



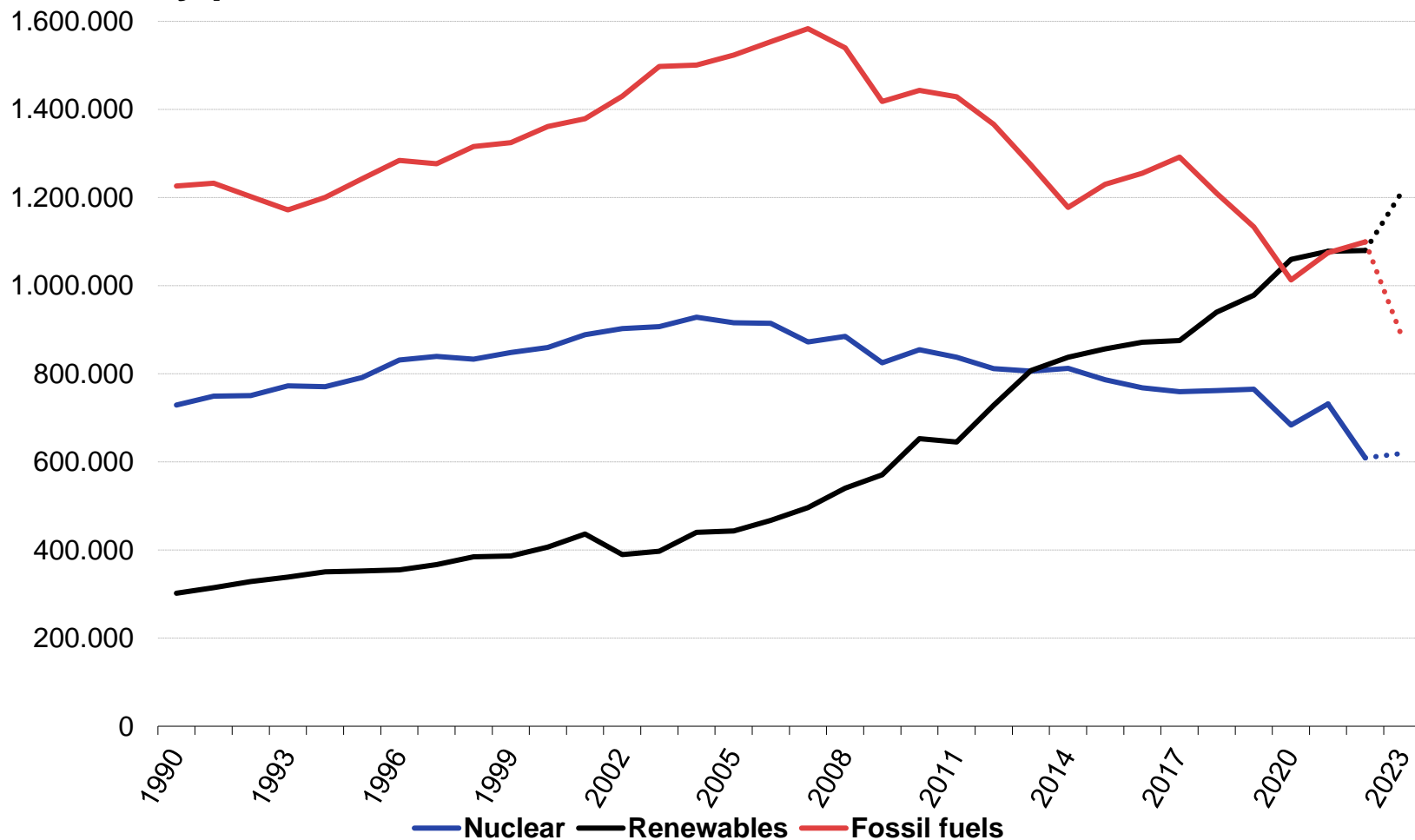
How to engage at the global level: Horizon Europe & Mission Innovation



Dr. Philippe Schild
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DG Research and Innovation
Unit C2, Clean Energy Transitions

