



SUNER-C: Reminder on contents of the proposal

Frédéric Chandezon (CEA): SUNER-C co-coordinator



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Back to basics:
What SUNER-C has to do

02

The SUNER-C CSA project:
What we will do and how

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Where are we now: some
highlights & take home
message

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Reminder: background and tentative timeline

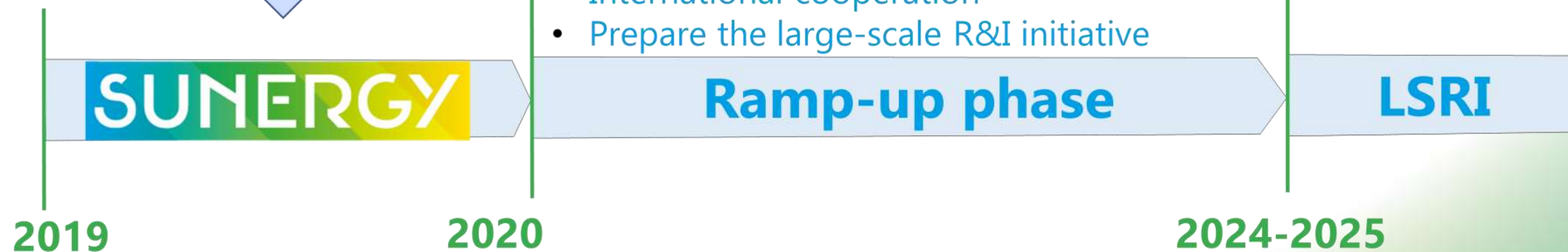
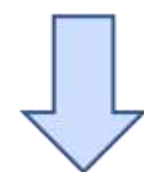
SUNER-C instrumental to the SUNERGY ramp-up phase



Predecessors: 2 CSAs



+



SUNERGY ramp-up phase:

- Coordination, community building, roadmapping
- Implementing the SUNERGY roadmap
- Portfolio of EU projects (RIAs & IAs) with



CSA as 'glue'

- Coordination with other EU initiatives and with national programmes/alliances
- International cooperation
- Prepare the large-scale R&I initiative

Large-scale R&I initiative

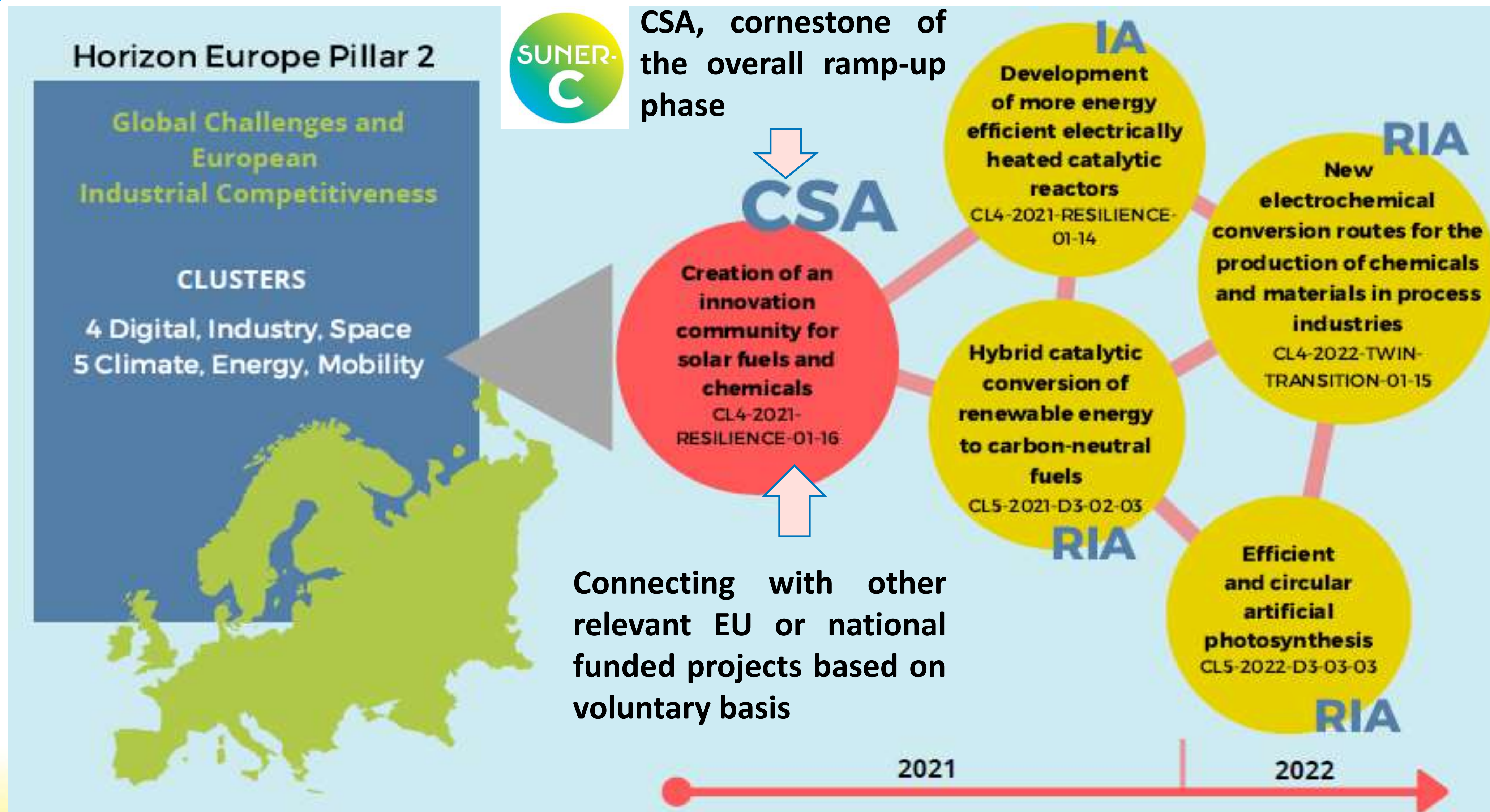
as a partnership or another instrument to be agreed with EC and MS/AC



