COMPASsCO$_2$

COMPONENTS' AND MATERIALS' PERFORMANCE FOR ADVANCED SOLAR SUPERCRITICAL CO_2 POWERPLANTS (COMPASsCO$_2$)

Communication and Dissemination Plan

Deliverable: 7.2

WP7: Communication, dissemination and exploitation

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Lead participant: OME

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DOCUMENT HISTORY

Version	Date	Change
01	30/04/2021	Initial version uploaded
02	30/12/2022	Updated version following the first review period

ABOUT THE PROJECT

COMPASsCO$_2$ is a 4-year HORIZON2020 project started on 1.11.2020. It is led by the German Aerospace Center (DLR), with eleven additional partners from seven European countries.

COMPASsCO$_2$ aims to integrate CSP particle systems into highly efficient sCO$_2$ Brayton power cycles for electricity production. In COMPASsCO$_2$, the key component for such an integration, i.e. the particle-sCO$_2$ heat exchanger, will be validated in a relevant environment. To reach this goal, the consortium will produce tailored particle and alloy combinations that meet the extreme operating conditions in terms of temperature, pressure, abrasion and hot oxidation/carburization of the heat exchanger tubes and the particles moving around/across them. The proposed innovative CSP sCO$_2$ Brayton cycle plants will be flexible, highly efficient, economic and 100% carbon neutral large-scale electricity producers.

The research focus of COMPASsCO$_2$ is on three main technological improvements: development of new particles, development of new metal alloys and development of the heat exchanger section.

DISCLAIMER

This project has received funding from the European Union's Horizon 2020 Research and Innovation Action (RIA) under grant agreement No. **958418.**

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LIST OF ABBREVIATIONS

CDP	Communication and Dissemination Plan
COMPASsCO$_2$	Components and Materials
EC	European Commisssion
EPC	Engineering, Procurment and Construction
ESCOs	Energy Service Companies
EU	European Union
KPIs	Key Performance Indicators
PPT	Power Point
SPIRE	Sustainable Process Industry through Resource and Energy Efficiency

1 INTRODUCTION

An effective communication and dissemination strategy is key in the successful implementation and to increase impact of a particular project. The Communication and Dissemination Plan provides guidance to the consortium in: 1) identifying the right communication and dissemination channels; 2) selecting the main stakeholder groups to be contacted at the various stages of the project duration; and 3) expressing the main messages to be delivered and the appropriate language to be adopted to address each stakeholder category.

The Communication and Dissemination Plan includes the main activities, communication tools, stakeholders addressed by the project, and a schedule of the work plan of the COMPASsCO$_2$ project.

WP 7 (communication, dissemination and exploitation) is dedicated to dissemination activities (both scientific and broader dissemination methodologies), and is led by OME in close collaboration with DRL as the COMPASsCO$_2$ coordinator, as well as all other project participants. OME acts as the main contact point for communication and dissemination activities within the consortium and with external stakeholders. Dissemination activities are being ensured during the project's duration and will also be performed after the end of the project.

Different aspects are covered, targeting both internal and external communication with all project stakeholders, including EC obligations regarding H2020 communication activities. This is the second version of the plan that was initially developed in April 2021, following the first review of the project which was performed in spring 2022.

The Communication and Dissemination Plan includes the main sections:

- Communication Plan
- Visual identity
- Communication and dissemination tools
- Internal communication
- Target groups
- Obligations for communication actions
- Annexes

2 COMMUNICATION PLAN

The main communication and dissemination plan is summarized in the figure below, including the visual identity, Communication levels, communication channels, and target groups:

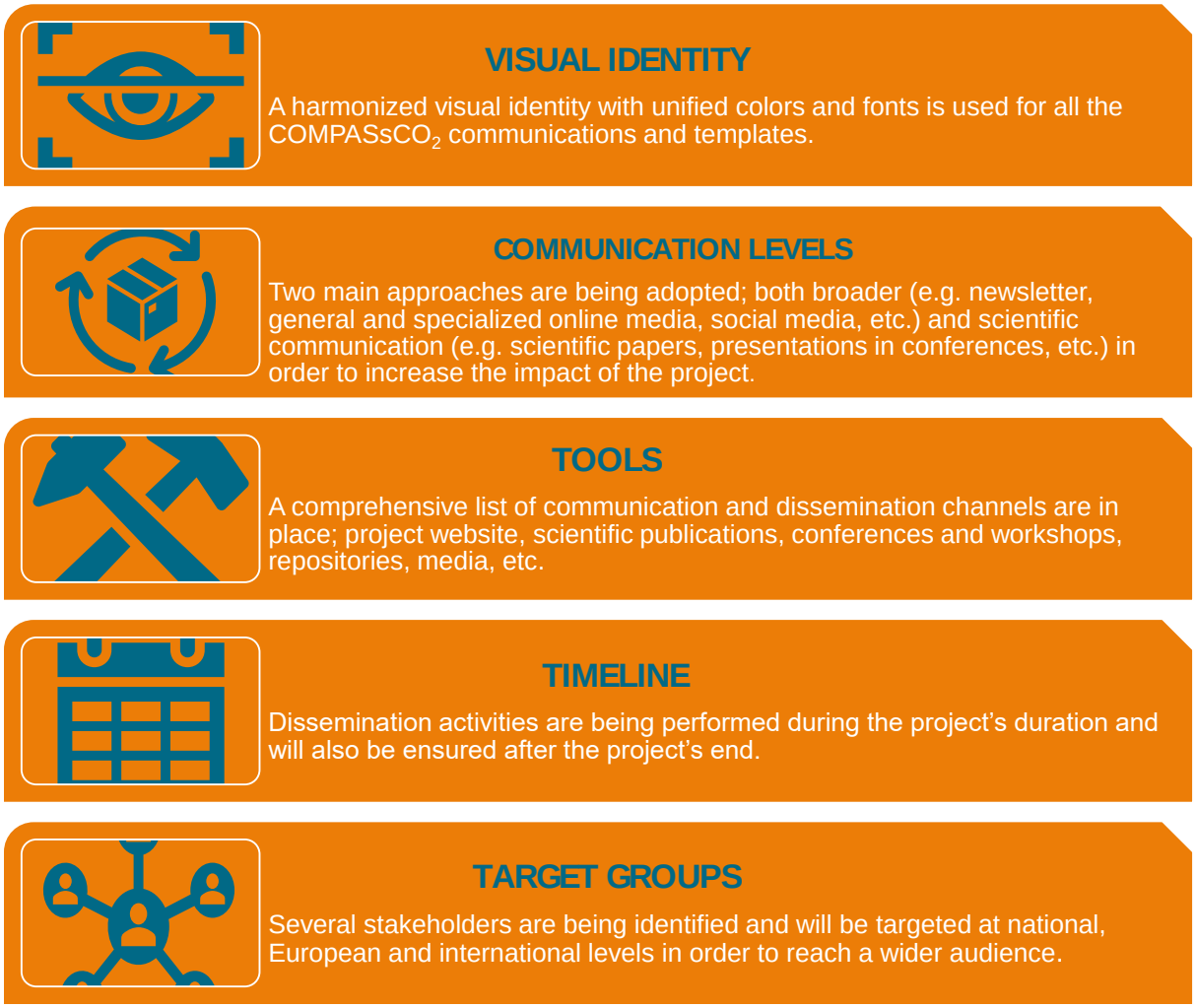

Figure 1: Main Elements of COMPASsCO$_2$ Communication and Dissemination Plan

3 COMPASsCO$_2$ VISUAL IDENTITY

The visual identity has been designed using customized logo, font and colors for COMPASsCO$_2$ materials and templates (i.e. deliverables, PPT presentations, newsletter, etc.).

3.1 Fonts

Two main fonts are being used by COMPASsCO$_2$ project: Arial and Righteous. The Arial font is used for the main publications, including the presentations, deliverables, and newsletters, etc. The selected font for the website, logo and some communication materials is called Righteous and belongs to the Google Fonts group. These fonts are licensed under the Open Font License. So, the font is free for all applications.

The link to the font is: https://fonts.google.com/specimen/Righteous#standard-styles

The Glyphs of the Righteous font are:

A B C Č Ć D Đ E F G H I J K L M N O P Q R S Š T U V W X Y Z Ž

a b c č ć d đ e f g h i j k l m n o p q r s š t u v w x y z ž

1 2 3 4 5 6 7 8 9 0 ‘ ? ’ “ ! ” (%) [#] { @ } / & \ < -+ ÷ × = > ® © $ € £ ¥ ¢ : ; , . *

3.2 Colors

In addition to the font, two main colors are being adopted for the COMPASsCO$_2$ products; orange and blue. The exact color codes are described below.

- The orange color is called FAUX-TANGERINE (#EC7D07) and has values 236/125/7 in the RGB color space. https://www.2020colours.com/ec7d07

- The blue color is called FAUX-SEA BLUE (#016986) and has values 1/105/134 in the RGB color space. http://www.2020colours.com/016986

Table 1: COMPASsCO$_2$ visual identity color codes

Color	Name	HTML	RGB
	FAUX-TANGERINE	#EC7D07	236/125/7
	FAUX-SEA BLUE	#016986	1/105/134

3.3 Logo

In order to easily distinguish the project, a dedicated and personalized **final draft logo** has been created for the COMPASsCO$_2$ project. Several versions of the logo have been designed.

A logo in different formats (i.e. JPEG, PNG, GIF) below has been considered and sent to all participants for their approval.

Figure 2: COMPASsCO$_2$ Final Final Draft Logo Version (not addopted)

After an internal market research and assessing the risk that "one or some of the Parties are lawfully held liable on a joint and several basis for any loss, damage or injury to third parties resulting from the classification of the consortium of the Parties as a partnership under civil law" **the project team decided to avoid using a logo.**

Based on the above considerations, **the project does not have a logo**. In order to distinguish it from other projects, the name with two colors (below) is being used for all project communications.

COMPASsCO$_2$

The complete list of different versions of the draft logos that have been designed, and from which the final draft version has been considered are included in the annex.