We are getting more cleaner electricity but not enough

Electricity production in the EU, GWh



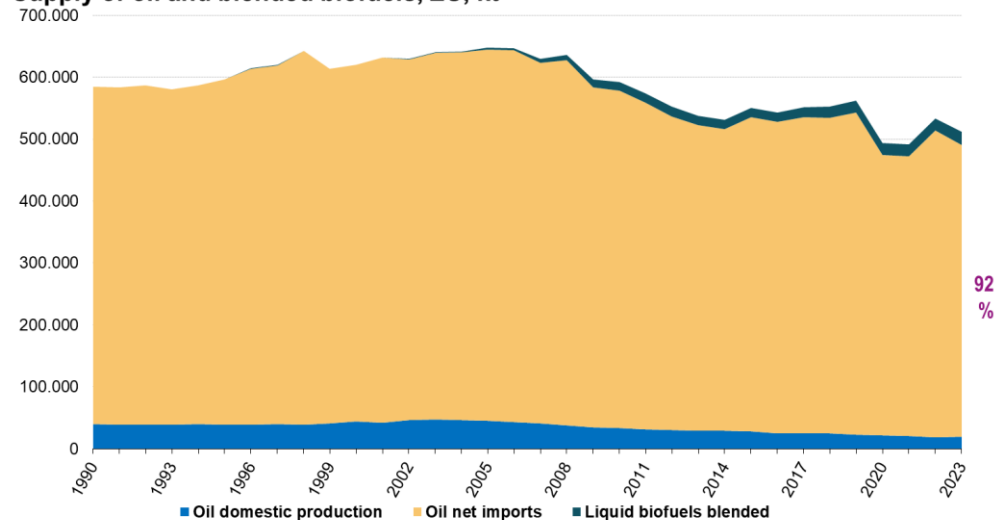
Source: Eurostat (online data codes: nrg_ind_pehcf, nrg_ind_pehnf)

We still need massive replacement of fossil sources



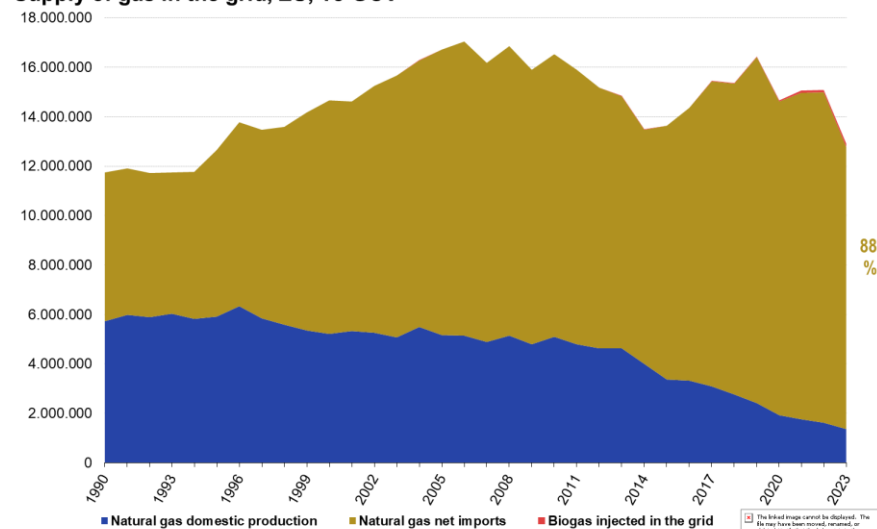
European
Commission

Supply of oil and blended biofuels, EU, kt



Source: Eurostat (online data code: nrg_cb_oil)

Supply of gas in the grid, EU, TJ GCV



Source: Eurostat (online data code: nrg_cb_gas)



European
Commission

HORIZON EUROPE

EURATOM

SPECIFIC PROGRAMME : EUROPEAN DEFENCE FUND

Exclusive focus on defence research & development

Research actions

Development actions

SPECIFIC PROGRAMME IMPLEMENTING HORIZON EUROPE & EIT*



Pillar I EXCELLENT SCIENCE

European Research Council

Marie Skłodowska-Curie

Research Infrastructures



Exclusive focus on civil applications

Pillar II GLOBAL CHALLENGES & EUROPEAN INDUSTRIAL COMPETITIVENESS

Clusters

- Health
- Culture, Creativity & Inclusive Society
- Civil Security for Society
- Digital, Industry & Space
- Climate, Energy & Mobility
- Food, Bioeconomy, Natural Resources, Agriculture & Environment