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Implementing the SUNERGY ramp-up phase

In Horizon Europe Work Programmes 2021-2022



The topic: HORIZON-CL4-2021-RESILIENCE-01-16

Creation of an innovation community for solar fuels and chemicals

➤ Expected outcome:

Creation of an innovation eco-system gathering the various elements necessary to accelerate the development in the area of introduction of solar fuels and chemicals. This will require a strict synergy of actions between all stakeholder components, from R&D to industry and society, in order to foster their introduction. In addition, the development of solar fuels and chemicals requires a full redesign of the current technologies and processes based on fossil fuels, and the technological gap is a main factor limiting their introduction.

Projects are expected to contribute to the following outcomes:

- Solar fuels and chemicals constitute those products that are equivalent in terms of functionality to the ones currently in use based on fossil fuels, and thus well integrating within the existing infrastructure, but produced with the aid of renewable energy sources and with a disruptive decrease in terms of reduction of greenhouse gas emissions on LCA bases, larger than that based on biomass sources. They will play a crucial role to meet targets for decarbonizing Europe;
- Structuring/developing in the short term the European ecosystem in order to speed up technologies to move from the laboratory to industry;
- Tackle long-term research challenges in the field. This would be done mainly through the RIA & IA topics of the large-scale R&I initiative, as well as with actions at national and regional levels, with overall coordination by the CSA.



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The topic: HORIZON-CL4-2021-RESILIENCE-01-16

Creation of an innovation community for solar fuels and chemicals

➤ Scope:

- Coordinating a large scale R&I initiative on storage of renewable (solar) energies in chemical form involving all relevant stakeholders (from academia, RTOs, industry and society) and linked with relevant international, national and local programmes and initiatives;
- Building and updating, a long-term roadmap;
- Building/structuring a gender balanced, inclusive community with all relevant stakeholders across EU;
- Participation of societal stakeholders to the activities of the community and initiative;
- Facilitating cooperation and communication between the stakeholders of the initiative on cross-cutting topics;
- Strengthening the engagement of the European industrial stakeholders in the long term beyond the CSA;
- Creating an innovation eco-system to foster and accelerate the technological, economic and societal impact of the initiative and pave the way to industrial exploitation of the technologies in the field of energy, transport and climate;
- Speeding-up and increasing the positive impacts of technologies on climate change and protection of environment;
- Spreading of S&T excellence across Europe and increase awareness of European activities;
- Addressing international cooperation in particular with other relevant actions (e.g. Mission Innovation);
- **Preparing a large-scale research and innovation initiative beyond the CSA, as a partnership or another instrument to be discussed and agreed upon with the Commission and the Member States and Associated countries.**



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The topic: HORIZON-CL4-2021-RESILIENCE-01-16

Creation of an innovation community for solar fuels and chemicals

➤ Scope:

Where synergies are possible with projects from topics HORIZON-CL4-2021-RESILIENCE-01-14, HORIZON-CL4-2022-TWIN-TRANSITION-01-15, HORIZON-CL5-2021-D3-02-03, and HORIZON-CL5-2022-D3-03-03, cooperation activities are encouraged.