3.4 Leaflet

A COMPASsCO$_2$ leaflet was also developed. It includes an overview of the project, expected technological improvements, project structure, and the composition of the COMPASsCO$_2$ team.

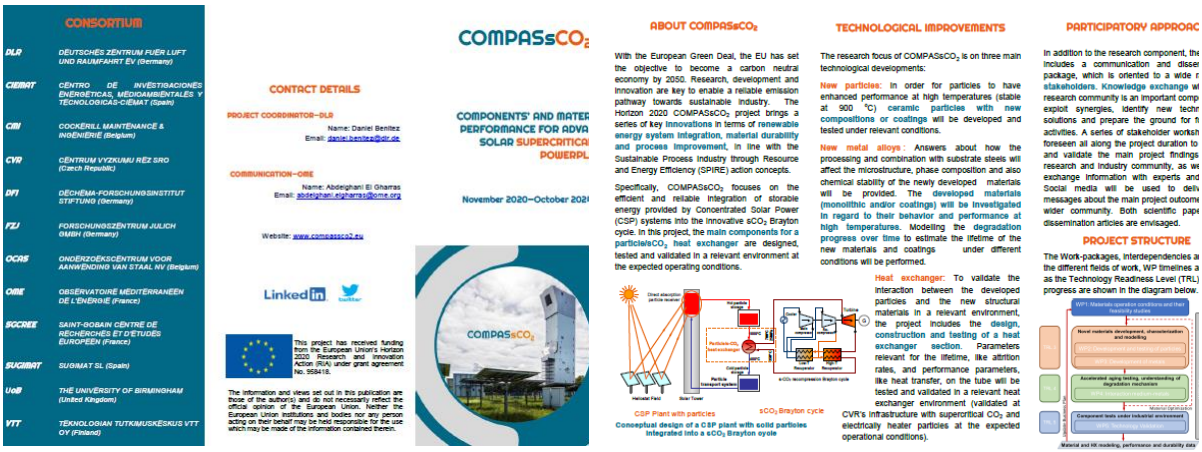

Figure 3: COMPASsCO$_2$ Leaflet

3.5 Poster

A one-page poster was developed within the framework of the first review meeting held on April 7th, 2022. The COMPASsCO$_2$ poster gives a general overview of the COMPASsCO$_2$ project, including addressed challenges, research focus (new particles and new metals alloys for the particle/sCO$_2$ heat exchanger and their validation) as well as stakeholders engagement/dissemination and the composition of the consortium.

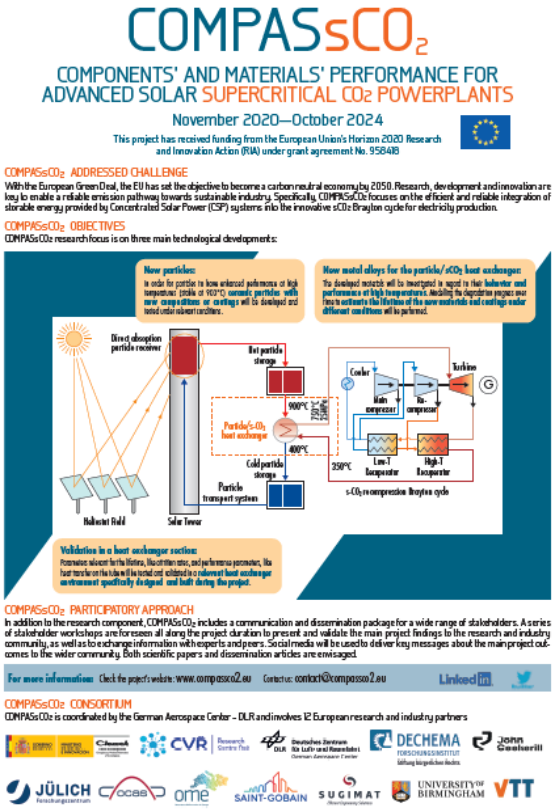

Figure 4: COMPASsCO$_2$ Poster

4 MAIN COMMUNICATION AND DISSEMINATION TOOLS

Both scientific and broader dissemination activities are being performed. In order to disseminate the project's results and reach a wider audience of stakeholders, various communication and dissemination channels are being used (e.g. project website, deliverables, scientific publications in peer-reviewed journals, presentations at conferences, workshops, participants' websites, public repositories, newsletter, etc.). As coordinator of WP7, OME has produced several communication tools in order to disseminate the activities and results of COMPASsCO$_2$.

4.1 COMPASsCO$_2$ Website

The project's website is the main online tool/platform used in both external communication and dissemination (public area) as well as an internal sharing platform used by the COMPASsCO$_2$ project participants (private area restricted to the project participants only).

It is developed and has been operational since month 3 (January 2021). The domain name of the website is: https://www.compassco2.eu/

The COMPASsCO$_2$ public area is designed in an intuitive and easy to use manner in order to facilitate navigation.

Figure 5: COMPASsCO$_2$ Website

The content of the website has been developed by OME with the input of all partners. The working language of the website is English.

All publications (public deliverables, scientific articles in peer-reviewed journals and newsletter, etc.) are available to third parties during the whole project's duration (4 years).

The map structure of the website is presented below:

- HOME
- ABOUT
    - Project Overview
    - Project Structure
    - Project Participants
    - Project Stakeholders
- ACTIVITIES

  - Project Meetings
  - Technical Committee Meetings
  - Review Meetings
  - Workshops and Webinars
  - Final Conference
- PROJECT RESULTS
  - Brochure
  - Newsletters
  - Deliverables
  - Scientific and Outreach Activities
  - Photo Gallery
  - Research Data
- NEWSROOM
- PARTICIPANTS' AREA
- CONTACT

The public area of the website has been updated regularly with all the project activities, including deliverables, presentations, newsletters, etc.

As more project results have become available, a dedicated area for research data has been added to widely disseminate research data.

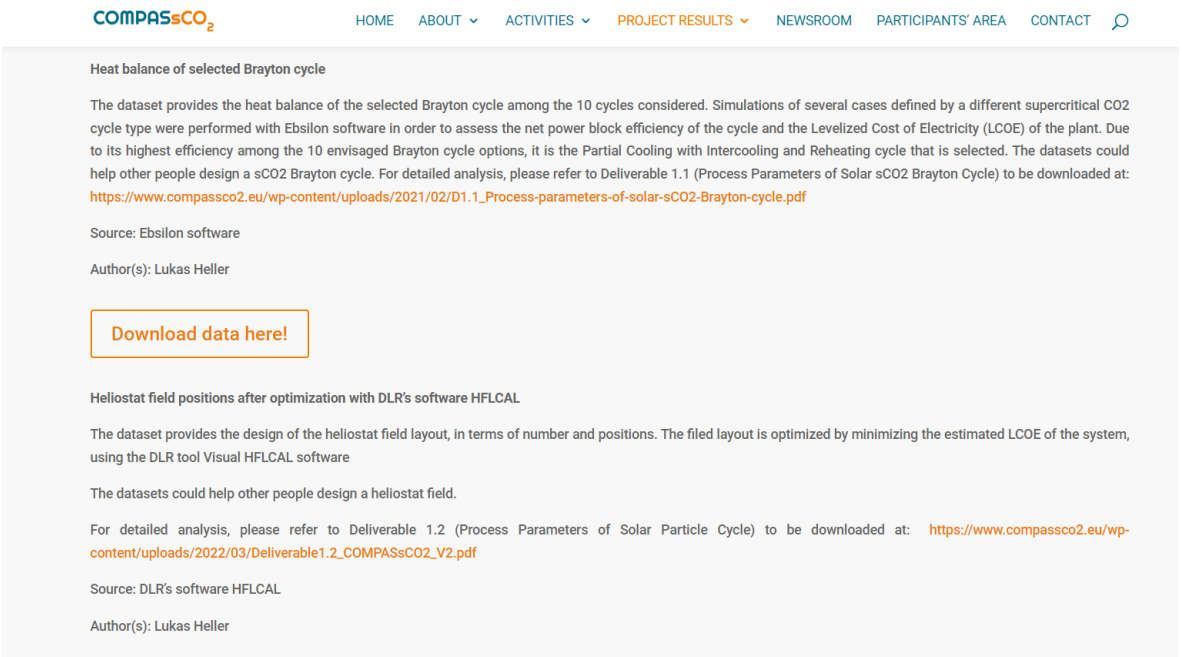

Figure 6: Research Data Dedicated Page on the COMPASsCO$_2$ Website

The participants' area is the private area with restricted access to project participants only. The private area is for exchanging among participants, including minutes, internal documents, research data, etc. It will be running/online during all the project's duration. All beneficiaries have access to this area to upload and download all restricted items to consortium and the EC.

4.2 European Commission Tools

4.2.1 EC Participant's Portal

In addition to an overview of the project, including project objectives, scope and participants, as well as links to all publications in peer-reviewed journals, the final summary report will be available through the EC Cordis (https://cordis.europa.eu/project/id/958418) and is public.