Joint Research Centre



Pillar III INNOVATIVE EUROPE

European Innovation Council

European Innovation Ecosystems

European Institute of Innovation & Technology*

WIDENING PARTICIPATION AND STRENGTHENING THE EUROPEAN RESEARCH AREA

Widening participation & spreading excellence

Reforming & Enhancing the European R&I system

Fusion

Fission

Joint Research Center

* The European Institute of Innovation & Technology (EIT) is not part of the Specific Programme

How to access EU activities

- Participate as a consortium member in a EU project!
 - Funding provided as an EU organization for African partner
 - Same rules as EU organization
 - Difficulty: joining a consortium
- Using existing network such as set-up by project LEAP-RE to get in touch with forming consortium.
- AU-EU High Level Policy Dialogue on STI
 - Climate Change and Sustainable Energy partnership

The AU-EU High Level Policy Dialogue

HLPD priority areas for research cooperation



Green Transition

Food and Nutrition Security and Sustainable Agriculture (FNSSA) 2014

Main tasks:

Promotion of...

- ... sustainable intensification;
- ... agriculture and food systems for nutrition;
- ... expansion and improvement of agricultural trade and markets;
- ... a group of cross-cutting topics



Innovation and Technology

Innovation 2019

Main tasks:

- Support of innovation and technology incubators and accelerators in Africa
- Connecting high-quality tech hubs from Africa and Europe



Public Health

Climate Change and Sustainable Energy (CCSE) 2017

Main tasks:

- Initiation of climate actions for adaptation and mitigation of the Paris Agreement in both Africa and Europe
- Development of renewable and efficient energy solutions

European and Developing Countries Clinical Trials Partnership (EDCTP) 2003

Public-public partnership between 16 African and 14 European countries, supported by the EU

Main tasks:

- Tackling the disparities and asymmetries in global health & health research
- Reducing the social and economic burden of poverty-related diseases in developing countries (incl. vulnerable populations)
- Strengthening national health research capacities in Africa

Climate Change and Sustainable Energy Partnership: Drivers in 2017

- Understanding the climate risks
- Delivering knowledge to support adaptation and mitigation measures
- Europe existing strong contribution to climate change and to the transition to a sustainable energy production
- Existing policy drivers:
 - **UN Sustainable Development Goals, « Affordable and clean energy (7) » and « Climate action (13) »**
 - **Paris agreement – COP21 2015**
 - **EU climate and energy union packages**
 - **AU Vision 2063, the AU Science, Technology and Innovation Strategy for Africa 2024**
 - **Africa-EU Statement on Climate Change 2014 and the Africa-EU Renewable Energy Cooperation Programme (RECP)**



Renewable Energy : Overarching objectives

Replacing fossil fuel-based energy supply by renewable energy sources is a mitigation measure to climate change and a valuable sustainable solution to increasing energy access in Africa. Renewable energy can be collected from a wide variety of sources including solar, wind, hydro, sustainable biomass (including waste), geothermal, wave, and tidal.

- Improving the efficiency and, therefore, cost of RE technologies by reducing the cost of components and improving the installation, operation and maintenance procedures;
- Development of cheaper dispatchable solutions based on RE (such as hybridization schemes, heat and other forms of storage, batteries inclusions etc.); and
- Improving the electrical networks inter-regional connections to facilitate access to energy supply (deserted idea, etc.) and stability of the energy system;

Climate Change and Sustainable Energy Partnership: Drivers in 2024

- The Green Deal underlines that “Renewable energy and energy efficiency, for example for clean cooking, are key to closing the energy access gap in Africa while delivering the required reduction in CO₂”.
- Global Gateway strategy & Global Approach on R&I
- State of EU in September 2023, President Von der Leyen restated the commitment “to develop mutually beneficial partnership on common issues for both continents”

- ❑ Total number of projects: **72**
 - ❑ **5 under grant preparation**
 - ❑ **44 running projects from EU calls :**
 - ❑ 13 on climate services and 31 on sustainable energy
 - ❑ 26 from topics not requesting African participation
 - ❑ **23 from LEAP-RE calls**

- ❑ Overall Participation
 - ❑ **177 (250) African organisations, 28 African countries**
 - ❑ **425 (717) European organization, 27 European countries**

