SUSTAINABLE ENERGY WEEK
An initiative of the European Commission

SOCRATCES
CSP
CONCENTRATED SOLAR POWER

CSP TECHNOLOGY DAY
SOCRATCES & CSP
ERANET JOINT EVENT

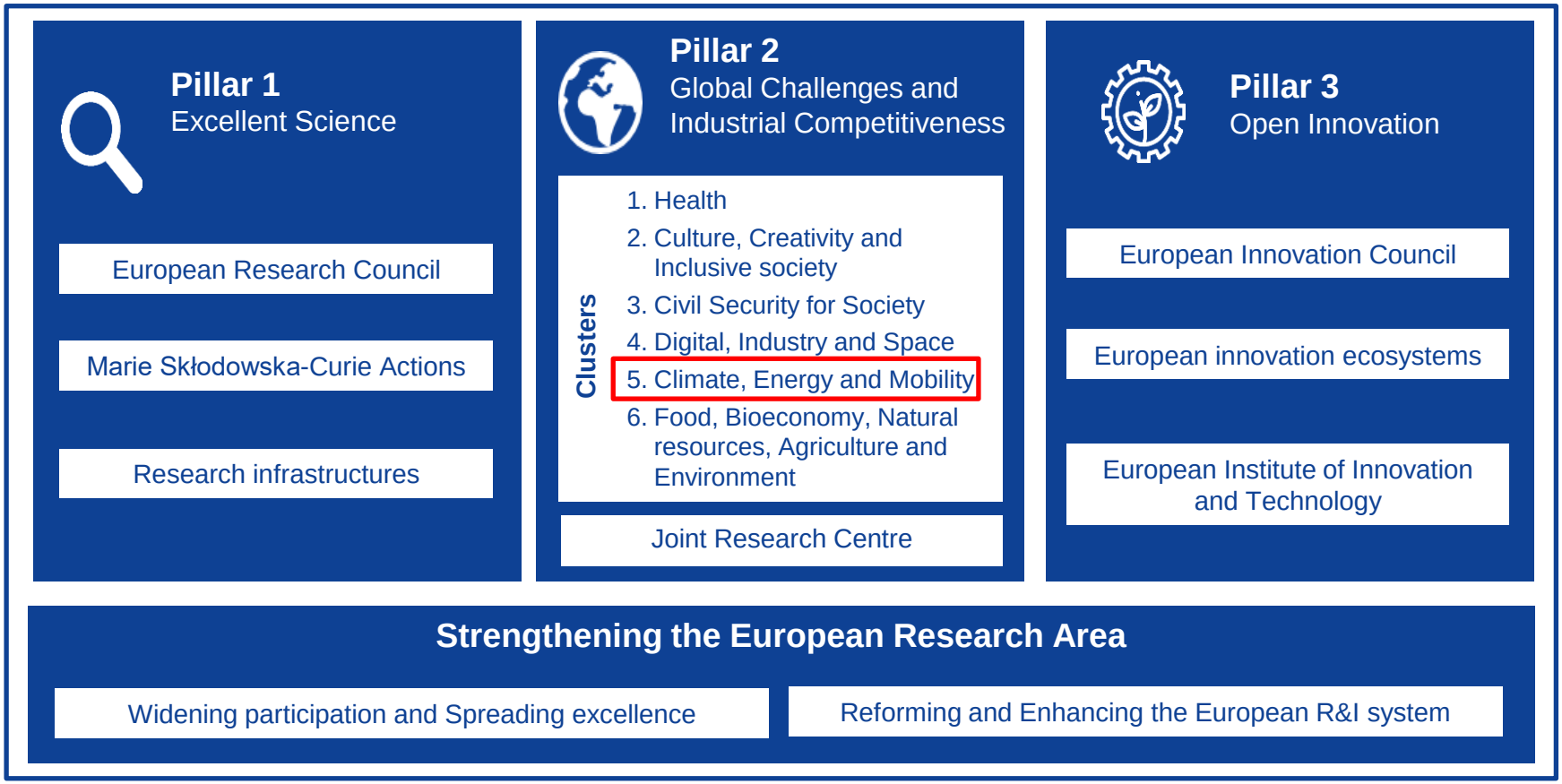
CSP in Horizon Europe Calls 2021-2022

CSP Technology Day, 21 October 2021

Cristina Garrido
NCP Cluster 5 “Climate, Energy and Mobility”
CDTI. Ministry of Science and Innovation. Spain