The project partners should make provisions to actively participate in the common activities of the large-scale research initiative on Fossil-free fuels and chemicals for a climate-neutral Europe.

The topic is open for international cooperation where the EU has reciprocal benefit.

Concept of the ramp-up phase: connecting R&I collaborative projects via the CSA to implement a global roadmap on solar fuels and chemicals



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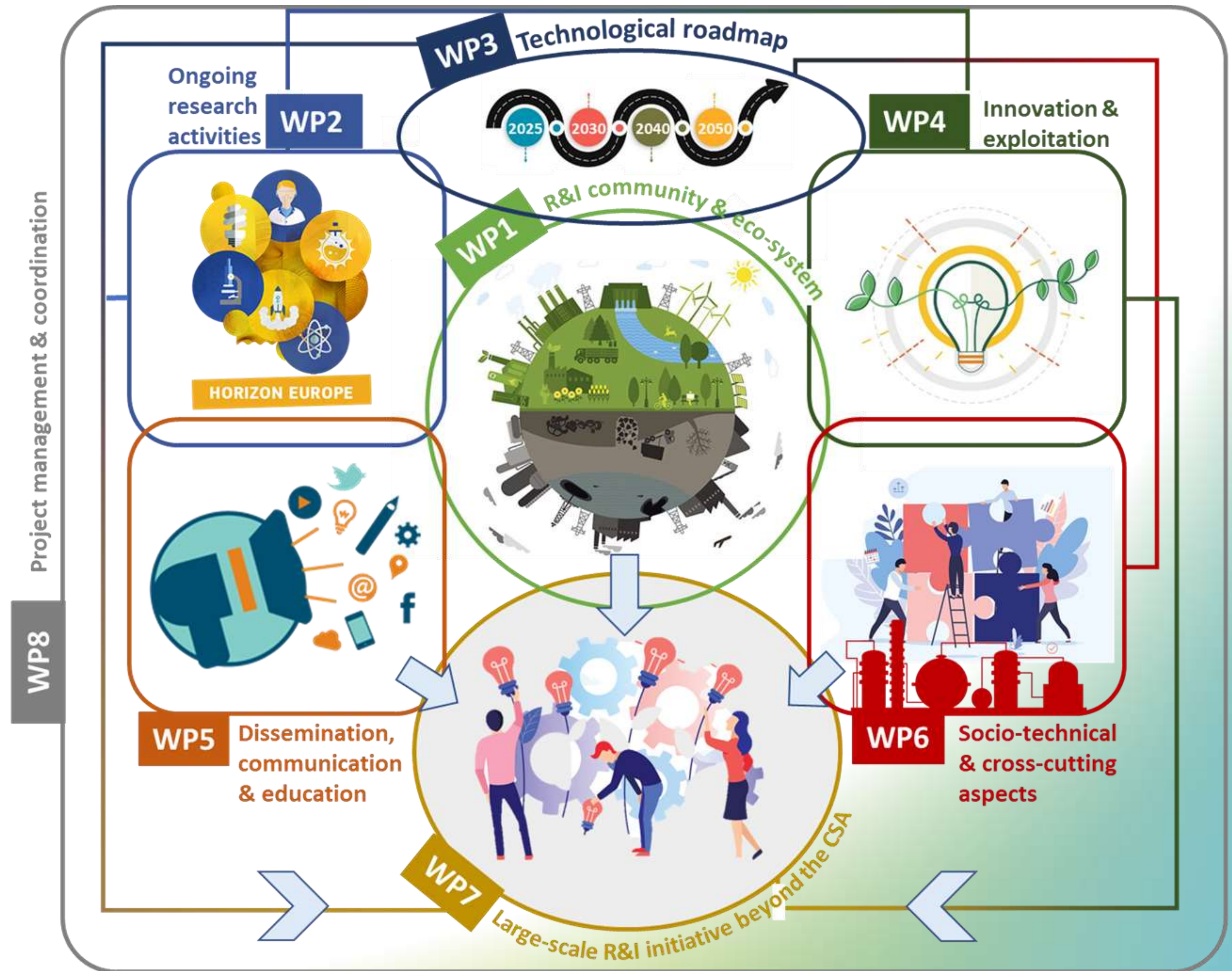
02 | The SUNER-C CSA project : What we will do and how