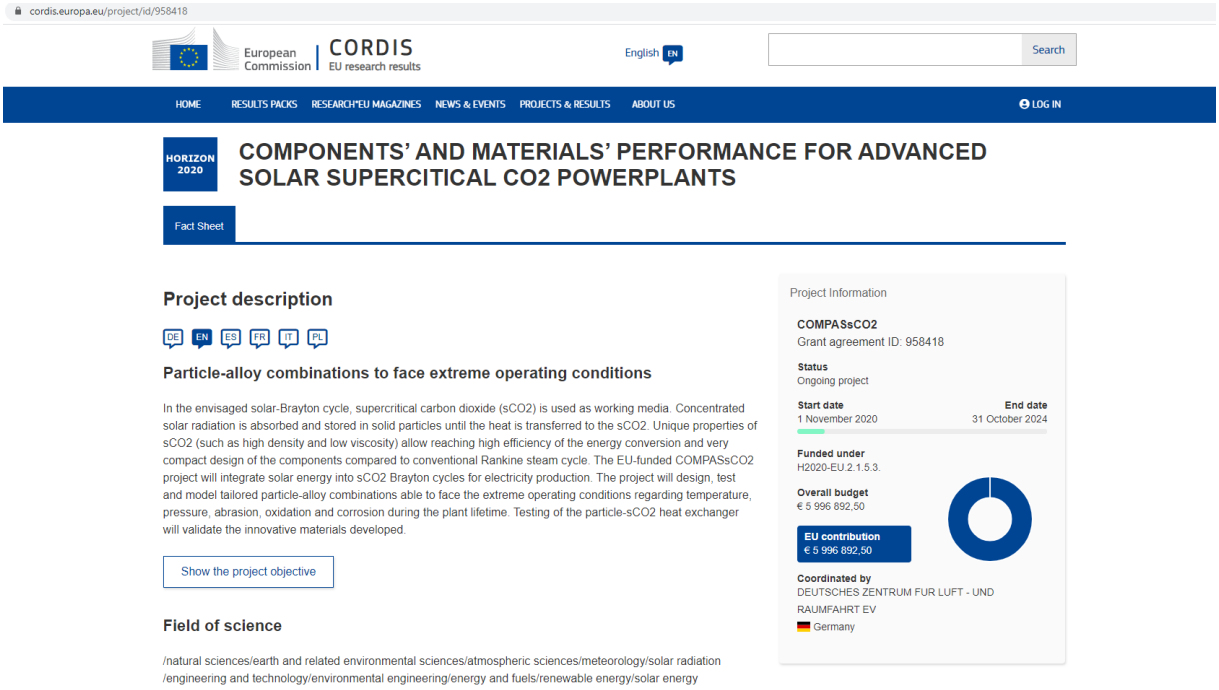

Figure 7: CORDIS COMPASsCO$_2$ Page

4.2.2 Other EC Tools

The main other communication and dissemination EC platforms that are considered for communication and dissemination of COMPASsCO$_2$ are:

- Research and Innovation success stories: A collection of the most recent success stories from EU-funded Research & Innovation. https://ec.europa.eu/research-and-innovation/en/projects/success-stories
- Horizon Magazine: The latest news and features about thought-provoking science and innovative research projects funded by the EU. https://horizon-magazine.eu/
- Horizon Results Platform (HRP): A public platform that hosts and promotes research results. It helps to bridge the gap between research results and generating value for economy and society. All the main results will be made available through this platform by end of the project. https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-results-platform
- Horizon Results Booster (HRB): It supports the effective transfer of H2020 project results. Within the framework of this activity, COMPASsCO$_2$ along with other projects,

including NEXTOWER[1], MOSAIC[2], DESOLINATION[3], SFERA III[4], SCARABEUS[5] and SWS-HEATING[6], joined a network led by ASTEP[7] to form a CSP technology cluster. As a result of this joint communication and dissemination activity, D1.1 (Portfolio of Research and Innovation Results) was developed under "**Module A:** Identification and creation of the portfolio of R&I project results." The main objectives of module A is: identify groups of projects applications from groups & individual projects, identify complementary results from across the PG, cluster and group these results into Key Exploitable Results, analyse all relevant stakeholders, prioritise and identify their 12 key stakeholders, provide PG with 50 contacts under these stakeholders, and identify relevant channels and potential recommendation for joint dissemination actions (for Module B or on their own). https://www.horizonresultsbooster.eu/

4.3 Zenodo Repository

In order to comply with H2020 Open Access and to increase the project's impact, all research open data and results will be put into a public repository like Zenodo.[8] The main items to be provided in the Zenodo *Horizon2020 COMPASsCO$_2$ Community (https://zenodo.org/communities/compassco2/?page=1&size=20)* are: public deliverables, all scientific publications in peer-reviewed journals, newsletters, and any open data. These materials are also being indexed to the *European Commission Funded Research (OpenAIRE) Community* in Zenodo. OME has created the COMPASsCO$_2$ community and is responsible for uploading the files.

[1] NEXTOWER – Advanced materials solutions for next generation high efficiency concentrated solar power (CSP) tower systems
[2] MOSAIC - MOdular high concentration SolAr Configuration
[3] DESOLINATION - DEmonstration of concentrated SOLar power coupled wIth advaNced desAlinaTion system in the gulf regION
[4] SFERA III - Solar Facilities for the European Research Area - Third Phase
[5] SCARABEUS - Supercritical CARbon dioxide/Alternative fluids Blends for Efficiency Upgrade of Solar power plants
[6] SWS-HEATING - Development and Validation of an Innovative Solar Compact Selective-Water-Sorbent-Based Heating System
[7] ASTEP - Application of Solar Thermal Energy to Processes.
[8] https://zenodo.org/

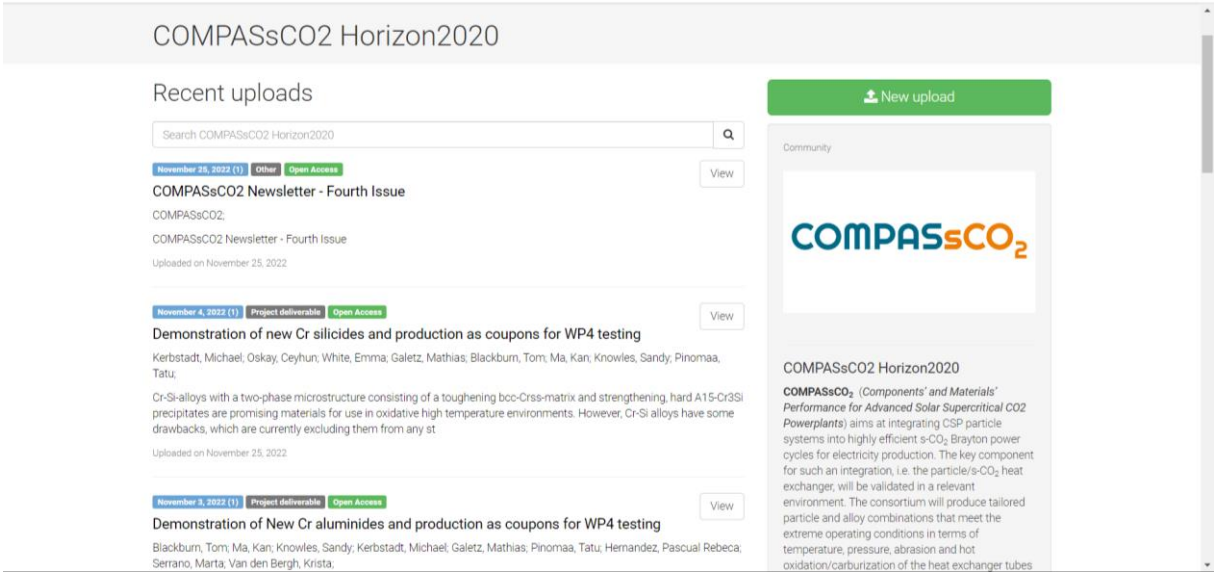

Figure 8: Zenodo's COMPASsCO$_2$ Community Homepage

As the open research datasets will be included in the Zenodo repository, no methods or software tools are needed to access them, no documentation about the Zenodo is needed to access the data; and there are no restrictions on use.

4.4 Scientific Publications

Considering the scientific research cutting of COMPASsCO$_2$, particular attention is being reserved to the scientific dissemination through international channels, through mainly scientifically renowned peer-reviewed journals.

A variety of scientific articles in journals, conferences and specialized magazines will be produced. The publications will build on the activities carried out in line with the different tasks of the project. While topics would be identified during the project's implementation, the project participants anticipated during the proposal writing some potential topics to be submitted for publication, as presented in the preliminary list below:

- Development of new Cr based alloys and coatings
- Phase equilibria and microstructural optimisation in the Cr-NiAl system
- Phase equilibria and microstructural optimisation of Cr silicide alloys
- Mechanical properties and deformation mechanisms of chromium superalloys
- Evaluation of new Cr based alloys and coatings performance and mechanisms under high temperature particle erosion
- Evaluation of new Cr based alloys and coatings performance and mechanisms under high temperature CO_2
- Heat transfer of a particle/s-CO_2 particle heat exchanger
- Lifetime evaluation of tubes in particle/s-CO_2 particle heat exchanger
- Heat transfer in particle/sCO_2 heat exchanger
- Particle system design and operational experience
- Creep and wear monitoring and lifetime assessment of particle/fluid heat exchangers

Based on the focus of COMPASsCO$_2$ and the consortium's past experience, a number of potential journals have been identified to disseminate the project's work. At least 8 publications in high-impact journals are expected to be produced by the consortium. Only journals with impact factor will be considered for open access publications.

Table 2: Targeted Scientific Journals

Scientific Journals	
Solar Energy Journal	International Journal of Energy Research
Powder Technology	Energy
Renewable Energy	Food and Bioproducts Processing
Int. Jr. of Electrical Power & Energy Systems	Renewable & Sustainable Energy Reviews
Applied Thermal Engineering	Heat and Mass Transfer
Control Engineering Practice	Journal of Industrial Eng. Chemistry
Energy Conversion and Management	Energy Research and Social Science
Journal of Clean Production	International Journal of Thermal Science
Energy Policy	Energy Economics
Progress in Materials Science	Acta Materialia
Scripta Materialia	Applied Energy
Ceramics International	Intermetallics
Surface and coatings technology	Corrosion Science
International Journal of Refractory Metals and Hard Materials	Coatings
Solar Energy Materials and Solar Cells	Scientific Reports

Open access will be ensured to all peer-reviewed articles in scientific journals.

As also included in Deliverable (7.5) Data Management Plan, research data underlying scientific publication which are considered public will also be open and therefore shared through the different public platform and repositories related to COMPASsCO$_2$ project. In addition to all the open data included in deliverables and presentations, three datasets have been made publicly available so far. The COMPASsCO$_2$ team envisages to publish several other datasets in the different communication and dissemination channels, including the project website and the COMPASsCO$_2$ dedicated Zendo page. Other dissemination platforms of datasets are also envisaged, including Data in Brief Journal.