Co-funded by the Horizon 2020 programme of the European Union

Horizon Europe (2021-2027) Structure



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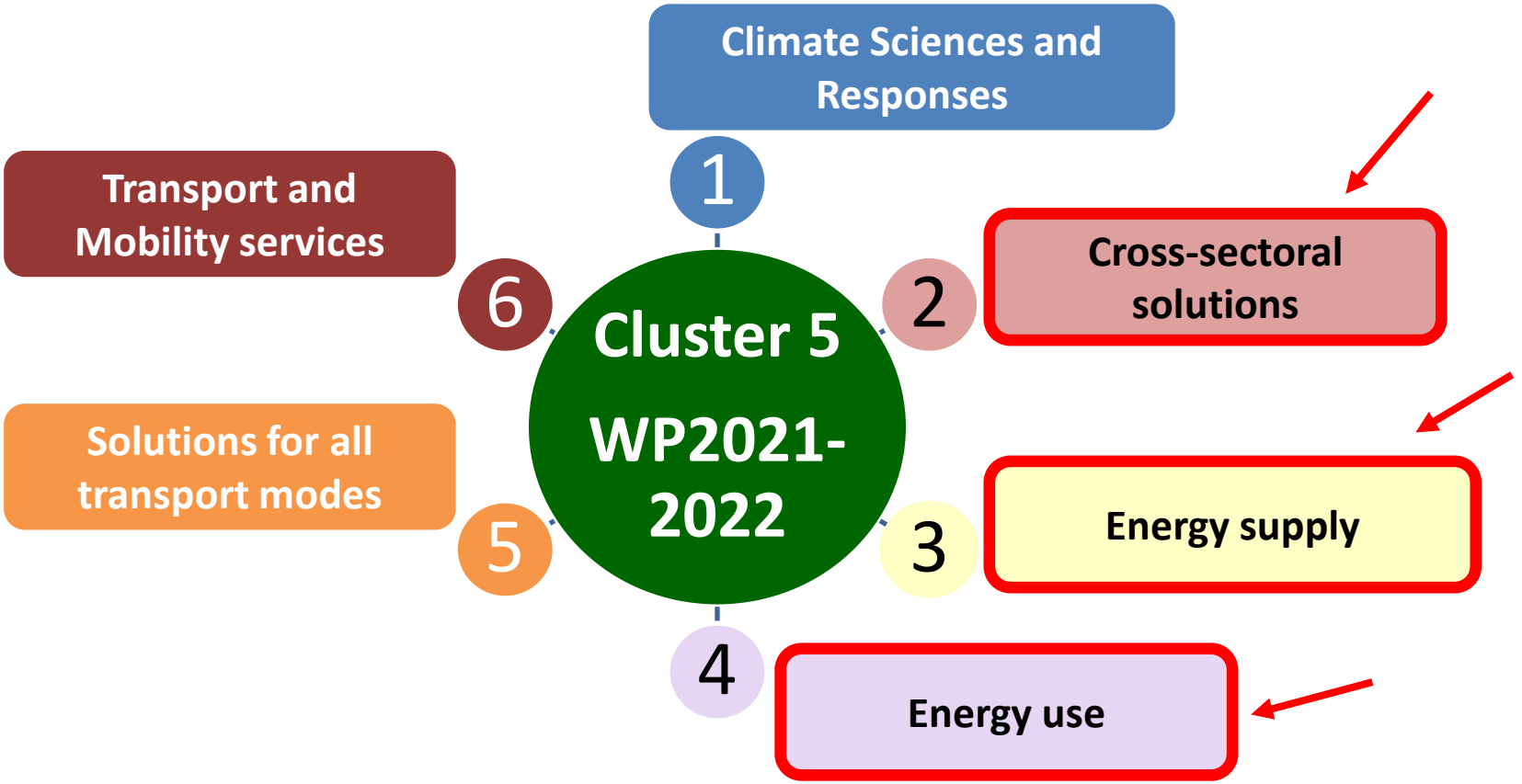
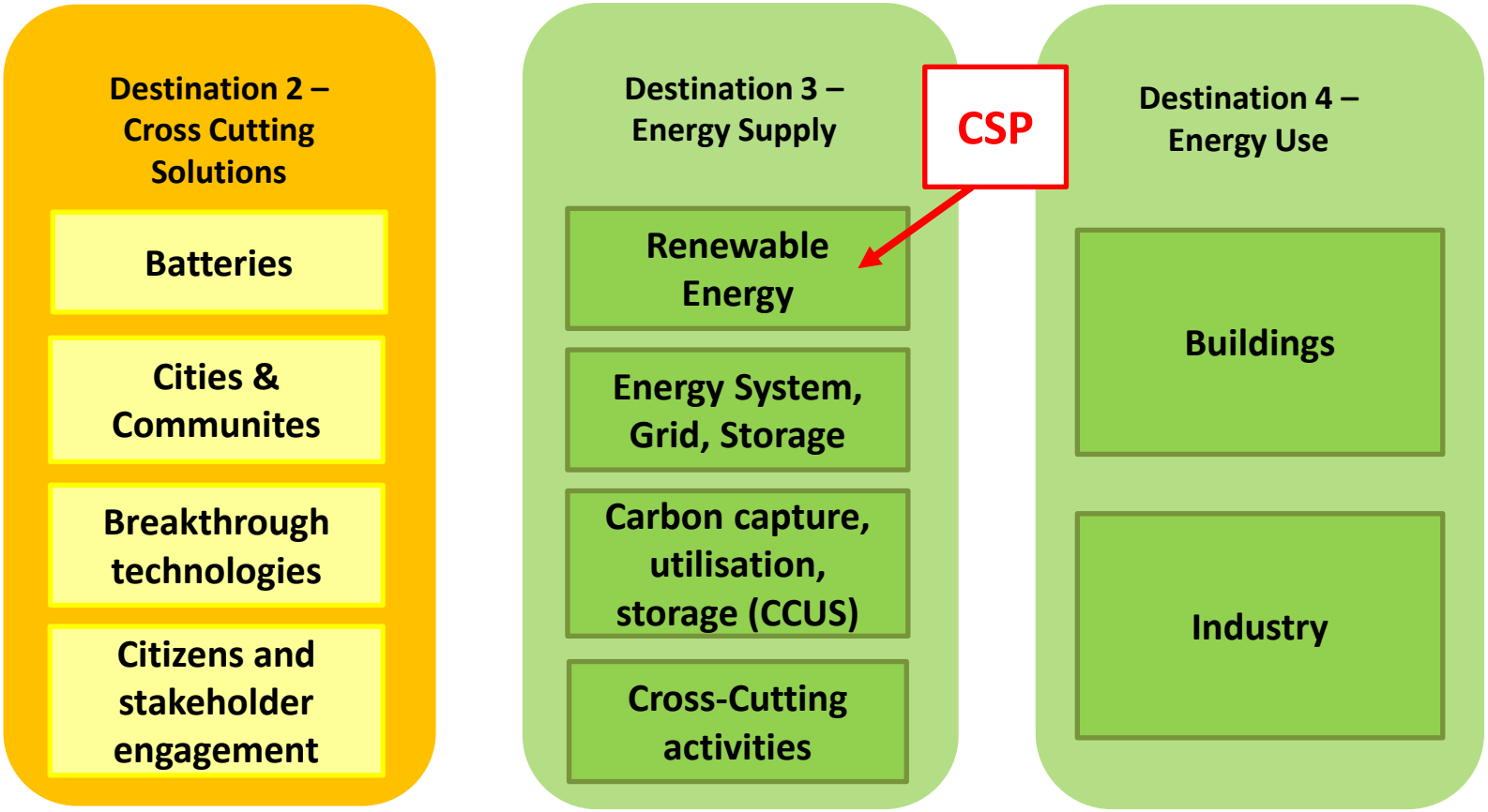
Cluster 5 – Destinations