SUNER-C CSA

An overview

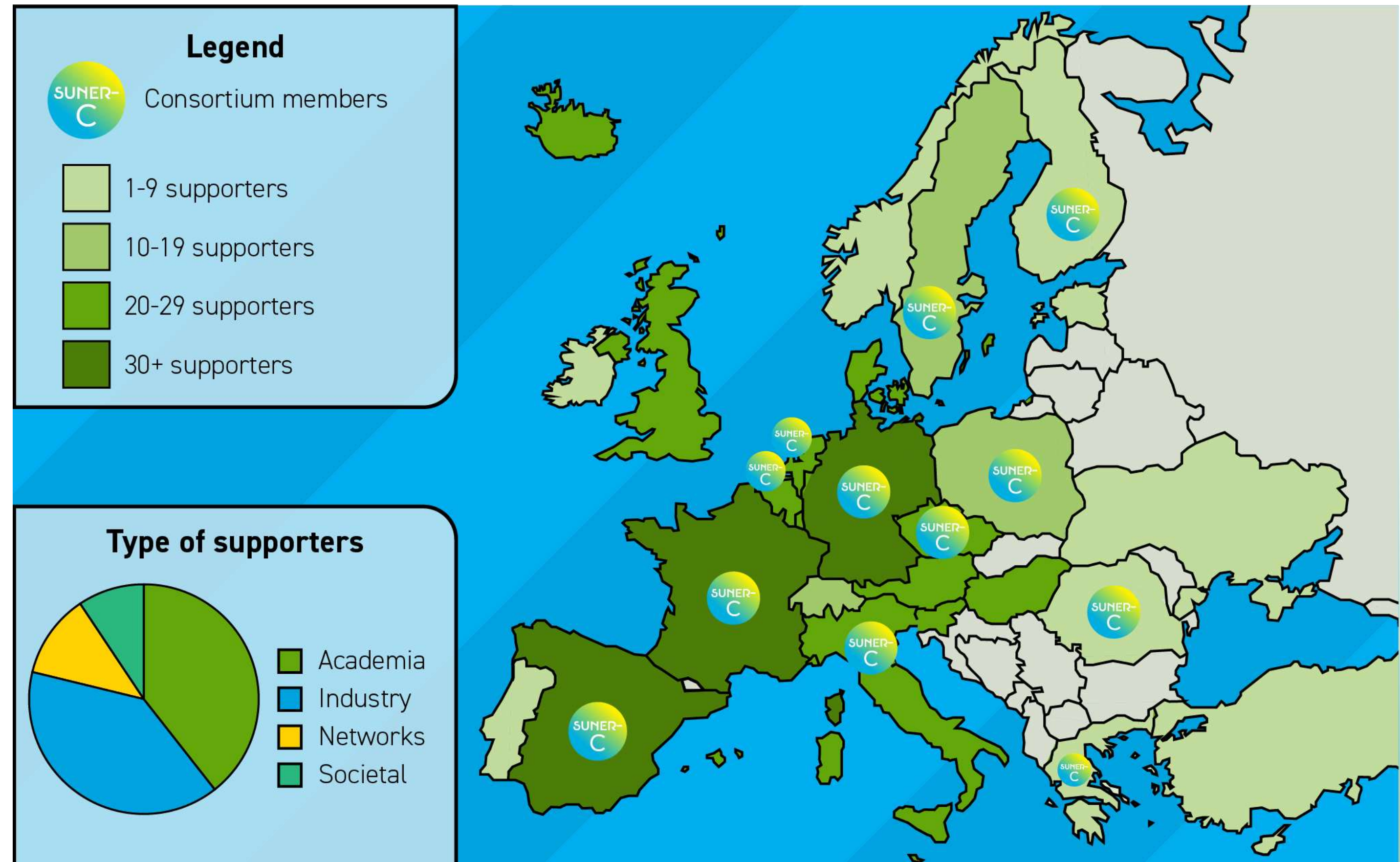
- Title: **SUNER-C: SUNERGY**
Community and eco-system for accelerating the development of solar fuels & chemicals
- Duration: 3 years (06-2022 → 05-2025)
- Total budget: ≈ 4 M€



SUNER-C CSA Consortium

31 participants from 12 EU countries representing the community and working with it on common activities (e.g. roadmapping)

- 13 academic partners including 2 social science institutes
- 12 industrial partners incl. 4 SMEs* covering the value chain
- 4 national & European networks
- 1 NGO



Energy

SIEMENS energy

ENGIE

TotalEnergies

CCU

carbyon

Closing the CO₂ cycle.