CCSE Implementation: in 2024

- Horizon Europe Work-Programme 2023-2024
 - Topic on Africa-EU CO-FUND action
 - Deadline: 16/01/2024
 - 1 project LEAP-SE starting on 01/10/2024
- Horizon Europe Work-Programme 2025
 - Being drafted
 - To be published in Q1 2025
- Expert Working Group
 - Start of monitoring, evaluation and learning from existing activities
 - Developing the next steps on climate actions and sustainable energy
- LEAP-RE Stakeholder Forum [8-11 October 2024 in Milan]



Funding & Tender Portal

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/programmes/horizon>

The main points:

- 2021 to 2025
- It is a joint programme of activities with a long term perspective
 - Pillar 1: Joint call for proposals (African and European agencies)
 - First call (2021): 13 projects funded
 - Second call (2023): 10 projects funded
 - Pillar 2: 8 research actions
 - Pillar 3: Future long-term collaboration
- 31 countries: 20 from Africa and 11 from Europe
- 83 organisations: 39 from Africa and 44 from Europe
- Total project cost: 32,55M€
- Total EC Funding: 14,95M€

LEAP-RE Multi-Annual Roadmaps

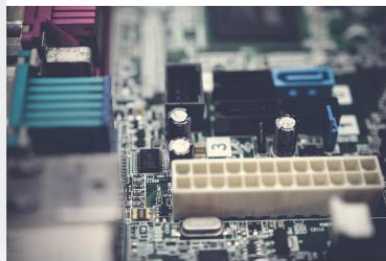
MULTI-ANNUAL ROADMAP #1

Evaluation of priority joint research and innovation actions for next step development of renewable energy systems



MULTI-ANNUAL ROADMAP #2

End-of-life and second-life management and environmental impacts of renewable energy components



MULTI-ANNUAL ROADMAP #3

Smart stand-alone systems to ease the access to energy in all its forms



MULTI-ANNUAL ROADMAP #4

Smart grid (different scale) for off-grid application solutions capable of integrating a diverse mix of Renewable Energy Sources for supply to small and medium-sized communities



MULTI-ANNUAL ROADMAP #5

Processes and appliances for productive uses to prioritize boosting small-scale farmers' productivity and incomes in the agricultural production stage and creating off-farm employment in expanding segments of food supply and value chains

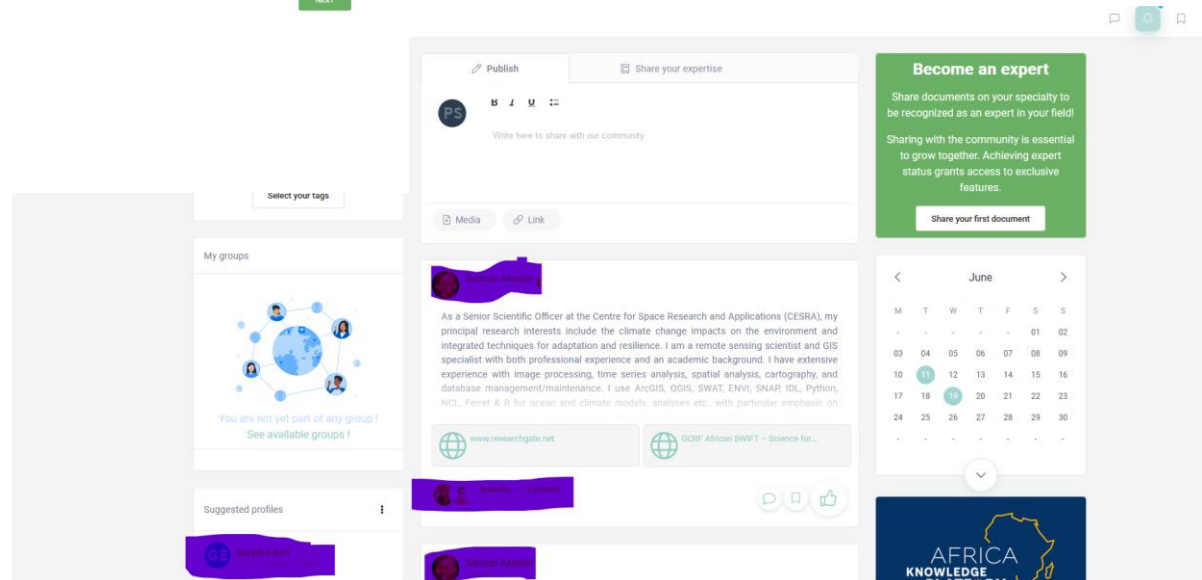
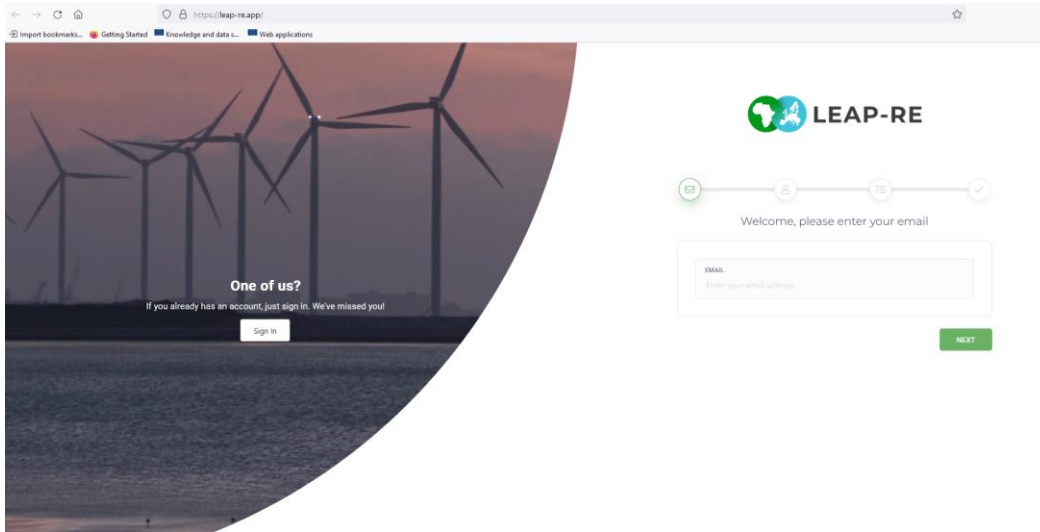