4.5 Events

Interaction with stakeholders through a bi-directional exchange of information and feedback is key in the successful implementation of COMPASsCO$_2$ activities. In addition to other channels, several events will be organized during the project's duration, including COMPASsCO$_2$ stakeholder workshops and a final event as well as other external events.

4.5.1 COMPASsCO$_2$ Events

Two stakeholder (scientific) workshops will be organised to facilitate stakeholder integration, provide inputs to the project and widen project outreach and impact. The objective is to facilitate dissemination to a maximum number of stakeholders and researchers in the European Union (EU) and to ensure an interactive communication and information exchange between the consortium and community. These workshops will in particular offer cooperation opportunities and exploit potential synergies with the other projects. It could be possibly organised back-to-back with a large EU conference, to give more visibility to COMPASsCO$_2$ project. The organisation of the workshops will be overseen by OME in close coordination with DLR.

Topics of workshop are being defined. OME will oversee the overall organization of the workshop in close collaboration with the coordinator and all partners.

A preliminary list of topics to be presented during the first stakeholders' workshop to take place in parallel with the project meeting are included below:

- Project boundary conditions: selection of solar plant and Brayton cycle.
- Materials selection for COMPASsCO$_2$: metals for the heat exchanger and particles.
- Metals' characterization and testing: current selection of tests and infrastructures to be used.

First Stakeholders Workshop

In order to interact with stakeholders to exchange knowledge, validate results and identify areas for collaboration, the first COMPASsCO$_2$ stakeholders workshop was organized on June 10th 2021 via video-conferencing. The workshop had the purpose to introduce the project, discuss the main research activities conducted, and identify areas in which to cooperate with other projects, institutions or companies. The main focus areas for this workshop were: i) the use of concentrating solar technology and its integration in the Brayton cycle; ii) evaluation of state-of-the-art materials that could withstand the extreme operating conditions; and iii) research, development and testing of innovative materials that guarantee reliability and sustainability under harsh conditions. The workshop was addressed to researchers, EU and international consortia working on similar topics, industry representatives and any other interested stakeholder willing to learn more about innovation for sustainability in industry. More than 50 participants attended the workshop. Through a dedicated questionnaire, participants provided their feedback on the workshop and expressed opinions on the future role of the investigated technologies.

Figure 9: First Stakeholders Workshop Announcement

4.5.2 Synergies with other EU projects

Synergies with projects having similar scope could also increase the impact of dissemination, thereby reaching a wider stakeholder group. Several projects working on similar topics have been identified/contacted for synergies and joint communication and dissemination activities. Three networks have been joined so far, bringing together more than 20 projects to develop and exploit joint communication and dissemination activities, as briefly explained below:

- Network focusing on sCO_2, led by CO2OLHEAT, and is composed of 8 consortia (sCO2-4-NPP, SCARABEUS, DESOLINATION, COMPASsCO$_2$, CO2OLHEAT, SOLARsCO2OL, sCO2 Efekt, CARBOSOLA). Two webinars were held in September and December 2022. Other webinars are also foreseen.
- Network focusing on novel materials and components, and is composed of 6 consortia (HIPERMAT, COMPASsCO$_2$, FORGE, ACHIEF, CEM-WAVE, TOPAM). A webinar on "novel high performance materials and components for a sustainable industry" was held in November 2022. Other dissemination activities are also envisaged to be organized within this network.
- Network focusing on CSP technology, and is composed of 8 consortia (ASTEP, NEXTOWER, MOSAIC, COMPASsCO$_2$, DESOLINATION, SFERA III, SCARABEUS, SWS-HEATING). Within this network, "Module A: Identification and creation of the portfolio of R&I project results" report was developed as support from the Horizon Results Booster.

Other synergies are being identified with other consortia. In particular, COMPASsCO$_2$ is joining efforts with SPIRE08 projects, to contribute to the web-based platform being created by CEM-WAVE project for sharing knowledge.

4.5.3 External Events

It is expected that COMPASsCO$_2$ team will participate in third party events, through posters and oral presentations. Resources are allocated accordingly to partners to participate in such events, addressing potential COMPASsCO$_2$ stakeholders.

COMPASsCO$_2$ will deliver up to 10 presentations at recognized international conferences such as the ones listed below:

- ACHEMA – World Forum and Leading Show for the Process Industries
- SWC – Solar World Congress
- SCH - International Conference on Solar Heating and Cooling for Buildings and Industry
- EFCE – European Drying Conference
- ICEER - International Conference on Energy and Environment Research
- ICRERA - International Conference on Renewable Energy Research and Applications
- ECOS - Int. Conf. on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems
- International Conference on Energy Sustainability
- SolarPACES – Solar Power & Chemical Energy Systems
- CSGRES - IFAC Workshop on Control of Smart Grid and Renewable Energy Systems
- TMS – The Materials Society, USA annual conference
- Intermetallics
- EUROMAT – European Congress and Exhibition on Advanced Materials and Processes
- Gordon Research Conference on High Temperature Corrosion
- ICMCTF - The International Conference on Metallurgical Coatings and Thin Films
- EuroCorr
- HTCPM - Symposium on High Temperature Corrosion and Protection of Materials
- Beyond Ni-base superalloys
- MRS - Materials Research Society, Boston, USA
- International Conference on Advanced Ceramics and Composites, Daytona Beach, USA
- Supercritical CO_2 Power Cycles Symposium
- European Conference on Supercritical CO_2

Table 3 summarizes the presentations delivered by COMASsCO$_2$ team at the different conferences and workshops as of end of 2022.

Table 3: Summary of Presentations/Posters at Conferences and Workshops

Participant	Name of Event	Place	Date	Description of the action
CVR	Advanced energy technologies and energy storage	Online	21/01/2021	General information of the COMPASsCO$_2$ project

SGCREE	SolarPACES2021	Online	29/09/2021	New material solutions for thermal energy storage
DLR	SCO2-FLEX Final Event	Online	16/06/2021	An overview of COMPASsCO$_2$
DLR	13ª Reunión del GT de Tecnologías de Concentración	Plataforma, Spain	11//11/2021	General information of the COMPASsCO$_2$ project
UoB	TMS 2022	California, USA	28/02/2022-02/03/2022	Bcc-Superalloys Microstructure Templates
DFI	TMS 2022	Online	28/02/2022-02/03/2022	Development of Heat-treatable Crss-Cr3Si-based Alloys: Microstructure, Oxidation, and Creep
CMI	Processes4Planet Forum	Brussels, Belgium	09//06/2022	Scientific presentation about the COMPASsCO$_2$ results
CIEMAT	XVI Congreso Nacional de Materiales - CNMAT 2022	Ciudad Real, Spain	28/06/2022-01/07/2022	Estimation of the mechanical behavior of Ni base alloys at high temperature by means of small punch tests.
DFI	ACHEMA 2022	Frankfurt, Germany	22//08/2022 - 26//08/2022	Scientific presentation about the COMPASsCO$_2$ results
CIEMAT	SolarPACES2022	NM, USA	27/09/2022-30/09/2022	Optimization of Spinel Absorber Coatings for CSP Particle Receivers
DLR	SolarPACES2022	NM, USA	27/09/2022-30/09/2022	Round Robin Test of Absorptance and Emittance of Particles for CSP
DFI	Jornadas de Corrosao e Protecao de Materais	Lisbon, Portugal	24/11/2022	Thermal Energy Storage and Corrosion at High Temperatures
UoB	MRS 2022	Boston, USA	27/11/2022 – 02/12/2022	Bcc-Superalloys: bcc refractory metals reinforced by ordered-bcc intermetallic precipitates

4.6 COMPASsCO$_2$ newsletter

A regular newsletter is disseminated by electronic channels (email, website, social networks, etc.) to all the project stakeholders.

In particular, the newsletter includes the main updates of the project, including deliverables and milestones, main messages and results, events, and other announcements. In addition to

the distribution list of the stakeholders, the newsletter is made available under the project's website, under "Project Results"/Newsletters.

Two issues are envisaged to be produced every year. *Table* 4 gives more information about the newsletters produced so far.

Table 4: COMPASsCO$_2$ Newsletters

Issue Number	Date of publication	Content
1st Issue 	April 2021	Welcome from the Coordinator; an overview of COMPASsCO$_2$; the composition of the project participants; abstracts of deliverables; milestones achieved; outreach activities; events organised; and stakeholders.
2nd Issue 	October 2021	Status of implementation of the different work packages; the organisation of the first stakeholders workshop; the presentation of a poster at SolarPACES; joint dissemination activities with similar projects; meetings held; networking with SOLARSCO2OL; and invitation to stakeholders on how to get involved in the project activities.
3rd Issue 	April 2022	Status of implementation of the different work packages; communication and dissemination activities; meetings held; joint activities with similar projects; and invitation to stakeholders on how to get involved in the project activities.
4th Issue 	November 2022	Status of implementation by WP; deliverables produced; communication and dissemination activities, including synergies and joint communication activities with similar projects, meetings; and invitation to stakeholders on how to get involved in the project activities.

The newsletters have been posted on the project's website, made available through COMPASsCO$_2$ dedicated Zenodo area, and sent to the project's stakeholders.

4.7 COMPASsCO$_2$ Social Networks

Giving the increasing importance of social networks as key communication tools, COMPASsCO$_2$ has also considered the integration of such tools in its communication and dissemination strategy in order to reach a broader target groups through the different channels. Therefore, two main social media means have been considered (Twitter and LinkedIn), the accounts have been created and regularly updated.

OME acts as a moderator of both social media profiles, with input from all participants.

Table 5: Social Media Networks

Tool	Account	Use
	@Co2Compa https://twitter.com/co2compa	The twitter page includes updates on COMPASsCO$_2$ news, events, contents, new deliverables, deliverables main messages to all the stakeholders.
	COMPASsCO$_2$ Horizon2020 https://www.linkedin.com/company/compassco2-horizon2020/?viewAsMember=true	Likewise, the LinkedIn page includes updates on COMPASsCO$_2$ news, events, contents, new deliverables, deliverables main messages to all the stakeholders.