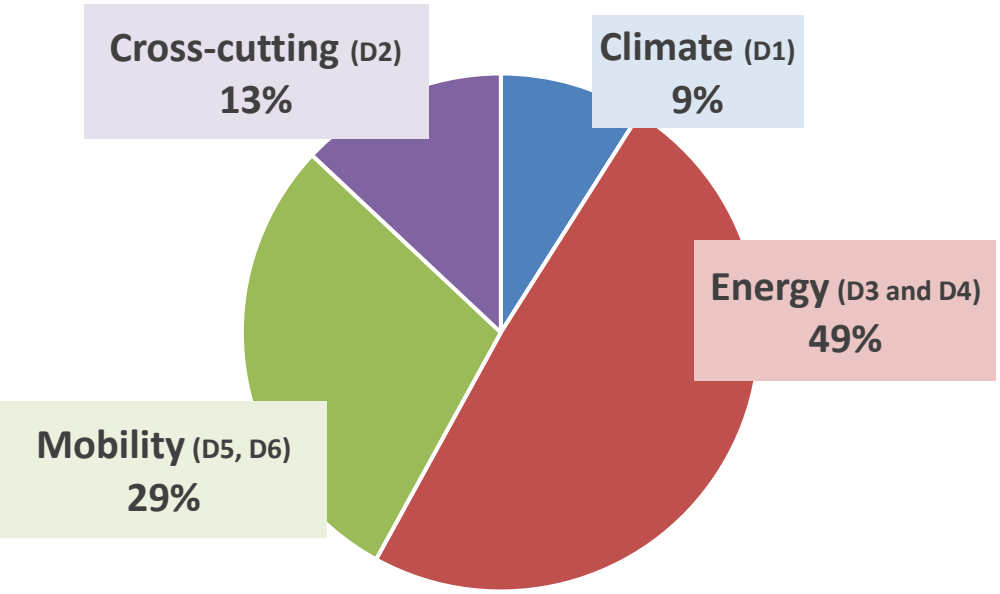


Cluster 5: Climate, Energy, Mobility

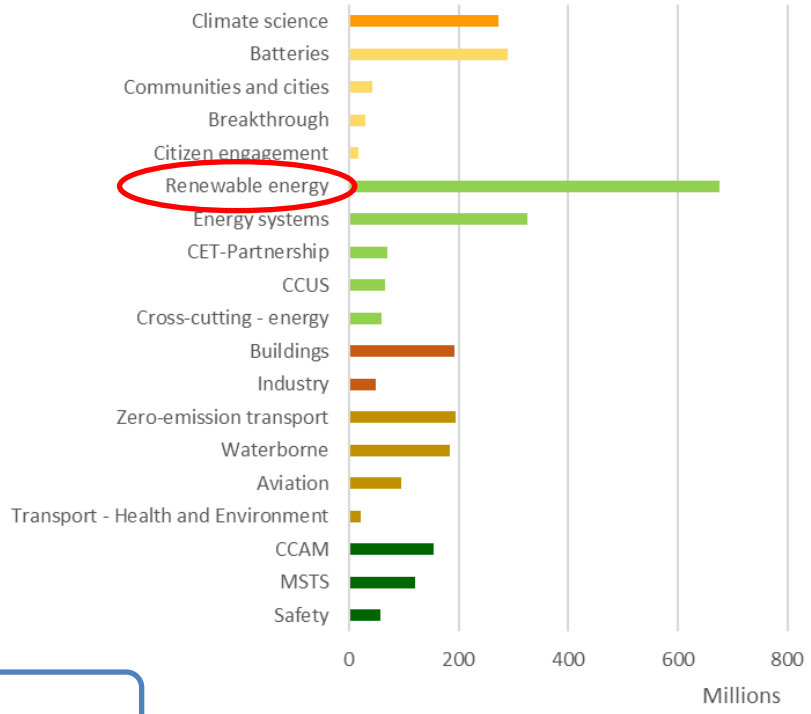


Cluster 5 - Budget allocation

Budget allocation per Destination (2021 and 2022)



Budget allocation per thematic heading (2021 and 2022)



Cluster 5 Budget 2021-2022: **3000 M€**

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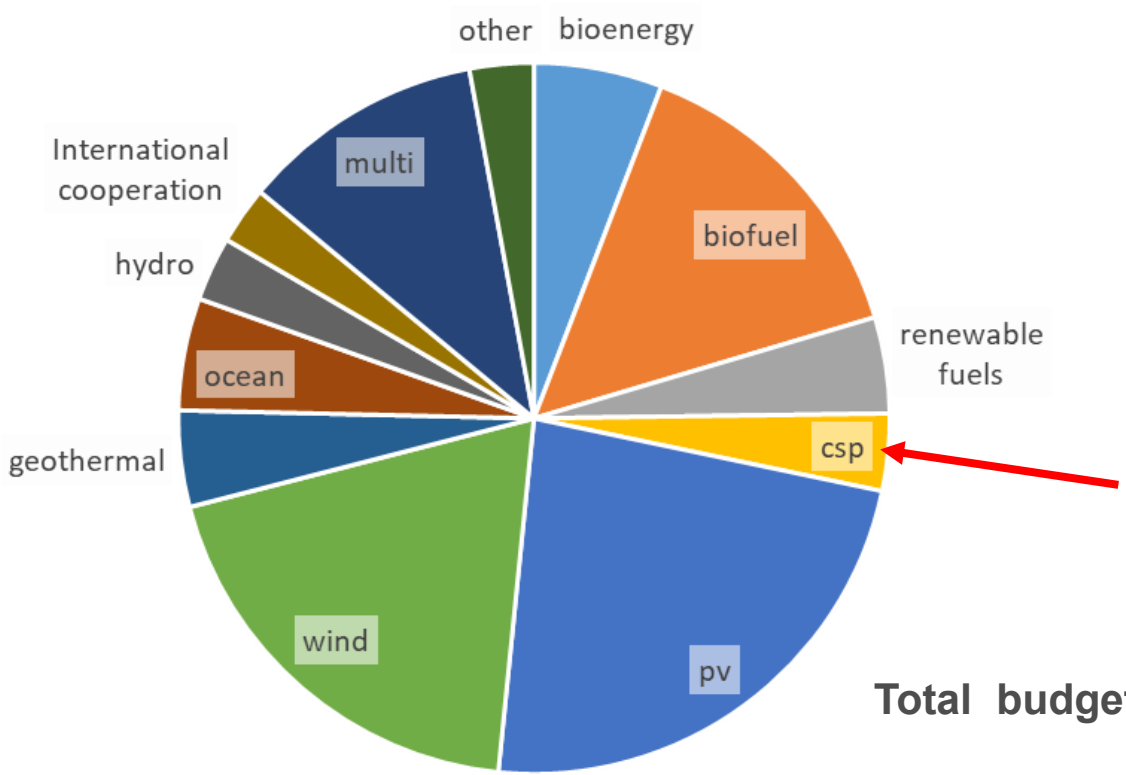
Budget allocation– Renewable Energy