MULTI-ANNUAL ROADMAP #6

Innovative solutions for priority domestic uses (clean cooking and cold chain) to address challenges related to traditional cooking systems, and promoting sustainable biomass harvesting and collection



LEAP-RE Community App: <https://leap-re.app>



How to access more global activities : Mission Innovation (2015 – 2020)



European
Commission



Overall objective: To reinvigorate global efforts in clean energy innovation, Mission Innovation members share a common goal to **develop and scale** breakthrough technologies and substantial **cost reductions**. MI members aim to seek to **double public clean energy research and development investment** over five years.

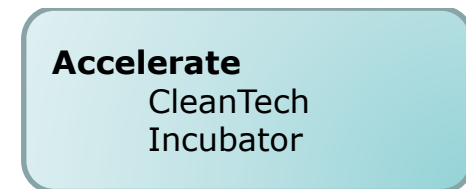
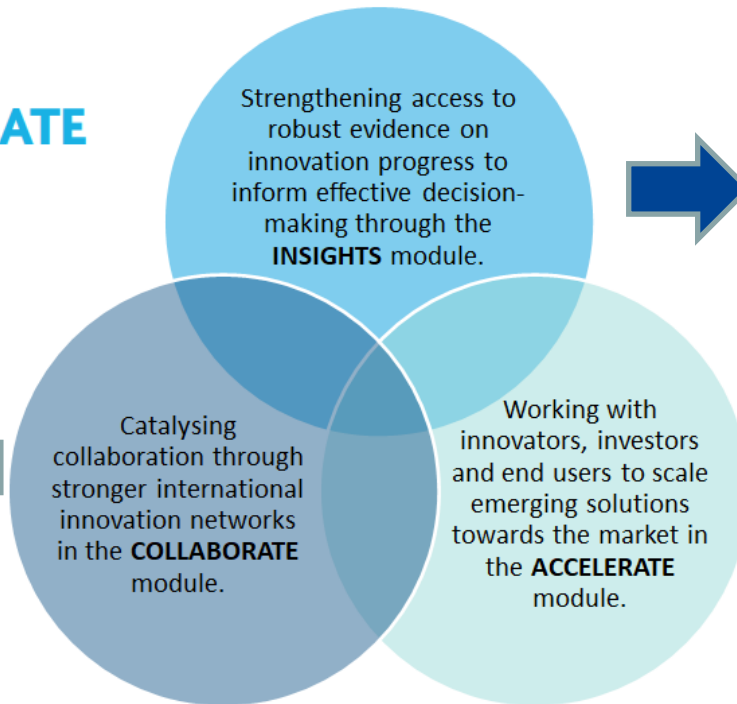
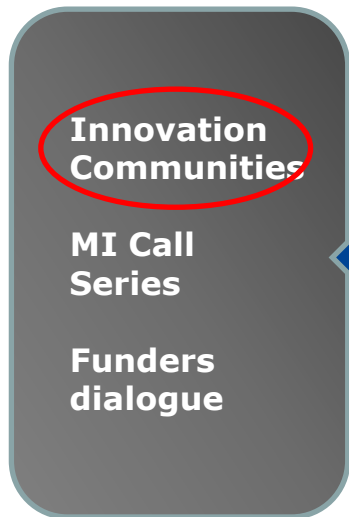
	Australia	Austria	Brazil	Canada	Chile	China	Denmark	European Union	Finland	France	Germany	India	Indonesia	Italy	Japan	Mexico	Morocco	Netherlands	Norway	Republic of Korea	Saudi Arabia	Sweden	United Arab Emirates	United Kingdom	United States
1	IC1: Smart Grids Innovation Challenge	Lead	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant
2	IC2: Off-Grid Access to Electricity Innovation Challenge	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant