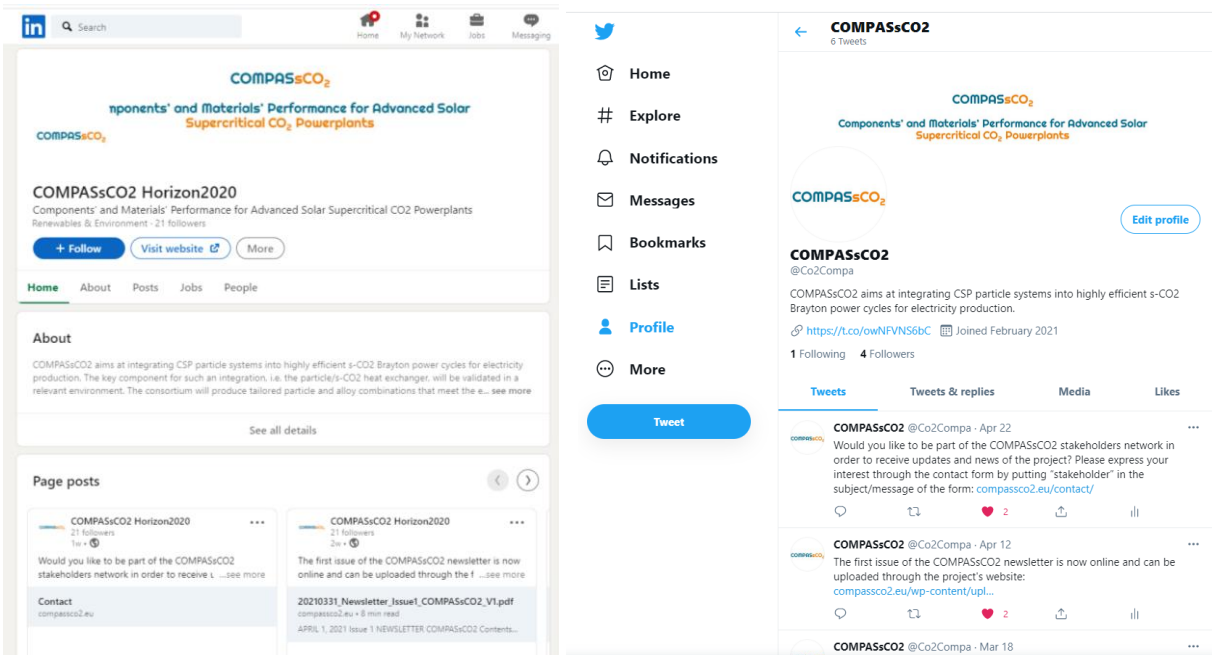

Figure 10: COMPASsCO$_2$ LinkedIn (left) and Twitter (right) Accounts

4.8 Articles in specialized Magazines

Specialized media, on press in particular, focusing on energy, renewables, materials science, etc. are also considered and will be used to disseminate the project's activities and results, in order to reach a wider audience.

In order to inform a non-expert audience about the progress of COMPASsCO$_2$, so-called informative papers will also be produced all along the project duration. Within this framework, the first article on "development and testing of new particles for high-temperature concentrating solar receivers: state of the art and innovation brought by COMPASsCO$_2$", based on the work conducted under WP2 was released on March 2022. The article is also published in OME magazine – Global Energy for the Mediterranean (GEM) - issued in November 2022.

4.9 Other Communication and Dissemination Channels

4.9.1 Project Participants' Websites

All the partners have websites, and most of them have also newsletter disseminated to their contacts. In order to disseminate widely, the COMPASsCO$_2$ project will use this option to also disseminate the main updates of the project. Also, some partners have added a general overview of the project in their portfolio of projects, thereby increasing wider access even after the project's duration. Annex 2 gives an example of dissemination of the project through the participants' websites.

4.9.2 Spire website

The SPIRE (Sustainable Process Industry through Resource and Energy Efficiency) website (https://www.spire2030.eu/) will also be used a communication and dissemination channel. Currently, an overview of the COMPASsCO$_2$ project (e.g. objectives of the project and concept, etc.) has been submitted for publication in a SPIRE brochure. A project summary is also published through the SPIRE website: https://www.aspire2050.eu/printpdf/projects/our-spire-project/3506

4.9.3 Printed materials

In addition to the online communication and dissemination tools, printed materials (brochures, posters, flyers, etc.) will also be used, especially at the different events organized either within the framework of the COMPASsCO$_2$ activities or at other events where team members are participating at. They have been developed using the project visual identity codes but customized in terms of content and language style according to the specific event targeted.

Moreover, specific printed materials will be developed for the COMPASsCO$_2$ final event.

4.9.4 University lectures

Given that lecturers/professors are involved in the COMPASsCO$_2$ project, lectures on material science and ceramics will be updated accordingly to highlight the demands of CSP and sCO$_2$ power cycles, and the innovation made on materials science.

4.10 Internal Communication

In addition to communication and dissemination to COMPASsCO$_2$ stakeholders, internal communication among the project participants, including communication with the EC, is key in meeting the project's objectives, and therefore assuring a high quality management of the project.

The scheme below shows the governance structure and the communication flow within the COMPASsCO$_2$ project. Whereas the Project coordinator (DLR) assures efficient communication between the European Commission and the Team, the operative coordinator (OME) acts also as WP7 leader assuring internal and external communication with stakeholders.

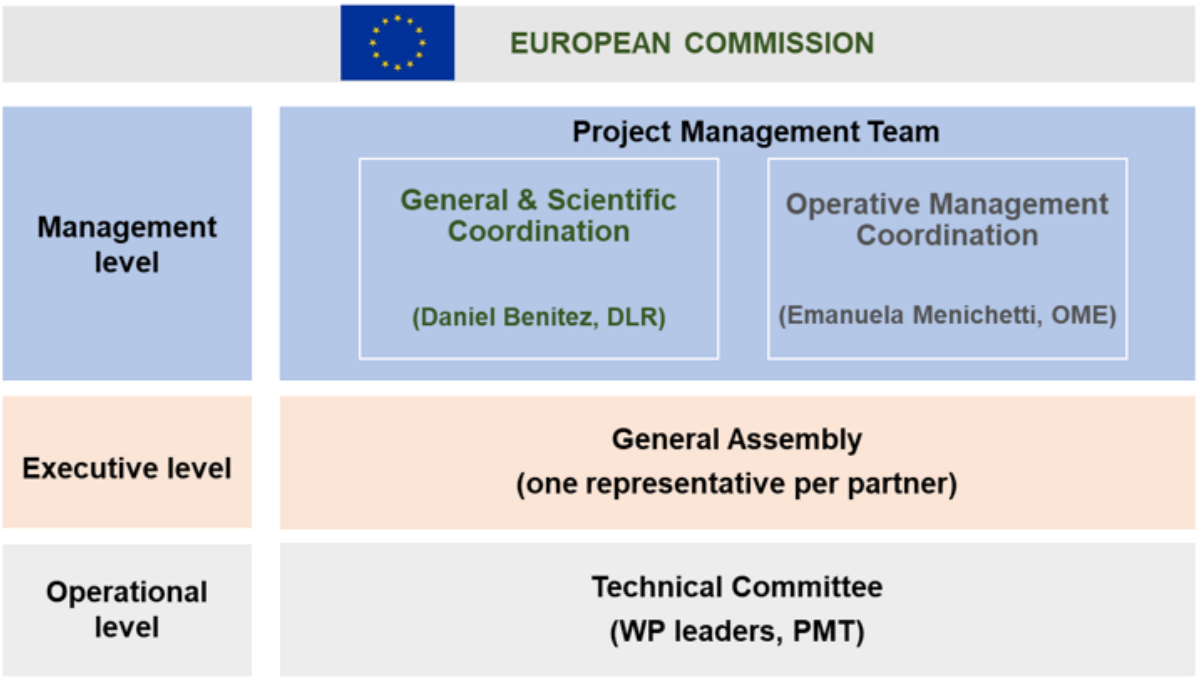

Figure 11: Coordination and Communication flow in COMPASsCO$_2$

Coordination and communication among participants is ensured through different tools:

- Regular emailing among all participants for regular updates, providing input, organizational and administrative issues, etc.
- Regular tele-conferencing (technical committee meetings, dedicated WP meetings, tasks and sub-tasks meetings, etc.).
- Online platforms for documents and data sharing: DLR teamsite has been used during the first stage of the project, while the project's website was under development. After being operational, the private area of the project website is the main online platform for documents sharing among the COMPASsCO$_2$ team members.
    - **DLR Teamsite:** It has been used as a sharing platform among the project participants, while the project's website was under development. All beneficiaries had access to this area to upload and download all restricted items to consortium. The access to the Teamsite has to be granted by the project Coordinator and a unique username and password is given to each project partner. Each partner is responsible for changing his password and not sharing it or losing it to any third parties.
    - **Project's website private area:** It is the main documents and data sharing platform, where all confidential information is shared among the project participants, including minutes, confidential data, restricted deliverables, etc. The participants' dedicated area is managed by OME and all partners have access to upload and download documents and other materials.

5 TARGET GROUPS

Since the beginning of the project, a stakeholder and community network is being developed. Deliverable 7.3 (Stakeholders database; dissemination level confidential) has a detailed list of stakeholders being engaged. The consortium will not only disseminate and convey the results and messages of the project, but will also establish a bi-directional flow of information and exchange to get the stakeholders' feedback about the project's methodologies and results. Several stakeholders will be interested in the Concentrating Solar Power Technologies, including policy makers, end users, Energy Service Companies (ESCos), renewable energy technology developers and investors, research organizations, industrial associations, standards groups, financing community, etc.). Given the different stakeholders of the COMPASsCO$_2$ project, tailored communication is developed for the particular audience. Below are details about the different stakeholders COMPASsCO$_2$ project is targeting.