ICT

ALMA DIGIT

jump to the future

Chemistry & Materials

covestro

NextChem
Maire Tecnimont for Energy Transition

SOLVAY

avantium

SyNest
Synergies in Science and Technology

Steel & Cement

ArcelorMittal

VICAT



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SUNER-C CSA

Consortium details

Academia (13 partners):

- Utrecht University (NL)
- CEA (FR)
- Ghent University (BE)
- Leiden University (NL)
- University of Warsaw (PL)
- ICIQ (ES)
- Fraunhofer Gesellschaft (DE)
- University of Turku (FI)
- J Heyrovsky Institute (CZ)
- Uppsala University (SE)
- IMDEA Energy (ES)
- IMEC (BE)
- University of Bucharest (RO)



Industry (12 partners):

- Siemens Energy Global (DE)
- Carbyon (NL)
- Covestro Deutschland (DE)
- Alma digit (IT)
- Avantium Chemicals (NL)
- Next Chem (IT)
- Synest (GR)
- Arcelormittal Belgium (BE)
- TotalEnergies (BE)
- Vicat (FR)
- Engie (BE, FR)
- Solvay - Rhodia Operations (FR)



Network organizations (4 partners):

- ERIC (BE)
- DECHEMA (DE)
- CO₂ Value Europe (BE)
- EERA (BE)



Societal (1 partner):

- NGO Bond Beter Leefmilieu Vlaanderen (BE)
- + Specialized institutes / groups at Ghent and Utrecht Universities



Overview of WP lead

Duos for co-lead of project and WPs

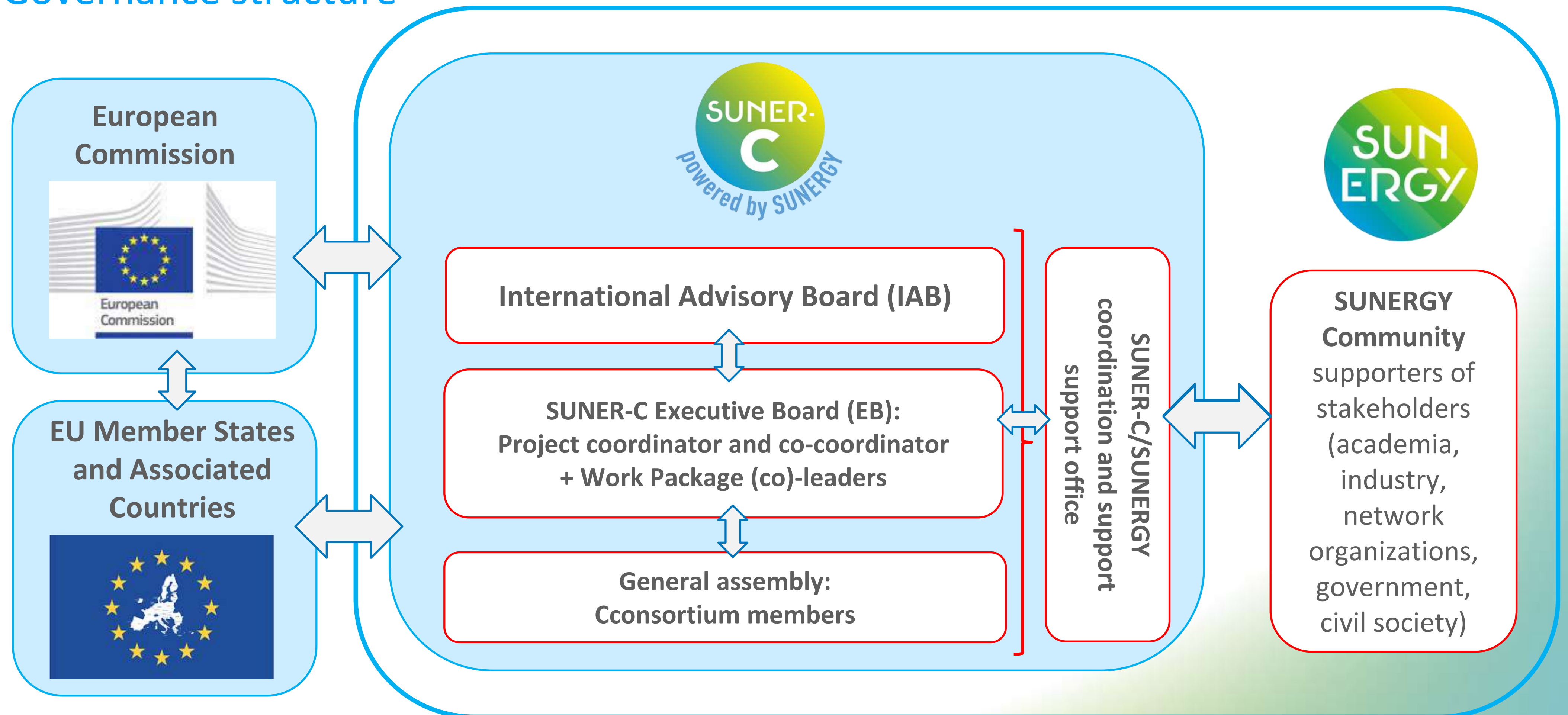
Work package No	Work Package Title	Lead Participant No - Short name	Co- Lead	Start Month	End month
1	Creation of a research and innovation community and eco-system	5 - LU	14 - UppU	1	36
2	Ongoing EU research activities	3 - ERIC	12 - UT	1	36
3	Long-term technological roadmap	6 - UW	27 – ENGIE Lab	1	36
4	Innovation of exploitation	8 - SE	10 - FHG	7	36
5	Dissemination, communication and education	16 - CVE	7 - ICIQ	1	36
6	Socio-technical cross-cutting aspects	4 – GU	29 - BBL	1	36
7	Large-scale R&I beyond the CSA	2 - CEA	1 - UU	7 → 4	36
8	Project management and coordination	1 - UU	2 – CEA	1	36