3	IC3: Carbon Capture Innovation Challenge	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant
4	IC4: Sustainable Biofuels Innovation Challenge	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant
5	IC5: Converting Sunlight Innovation Challenge	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant
6	IC6: Clean Energy Materials Innovation Challenge	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant
7	IC7: Affordable Heating and Cooling of Buildings Innovation Challenge	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant
8	IC8: Renewable and Clean Hydrogen Innovation Challenge	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant	Participant

Lead Participant

Mission Innovation (2021 -) – Missions



Mission Innovation – Innovation Platform



Innovation Community - Sunlight to X

Creating pathways to achieve the 2050 energy transition

Transforming the IC-5 Converting Sunlight into Chemicals and Fuels into a MI Innovation Community for Collaboration to put Sunlight to X on pathways to viable technologies for 2030 and beyond where they could significantly impact 2050 energy transformation goals to decarbonize all energy sectors

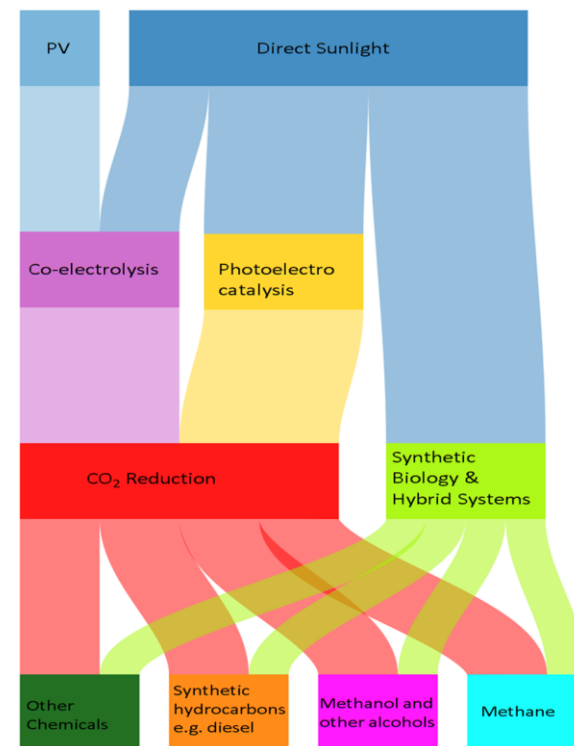
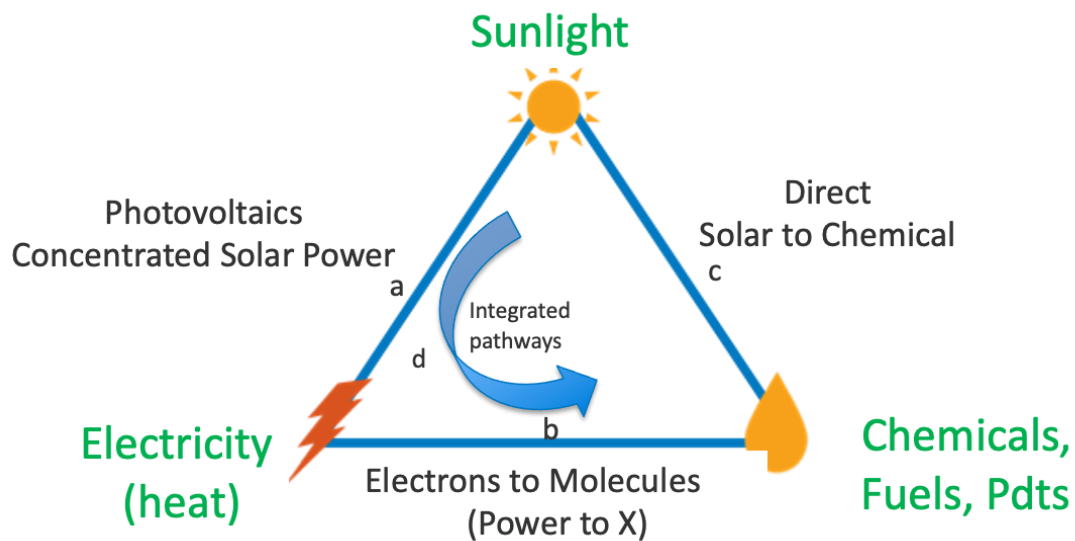
VISION