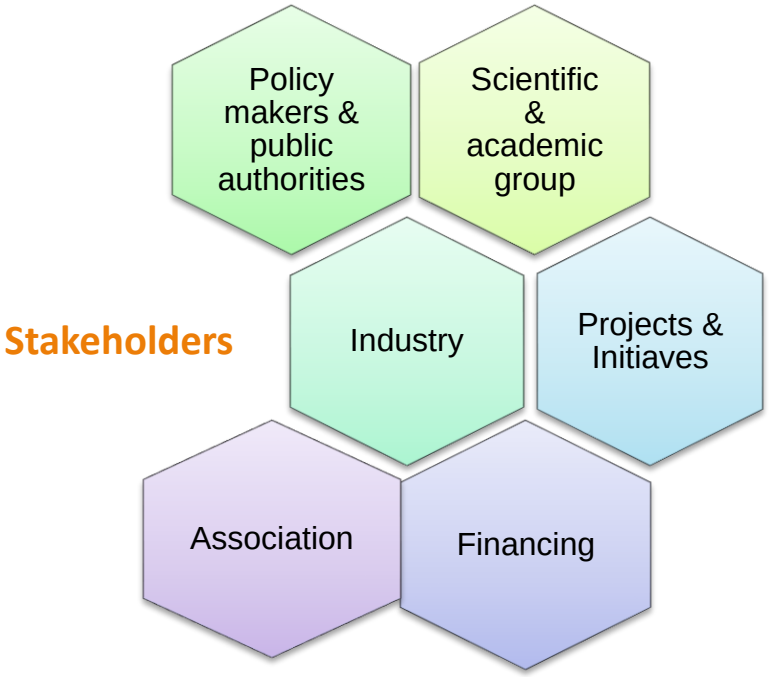

Figure 12: COMPASsCO$_2$ Stakeholders Groups

Policy Makers and Public Authorities	
Communication Approach	**Target Group Profiles**
- Provide insights about technology specific sector applications and recommendations to policy makers at the local, regional, national, European and international level. - Disseminate the general results and findings in the different broader dissemination channels; website, newsletter, social networks, etc.	- European Commission (EC) - European authorities in charge of energy and environment strategies - National public authorities (i.e. ministries, national agencies, etc.) in charge of defining national strategies and plans - Regional and intergovernmental institutions

Scientific & Academic Groups	
Communication Approach	**Target Group Profiles**
- Provide detailed information, including technology-specific requirements and applications, testing materials and particle results, including results from the pilot project to research centers and universities. - Disseminate mainly through public deliverables, publications in scientific journals and presentation at scientific conferences and workshops.	- Universities - Research centers - R&D departments in companies - Scientific platforms - Scientific conferences boards and technical committees

Industry Stakeholders	
Communication Approach	**Target Group Profiles**
- Share results on testing of materials and their combination as well as the results of the pilot project. - Involve stakeholders in the workshops to have a bi-directional flow of information and feedback to both present result and get industry stakeholders' feedback. - In addition to sharing deliverables and scientific publications, explore cooperation opportunities for an eventual adoption and deployment of the technology. - Share results of the testing and demonstration activities and eventually cooperation of the development of new products and services.	- Companies - Industry associations - Equipment manufacturers - Raw materials providers - Particles providers - Developers - Engineering, Procurement and Construction (EPC) companies - Utilities - Components retailers - Energy Service Companies (ESCos) - Other value chain stakeholders

Other Projects and Initiatives Active in s-CO_2	
Communication Approach	**Target Group Profiles**
- Build synergies and partnerships with similar projects at the national, European and International level. - Explore collaboration opportunities for joint actions.	- Projects and initiatives working on solar s-CO_2 power plants. - European and non-European projects working on the same technology field.

- Sharing best practices with related projects for policy recommendations	

Financing actors	
Communication Approach	**Target Group Profiles**
- Explore opportunities to finance solar s-CO_2 projects in the future. - Involve financing stakeholders in workshops and share results, especially business models to attract their interest in the technology and the new materials developed and tested in COMPASsCO$_2$.	- National, European and International Financial institutions - Donor and aid agencies - Commercial banks - Investment companies

6 MONITORING OF DISSEMINATION ACTIVITIES

Several indicators are being used to monitor communication and dissemination activities, in order to assess the effectiveness of communication activities. This exercise will help evaluate the communication and dissemination strategy and how to refine the approaches, in case of barriers. In order to monitor the activities, a number of Key Performance Indicators (KPIs) have been developed as shown in the table below.

Table 6: Key Performance Indicators and Targets

KPI	Measurement Unit	Target
Visual identity	-	1
Project website	-	1
Project roll-ups	Nr. of roll-ups produced	1
Communication strategy	Nr. of versions developed	3
Project newsletter	Nr. of newsletter issues produced	8 (bi-annual)
Workshops	Nr. of workshops organized	2
Presentations at external events	Nr. of presentations (both oral and poster)	10
Scientific publications in peer-reviewed journals	Nr. of publications	8
Scientific publications as Open Access	Proportion of publication as Open Access	100%
Specialized online press articles	Nr. of articles published	4
Dissemination in COMPASsCO$_2$ LinkedIn	Nr. of posts in LinkedIn	1/month (average)
Dissemination in COMPASsCO$_2$ Twitter	Nr. of posts in Twitter	1/month (average)

In addition to the key performance indicators included in the table above, the project also monitors and reports performance on other indicators, including participation at external events, number of entries/publication on the COMPASsCO$_2$ website, external audience of COMPASsCO$_2$ website based on Google Analytics, and number of contacts and followers on LinkedIn and Twitter, accordingly.

In order to monitor dissemination activities performed by COMPASsCO$_2$ participants, a dissemination log form designed as an excel sheet has been developed and is shared with all participants to track their activities, and is put in the private area of the project's website. In order to track the impact on different stakeholders as required by the European Commission, the dissemination log includes also the type and estimated number of audience of each event/activity.

Table 7: COMPASsCO$_2$ Dissemination Log Example

COMPASsCO2 Dissemination Log						
Participant	**Specific Action**	**Event/Media**	**Place**	**Date**	**Description of the action (general info about the project, event announcement, etc.)**	**Link/URL**
OME	Website Post	OME website	n/a	3/11/2020	General information of the COMPASsCO2 project	https://www.ome.org/compassco2-components-and-materials-performance-for-advanced-solar-supercritical-co2-powerplants/
OME	Website Post	OME website	n/a	3/11/2020	Announcement of the kick-Off meeting	https://www.ome.org/november-3-2020/

Type of audience (please add an "X" or tick mark if applicabe)									Estimated number of persons reached (please add an estimated number of each category if applicabe, otherwise the total)								
Scientific Community	**dustry**	**Civil Society**	**General Public**	**Policy makers**	**Media**	**Investors**	**Customers**	**Other**	**Scientific Community**	**Industry**	**Civil Society**	**General Public**	**Policy makers**	**Media**	**Investors**	**Customers**	**Other**

Each participant enters some basic information (event, date, description, type and estimated number of audience, etc.) in the form, which will be synthesized and used to evaluate whether the objectives and impact of the project are met.

Based on the dissemination log excel sheet, specific KPI's as described in the previous table are being monitored and evaluated by OME to check whether the progress being made is sufficient in meeting the project's objectives or further efforts are needed on certain activities. Regular email reminders are also being sent to all participants to keep track of the dissemination activities and to update the excel sheet accordingly.

7 COMPASsCO$_2$ TEMPLATES

Within the framework of the visual identity and in order to have a homogenous communication and dissemination formats, several templates have been designed, including the PPT presentation and deliverables, agendas, and minutes, etc. templates. As WP7 leader, OME has developed and produced such templates and made them available to participants.

Templates of the following products are available at Annex 3. COMPASsCO$_2$ templates:

- Power Point Template
- Deliverables Template
- Agenda/Event Template
- Minutes Template

8 EC REQUIREMENTS FOR COMMUNICATIONS

The consortium is well aware of the EC requirements and obligations, and will ensure that all such clauses are respected accordingly.

8.1 EU Funding and Use of the EU emblem

All dissemination activities related to COMPASsCO$_2$ project should indicate that the project has received funding from the European Union's H2020 Programme.

The European Union flag should appear in all communication and dissemination activities.

Figure 13: EU Emblem

With acknowledgement of funding:

- Communication activities – any other type than those referenced below.

  "This project has received funding from the European Union's Horizon 2020 Research and Innovation Action (RIA) under grant agreement No. ***958418****."*

- Infrastructure, equipment and major results

  "This [infrastructure][equipment] [insert type of result] is part of a project that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. ***958418****."*

  Example: a sticker or poster for equipment and major results, a plaque or billboard for infrastructure

- Patent

  "The project leading to this application has received funding from the European Union's Horizon 2020 Research and Innovation Action (RIA) under grant agreement No. ***958418****."*

- Standard

  "Results incorporated in this standard has received funding from the European Union's Horizon 2020 Research and Innovation Action (RIA) under grant agreement No. ***958418****."*

8.2 Disclaimer excluding the Commission responsibility

Any communication activity related to the COMPASsCO$_2$ project should indicate that the content reflects only the author's view and that the Commission is not responsible for any use of the information included.