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SUNER-C CSA

Governance structure



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International Advisory Board (IAB): current composition

	Role, organization	Country	Sector/field
Jens K. Nørskov	Professor of Physics, Catalysis Theory Center, DTU	DK	Academia
Robert Schlögl	Professor, Max Planck Institute for Chemical Energy Conversion	DE	Academia
Martin Roeb	Scientist, DLR Institute of Solar Research	DE	Academia
James Durrant	Professor, Imperial College London	UK	Academia
Fabrice Lemoine	Professor, Lorraine University & Ancre, French National Alliance on energy research	FR	Academia
Dirk Smit	Vice President Research Strategy, Shell	NL	Industry
Philippe Jacques	Managing Director, EMIRI, Solvay	BE	Industry



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03 | Where are we now: some highlights & take home message

SUNERGY roadmapping workshop

Brussels 14-15 June 2022



Shaping the future: renewable fuels and chemicals from solar energy

What? A joint roadmapping workshop on the future of solar fuels and chemicals by SUNERGY, EIC and DG RTD

When? 14/15 June 2022

Where? Academy of Science, Brussels

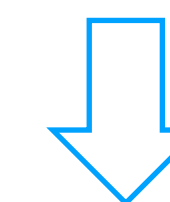
Concept in a nutshell

- Bring together diverse realities: make scientists understand today's industrial reality and industrials - the breakthrough innovations of tomorrow;
- 2-day workshop in Brussels to elaborate an all-agreed roadmap;
- Mix of high-level overview presentations by leaders in the respective field and roadmapping exercises in dedicated working groups;

European
Innovation
Council



Kick-starting the process of building a SUNER-C & SUNERGY roadmap



More in the presentation of WP3



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Take home message

- SUNER-C CSA is instrumental to SUNERGY during to implement and validate the concept of an action coordinated at European scale to accelerate the development of solar fuels and chemicals (ramp-up phase 2022-2025) and prepare a large scale R&I initiative beyond the CSA (after 2025)
- This will be done with all stakeholders from the community and with EC and MS
- You are all part of this project to make this effective and successful



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Thank you!



Frédéric CHANDEZON
CEA Grenoble

*IRIG institute european policy officer for
SUNERGY and renewable energy
programmes*

- SUNER-C co-coordinator
- Frederic.chandezon@cea.fr



Bert Weckhuysen
Utrecht University

*Professor of Inorganic Chemistry and
Catalysis*

- SUNER-C coordinator
- B.M.Weckhuysen@uu.nl



Nathan Coutard
Utrecht University
SUNER-C project manager

- SUNER-C project manager
- N.coutard@uu.nl



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<https://www.sunergy-initiative.eu>

