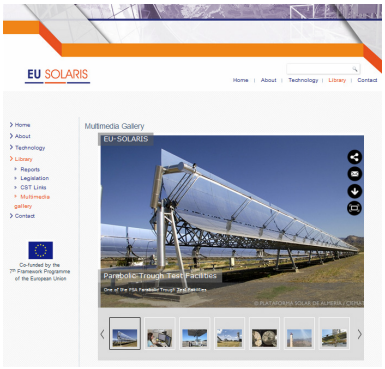
Concentrating Solar Thermal (CST) toolkits	National Renewable Energy Laboratory (NREL) - System Advisor Model (SAM)
	German Aerospace Center (DLR) – Greenius:The Green Energy System Analysis Tool

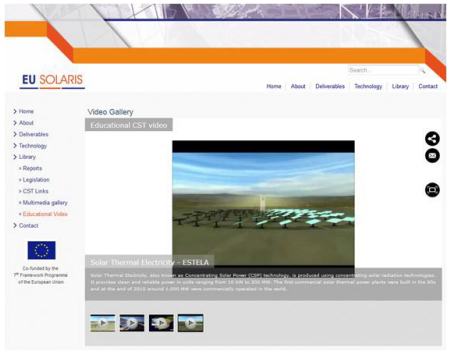
ΚΑΠΕ CRES

EU SOLARIS

EU- SOLARIS project website
www.eusolaris.eu

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

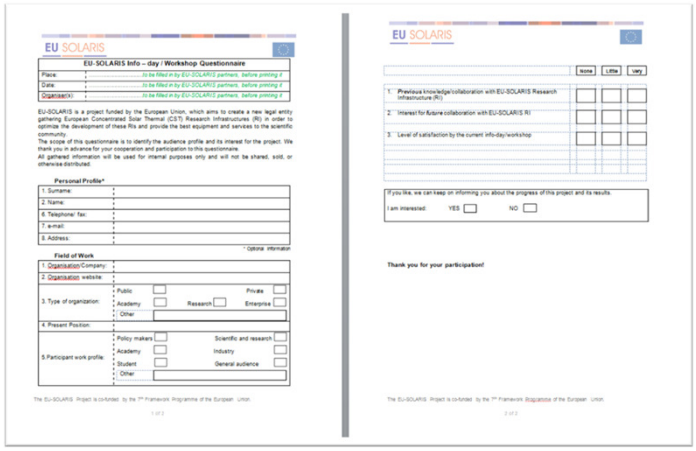




ΚΑΠΕ CRES

EU SOLARIS

Info-day questionnaire



ΚΑΠΕ CRES

EU SOLARIS

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

EU SOLARIS

For more information: www.eusolaris.eu

Thank you for your attention!

EU-SOLARIS team contact:
EUSOLARIS_PO@ctaer.com
COORDINATOR.EUSOLARIS@ctaer.com