> *"The content of this publication reflects only the author's view and not necessary those of the European Commission. The Commission is not responsible for any use that may be made of the information this publication contains."*

8.3 Other requirements and obligations

- **Exploitation and dissemination of the project results up to four years after the end of the project**, as stipulated in articles 28 and 29 of the Model grant agreement. In order to ensure reporting on dissemination and exploitations after the project's end, the EC made available a continuous reporting module under the Funding and Tenders Portal.
- **Open Access to Scientific Publication and public research data** are to be ensured, and made available online, at no extra cost and accessible to European researchers, innovative industries and the public, and as stipulated in : ARTICLE 29 — DISSEMINATION OF RESULTS — OPEN ACCESS — VISIBILITY OF EU FUNDING –
    - **Article 29.1 Obligation to disseminate results:** "**Unless it goes against their legitimate interests**, **each beneficiary must** — as soon as possible — **'disseminate' its results by disclosing them to the public by appropriate means** (other than those resulting from protecting or exploiting the results), including in scientific publications (in any medium).
      […]
      This does not change the obligation to protect results in Article 27, the confidentiality obligations in Article 36, the security obligations in Article 37 or the obligations to protect personal data in Article 39, all of which still apply.
      A beneficiary that intends to disseminate its results must give advance notice to the other beneficiaries of — unless agreed otherwise — at least 45 days, together with sufficient information on the results it will disseminate.
      Any other beneficiary may object within — unless agreed otherwise — 30 days of receiving notification, if it can show that its legitimate interests in relation to the results or background would be significantly harmed. In such cases, the dissemination may not take place unless appropriate steps are taken to safeguard these legitimate interests.
      […]
      "
    - **Article 29.2 Open access to scientific publications:** "**Each beneficiary must ensure open access (free of charge, online access for any user)** to **all peer-reviewed scientific publications** relating to its results.
      In particular, it must:

      (a) as soon as possible and at the latest on publication, **deposit a machine-readable electronic copy of the published version or final**

peer-reviewed manuscript accepted for publication in a repository for scientific publications;

Moreover, the beneficiary must aim to deposit at the same time the research data needed to validate the results presented in the deposited scientific publications.

(b) **ensure open access to the deposited publication – via the repository** – at the latest:

(i) on publication, if an electronic version is available for free via the publisher, or

(ii) within 6 months of publication.

(c) **ensure open access – via the repository – to the bibliographic metadata that identify the deposited publication**.

[…]"

9 REFERENCES

European Commission. *Horizon 2020 Programme. Guidelines to the Rules on Open Access to Scientific Publications and Open Access to Research Data in Horizon 2020*. Version 3.2, 21 March 2017.

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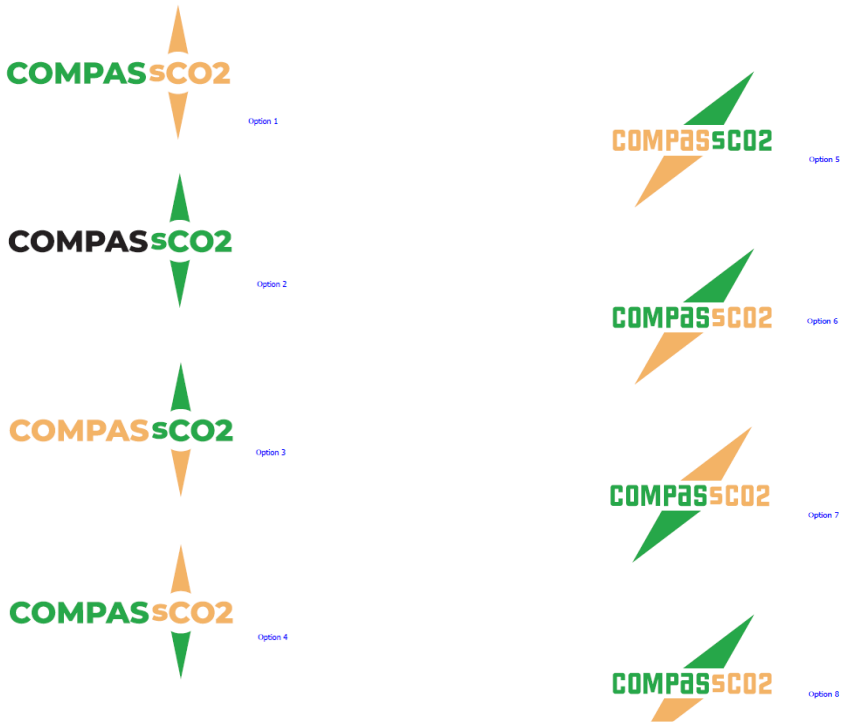
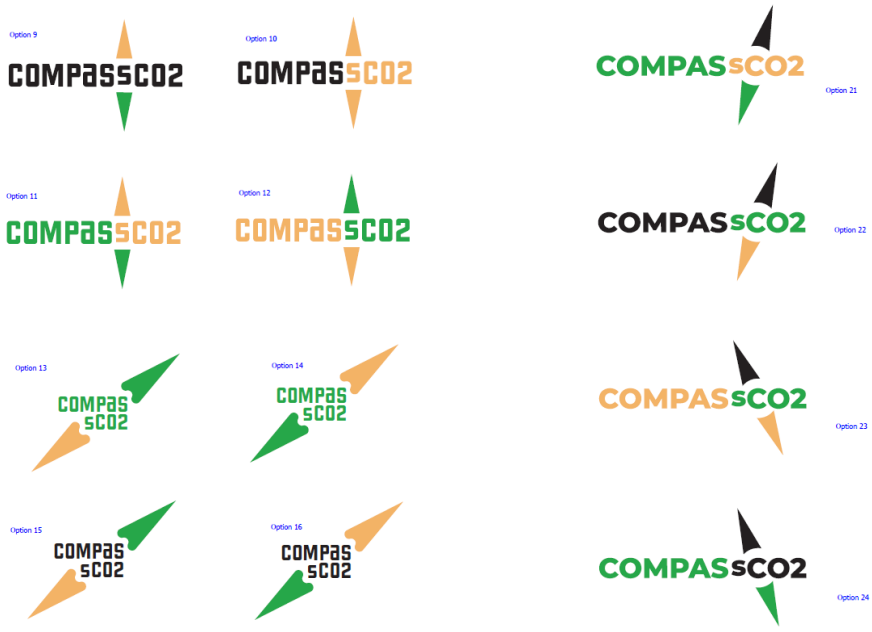
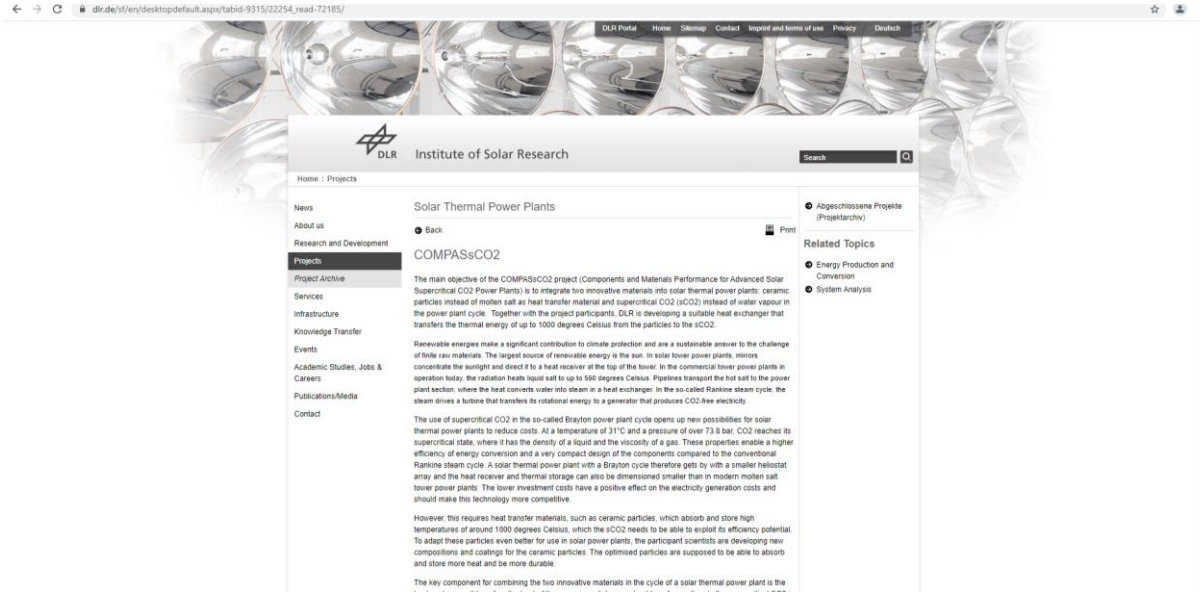
ANNEXES

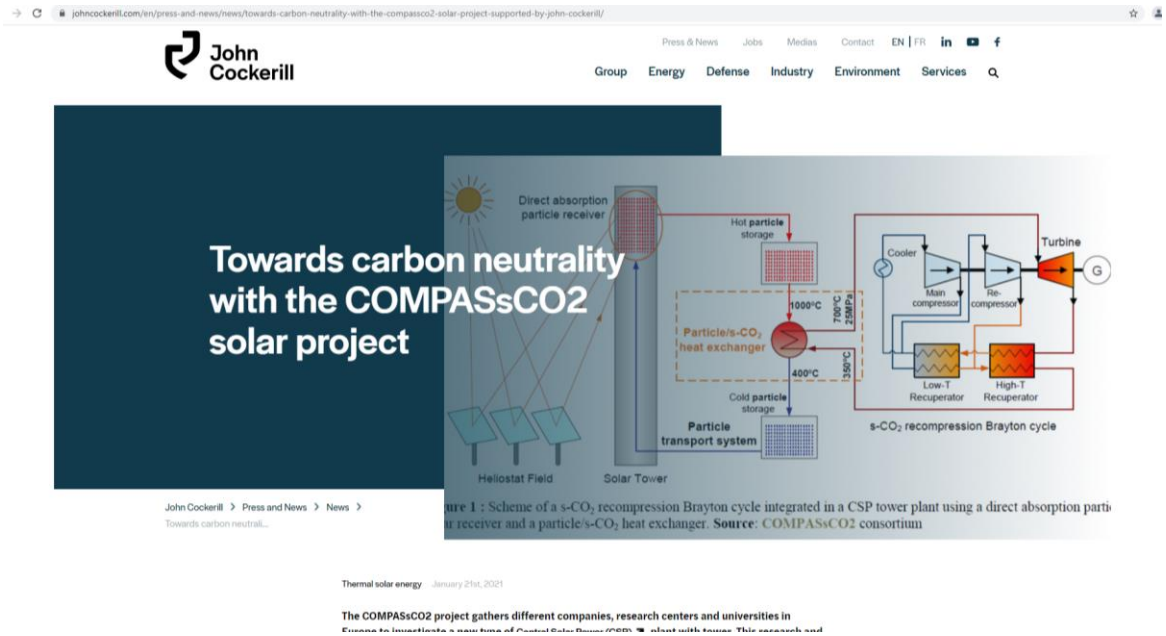
Annex 1. Draft Versions of the COMPASsCO$_2$ Logo