Budget allocation within renewable energy, per technology (2021 and 2022)



Total budget: 703.5 M€

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Horizon Europe – Partnerships related to Energy

Institutional Partnerships	Co-programmed Partnerships	Co-funded Partnerships
• **Clean Hydrogen Europe (CHE)**	• **Built4People** | People-centric sustainable built environment • **Batteries** | For stationary applications and e-mobility	• **Driving urban transitions** to a sustainable future **(DUT)** • **Clean Energy Transition (CET)**
Separate calls **Multi Annual Work Programme (MAWP)** **Annual Work Programme (AWP)**	**Calls in WorkProgramme of Cluster 5** *** Built4People: Destination 4** *** Batteries: Destination 2**	**Separate Calls**

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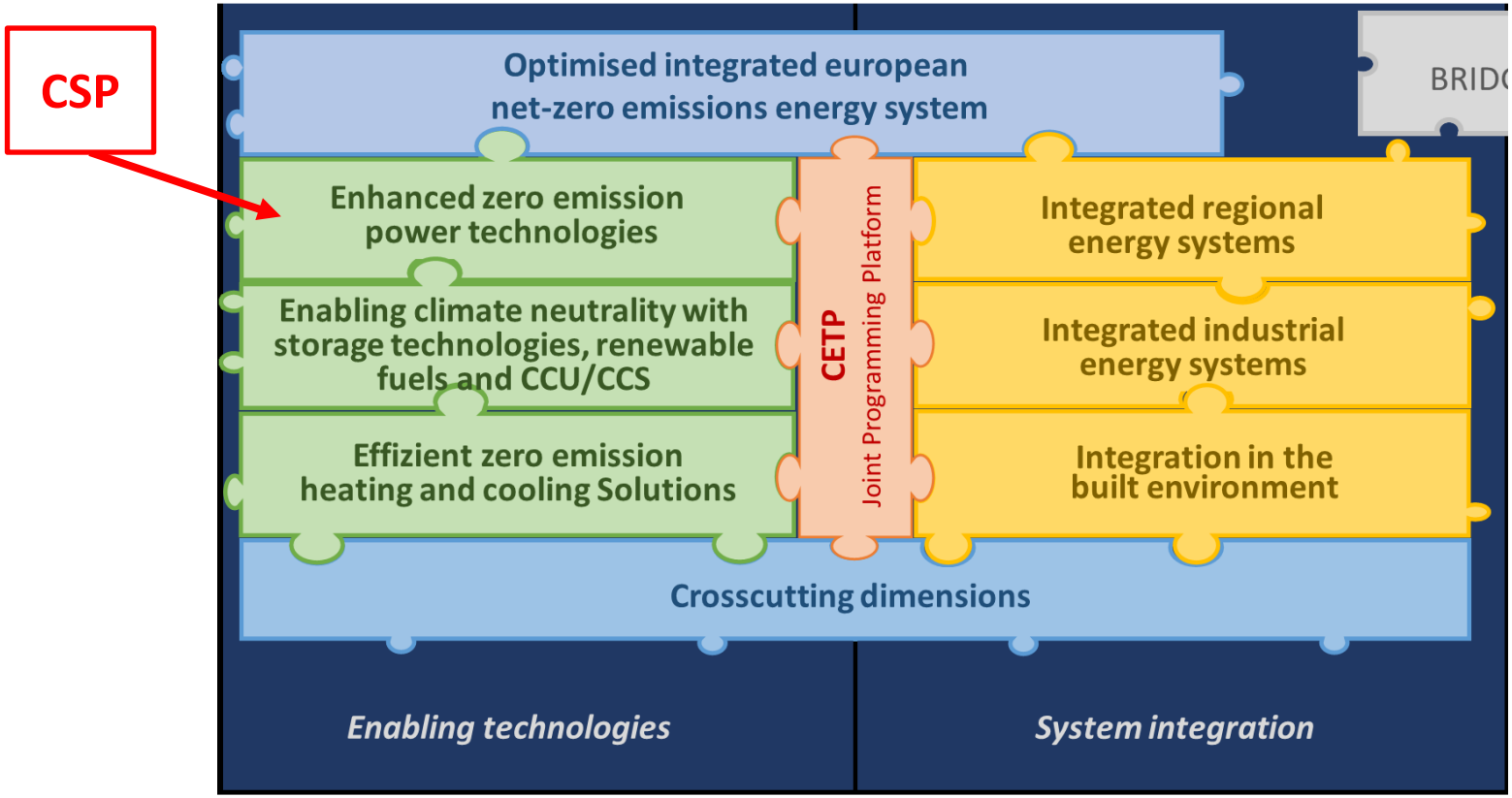
Co-fund “Clean Energy Transition” (CET)

Challenges



“Energy” Calls in Cluster 5 (2021-2022)