The Sunlight to X Innovation Community will create an international ecosystem to accelerate scientific advances in solar fuels & chemicals and facilitate the move **from** science to technology development through international cooperation and coordination.

OBJECTIVES

- Create a new integration paradigm for converting solar energy to chemicals and products
- Coordinate and enhance global R&D efforts; Develop critical analysis, standards, and key performance indicators
- Codify the needed innovations, fundamental and applied R&D challenges;
- Incorporate engineering and technology development approaches
- Increase stakeholder base and outreach to industry and entrepreneurs

What is Sunlight to X?



Sunlight to X: Major activities

Working with funding agencies and other stakeholders to develop projects by starting with the following initial activities:

- *Build on the R&D roadmap beyond the Mission innovation Challenge "Converting Sunlight into Solar Fuels and Chemicals" (IC5)*
- *Define the metrics for success such as KPIs on cost, performance, durability, scalability, and manufacturability*
- *Define the essential standards and protocols such as for example on durability, selectivity and efficiency, similar to the existing standards for PV efficiency chart/certification*
- *Develop a common language for mutual understanding among the different communities and agreed-upon parameters for TEA, LCA, impact analysis and other assessments*
- *Bring onboard engineers and all the expertise from the earliest low TRL stage*
- *Establish modeling and simulation for processes, system models, etc.*
- *Establish and test scalable demonstrations*
 - o *Defining what is a scalable element (definition of a "module")*
 - o *Focus on mid-term technologies using elements from e-fuels and bioprocesses*
 - o *Developing larger-scale demonstrators and projects*
- *Explore and codify overlap and synergy with e-fuels initiatives*
- *Bring lab research to market readiness*

Innovation Community– Sunlight to X

Co-leads and Member Countries

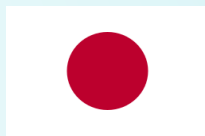
Co-leads



Current Member Countries



Outreach to countries research groups



How to join « Sunlight to X »?

- Through its country member representatives
- Through joining our growing list of contributors
 - ❖ Volunteers to contribute to the progress of the tasks
 - ❖ Opportunities to network with the global communities
 - ➔ Will be possible through the upcoming web site

Horizon Europe – Evaluation Experts



Interested?

Contact CINEA

[Become an evaluator of EU Research projects](#)

or visit the

[Funding and Tenders Portal: Working as an expert](#)

Information:

HorizonEU

Commissioner **Iliana Ivanova:** @Ili_Ivanova

DG Research and Innovation: @EUScienceInnov @EU_H2020
<https://www.facebook.com/EUScienceInnov/>

Horizon Magazine: @HorizonMagEU

Horizon Europe website: <http://ec.europa.eu/horizon-europe>

European Innovation Council: <http://ec.europa.eu/research/eic>

European Research Council: <https://erc.europa.eu/>





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