Annex 2. Communication and Dissemination of COMPASsCO$_2$ at the Partners' Websites




johncockerill.com/en/press-and-news/news/towards-carbon-neutrality-with-the-compassco2-solar-project-supported-by-john-cockerill/
John Cockerill
Press & News
Jobs
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Energy
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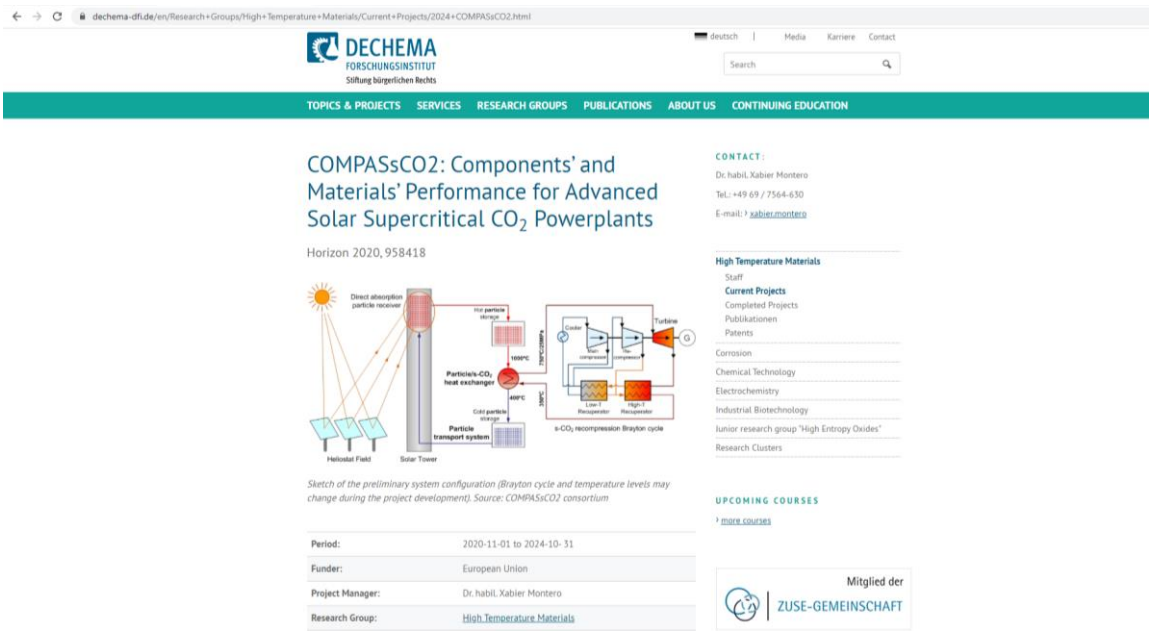
Towards carbon neutrality with the COMPASsCO2 solar project
Direct absorption particle receiver
Hot particle storage
Cooler
Turbine
Main compressor
Re-compressor
1000°C
700°C
250bar
Particle/s-CO2 heat exchanger
400°C
350°C
Low-T Recuperator
High-T Recuperator
Cold particle storage
Particle transport system
s-CO2 recompression Brayton cycle
Heliostat Field
Solar Tower
John Cockerill > Press and News > News >
Towards carbon neutrali...
ure 1 : Scheme of a s-CO2 recompression Brayton cycle integrated in a CSP tower plant using a direct absorption parti
r receiver and a particle/s-CO2 heat exchanger. Source: COMPASsCO2 consortium
Thermal solar energy January 21st, 2021
The COMPASsCO2 project gathers different companies, research centers and universities in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CONTINUING EDUCATION
COMPASsCO2: Components' and Materials' Performance for Advanced Solar Supercritical CO2 Powerplants
Horizon 2020, 958418
Sketch of the preliminary system configuration (Brayton cycle and temperature levels may change during the project development). Source: COMPASsCO2 consortium
Period: 2020-11-01 to 2024-10-31
Funder: European Union
Project Manager: Dr. habil. Xabier Montero
Research Group: High Temperature Materials
CONTACT:
Dr. habil. Xabier Montero
Tel.: +49 69 / 7564-630
E-mail: xabier.montero
High Temperature Materials
Staff
Current Projects
Completed Projects
Publikationen
Patents
Corrosion
Chemical Technology
Electrochemistry
Industrial Biotechnology
Junior research group "High Entropy Oxides"
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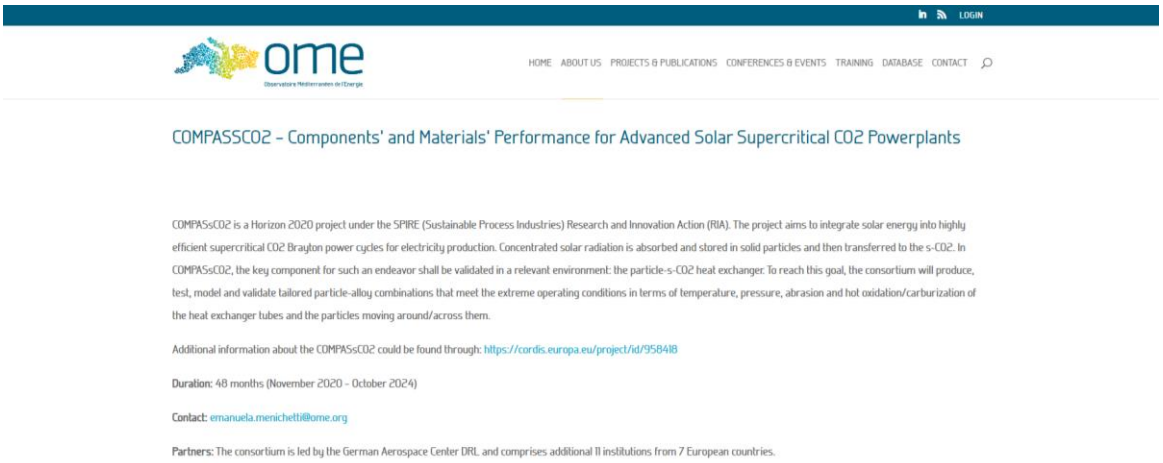
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PROJECTS & PUBLICATIONS
CONFERENCES & EVENTS
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CONTACT
COMPASSCO2 – Components' and Materials' Performance for Advanced Solar Supercritical CO2 Powerplants
COMPASsCO2 is a Horizon 2020 project under the SPIRE (Sustainable Process Industries) Research and Innovation Action (RIA). The project aims to integrate solar energy into highly efficient supercritical CO2 Brayton power cycles for electricity production. Concentrated solar radiation is absorbed and stored in solid particles and then transferred to the s-CO2. In COMPASsCO2, the key component for such an endeavor shall be validated in a relevant environment: the particle-s-CO2 heat exchanger. To reach this goal, the consortium will produce, test, model and validate tailored particle-alloy combinations that meet the extreme operating conditions in terms of temperature, pressure, abrasion and hot oxidation/carburization of the heat exchanger tubes and the particles moving around/across them.
Additional information about the COMPASsCO2 could be found through: https://cordis.europa.eu/project/id/958418
Duration: 48 months (November 2020 - October 2024)
Contact: emanuela.menichetti@ome.org
Partners: The consortium is led by the German Aerospace Center DRL and comprises additional 11 institutions from 7 European countries.

Annex 3. COMPASsCO$_2$ Templates

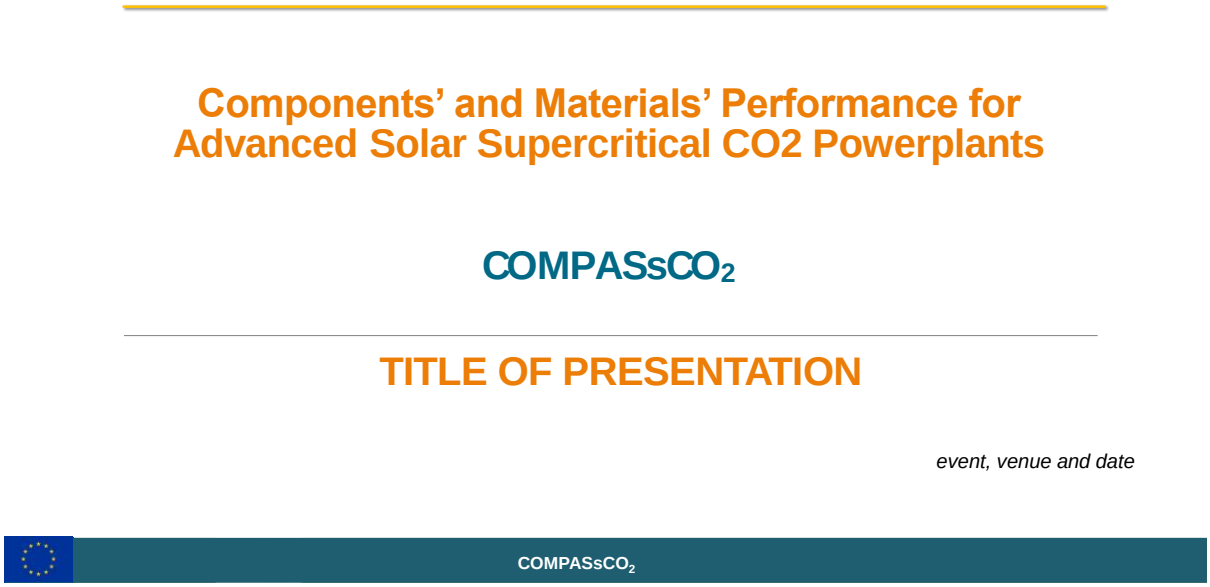

Figure 14: COMPASsCO$_2$ PPT Template

Figure 15: COMPASsCO$_2$ Deliverables Template

Figure 16: COMPASsCO$_2$ Agenda (left) and Minutes (right) Templates