Destination	Call	Opening	Deadline
Destination 2	HORIZON-CL5-2021-D2-01	24 June 2021	19 October 2021
	HORIZON-CL5-2022-D2-01	28 April 2022	6 September 2022
Destination 3	HORIZON-CL5-2021-D3-01	24 June 2021	19 October 2021
	HORIZON-CL5-2021-D3-02	24 June 2021	5 January 2022
	HORIZON-CL5-2021-D3-03	2 September 2021	23 February 2022
	HORIZON-CL5-2022-D3-01	14 October 2021	26 April 2022
	HORIZON-CL5-2022-D3-02	26 May 2022	27 October 2022
	HORIZON-CL5-2022-D3-03	6 September 2022	10 January 2023
Destination 4	HORIZON-CL5-2021-D4-01	24 June 2021	19 October 2021
	HORIZON-CL5-2021-D4-02	2 September 2021	25 January 2022
	HORIZON-CL5-2022-D4-01	28 April 2022	6 September 2022
	HORIZON-CL5-2022-D4-02	6 September 2022	24 January 2023

CSP

Destination 3

Destination 3 – Expected Impact

To contribute to

More efficient, clean, sustainable, secure and competitive energy supply

through:

i. Fostering global leadership in affordable, secure and sustainable **renewable energy technologies and services** by improving their competitiveness in global value chains and their position in growth markets, notably through the diversification of the renewable services and technology portfolio

ii. Ensuring cost-effective uninterrupted and affordable supply of energy to households and industries in a scenario of high penetration of variable renewables and other low carbon energy supply. This includes more efficient approaches to managing **smart and cyber-secure energy grids** and optimization the interaction between producers, consumers, networks, infrastructures and vectors

iii. Accelerating the development of **Carbon Capture, Use and Storage (CCUS)** as a CO2 emission mitigation option in electricity generation and industry applications (including also conversion of CO2 to products)

Destination 3
Renewables

D3 – Renewable technologies Expected Impacts

The main expected impacts to be generated by topics are:

a. Disruptive renewable energy and renewable fuel technologies and systems will be available in 2050 in order to accelerate the replacement of fossil-based energy technologies

b. Reduced cost and improved efficiency of renewable energy and renewable fuel technologies and their value chains

c. De-risking of renewable energy and fuel technologies with a view to their commercial exploitation and net zero greenhouse gas emissions by 2050

d. Better integration in energy consuming sectors

e. Reinforced scientific basis and export potential for renewable energy technologies through international collaboration (notably with Africa and enhanced collaboration with Mission Innovation countries)

f. Enhanced sustainability of value chains, taking fully into account social, economic and environmental aspects

g. More effective market uptake

Concentrated Solar Power

Topic	Topic title	Type of action	Indicative project budget	Total Budget	Expected number of grants
HORIZON-CL5-2021-D3-03-06	Novel approaches to concentrated solar power (CSP)	RIA	Around 3.00	9.000.000,00	3
HORIZON-CL5-2022-D3-03-01	Innovative components and/or sub-systems for CSP plants and/or concentrating solar thermal installations	IA	Around 5.50	16.500.000,00	3

Deadline: 23 February 2022

HORIZON-CL5-2021-D3-03-06

Novel approaches to concentrated solar power (CSP)

RIA
3 M€/project
Total budget 9 M€
TRL 4-5 end of the project

Reduced LCOE of future CSP plants

Significant performance regarding start-up, shutdown and load variation of future CSP plants

Novel solutions that use concentrating solar thermal energy to generate power

- In terms of power dispatchability, the novel solutions will have to ensure a performance at least equivalent to current commercial installations
- Solutions that cogenerate power and heat are also in scope
- Solutions that support the concentrating solar thermal technology with photovoltaic technology are also in the scope
- A “Circularity by design” approach is encouraged

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Deadline: 10 January 2023

HORIZON-CL5-2022-D3-03-01

Innovative components and/or sub-systems for CSP plants and/or concentrating solar thermal installations

IA

5.5 M€/project

Total budget 16.5 M€

TRL 6-7 end of the project

Higher shares of variable output renewables in the energy system

Higher efficiency of CSP plants and/or concentrating solar thermal installations

Reduced operation and maintenance costs of CSP plants and/or concentrating solar thermal installations

Demonstration of innovative, cost-effective and more reliable components and/or sub-systems for CSP plants and/or concentrating solar thermal installations

- The components and/or sub-systems will allow better efficiency in terms of solar energy conversion
- The demonstration should span a continuous interval of at least six months covering all possible incidence angles of the direct solar radiation
- Assess the sustainability of the proposed components and/or sub-systems in environmental, social and economic terms
- All demonstrators fully and transparently documented, to ensure replicability, up-scaling and to assist future planning decisions

Solar Fuel technologies

Topic	Topic title	Type of action	Indicative project budget	Total Budget	Expected number of grants
HORIZON-CL5-2022-D3-02-04	Technological interfaces between solar fuel technologies and other renewables	RIA	3.00 to 5.00	10.000.000,00	2

Deadline: 27 Oct. 2022

RIA

3-5 M€/project

Total budget 10 M€

TRL 4 end of the project

Provide breakthrough solutions towards a fossil-free economy

Bridging solar energy and other renewables in boosting renewable fuel production and storage

HORIZON-CL5-2021-D3-02-04

Technological interfaces between solar fuel technologies and other renewables

Development of energy transmitting technological interfaces to couple solar fuel technologies to other renewables such as from e.g. biosources or directly connected renewable power generation……

……which allow for efficient feed in of other forms of renewable energy into solar fuel conversion technologies and allow for efficient and continuous renewable fuel production.

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- Educational – 1 topic
- Market uptake – 1 topic
- Next generation renewables – 1 topic
- Support to ETIPs and SET-PLAN – 1 topic

Subarea	Topic	Topic title	Type of action	Indicative project budget	Total Budget	Expected number of grants
Educational	HORIZON-CL5-2021-D3-02-02	Sustainability and educational aspects for renewable energy and fuel technologies	CSA	Around 2.50	10.000.000,00	4
Market uptake	HORIZON-CL5-2021-D3-02-03	Market Uptake Measures of renewable energy systems	CSA	Around 2.00	10.000.000,00	5
Next generation	HORIZON-CL5-2021-D3-03-02	Next generation of renewable energy technologies	RIA	Around 3.00	33.000.000,00	10
ETIPs and SET-PLAN	HORIZON-CL5-2021-D3-02-15	Support to the activities of the ETIPs and technology areas of the SET-Plan	CSA	Around 1.00	9.800.000,00	10

Deadline: 5 January 2022

HORIZON-CL5-2021-D3-02-02

Sustainability and educational aspects for renewable energy and renewable fuel technologies

CSA

2,5 M€/project

Total budget 10 M€

Development of training and reskilling efforts in the renewable energy and fuel technology sectors

Engage with stakeholders at different levels (policymakers, regulators, innovators, industry, trade associations, universities and local communities)

Promote circularity concepts

Sustainability is meant in environmental, social and economic terms. Address all the following aspects:

- Coordinate the stakeholder community and propose concrete actions to promote and accelerate the development of sustainable solutions for renewable energy and fuel technologies
- Set up and initiate a structured programme to promote a multi-disciplinary approach on teaching and engaging with the sustainability of all forms of renewable energy. Actively engage with European universities
- Develop and run an industry-academia programme focused on hands-on training

Effective contribution of Social Sciences and Humanities disciplines and the involvement of SSH experts

Deadline: 5 January 2022

HORIZON-CL5-2021-D3-02-03

Market Uptake measures of renewable energy systems

CSA

2 M€/project

Total budget 10 M€

Wider uptake of renewable energy systems in the energy, industrial and residential sectors

Increase societal acceptance of renewable energy facilities

Develop solutions for the entire renewable energy market or focusing on a specific energy sector, such as electricity, heating, cooling or renewable fuels.

Aspects that can be addressed:

- Specific geographical issues, such as urban or peri-urban areas
- Acceptance of RES technologies due to cultural heritage particularities
- Self-consumption issues
- International collaboration and promising solutions in new markets
- Can address a local challenge but need to have wide potential for reapplication
- The consortia have to involve and/or engage relevant stakeholders (e.g., businesses, public authorities, civil society organisations) and market actors committed to adopting/implementing the results
- Assess legal, institutional and political frameworks as a barrier or an enabler

Deadline: 23 February 2022

HORIZON-CL5-2021-D3-03-02

Next generation of renewable energy technologies

RIA

3 M€/project

Total budget 33 M€

TRL 3-4 end of the project

Breakthrough renewable energy technologies

Technological feasibility of the concept, including environmental, social and economic benefits

High risk/high return technology developments for game changing renewable energy technologies including catalyst development, storage systems and integration of renewable energy technologies into a single energy generation system, heating & cooling systems, fuel production systems, hybrid electricity generation solutions, direct utilization of renewable energy sources.

The following areas should not be covered:

- Pure material research
- Conventional hydrogen production and fuel cells
- Batteries

Address the following aspects:

- Lower environmental impact
- Better resource efficiency (materials, geographical footprints, water, etc)
- Social acceptance or resistance to new energy technologies

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Deadline: 5 January 2022

HORIZON-CL5-2021-D3-02-15

Support to the activities of the ETIPs and technology areas of the SET-Plan

CSAs

Around 1 M€/project
Total budget 9,8 M€

Engagement of stakeholders

More interconnected activities, in terms of contents and implementation mechanisms

Links with national authorities

ETIPs are the European Technology and Innovation Platforms. SET-Plan is the Strategic Energy Technology Plan, organized in Implementation Working Groups (IWGs)

- Support ETIPs and/or IWGs and/or stakeholders fora, policy priorities
- ETIPs, IWGs and stakeholders' fora should ensure the participation of companies, research and civil society, universities and associations
- Develop and implement outreach approaches and societal engagement
- Effective contribution of Social Sciences and Humanities disciplines
- Proposals should address one of the following sectors: carbon capture storage and use, geothermal systems, hydropower, ocean energy, photovoltaics, renewable fuels & bioenergy, **concentrated solar thermal energy (CSP&STE),** renewable heating and cooling, wind energy, energy efficiency in industry, energy efficiency in buildings

More information

Webinars European Commission

- How to prepare a successful proposal in Horizon Europe (24 March 2021)
- A successful proposal for Horizon Europe (21 April 2021)
- The Funding & tenders Portal for beginners (27 May 2021)
- Dissemination, Communication and Exploitation (9 June 2021)
- Tips and Tricks while writing your Horizon Europe proposal (23 June2021)
- New features Funding & Tenders Portal (28 September 2021)
- Avoiding errors in declaring personnel costs in Horizon 2020 grants (30 September 2021)
- Horizon Results Booster (5 October 2021)

Spanish Infoday Cluster 5 (12 May 2021)

https://eventos.cdti.es/ES/JornadaHorizonteEuropaCluster5

Commission Infoday Cluster 5 (5-6 July)

https://www.horizon-europe-infodays2021.eu/event/cluster-5-climate-energy-mobility

Brokerage event Cluster 5 (7 July) => partner search

https://www.horizonteeuropa.es/horizon-europe-cluster-5-calls-2021-virtual-brokerage-event

Para cualquier consulta

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Mantente informado a través del Portal español de Horizonte Europa

www.horizonteeuropa.es

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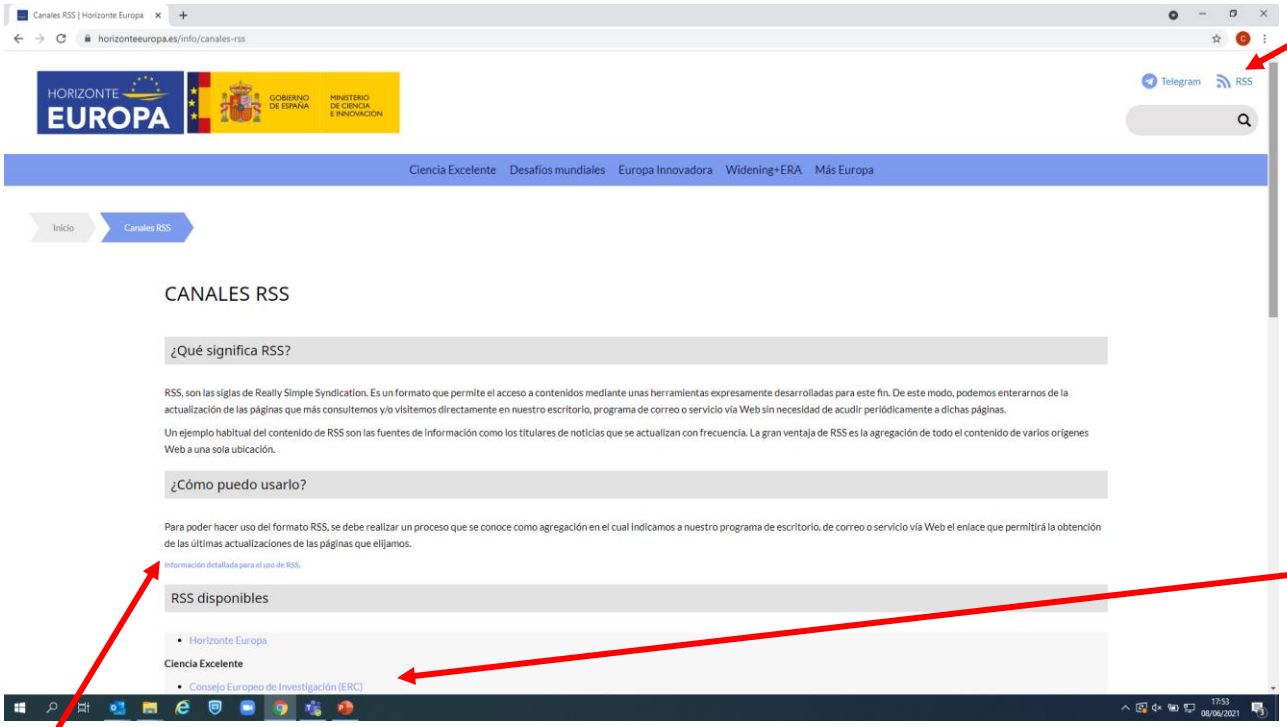
Canales RSS en www.horizonteeuropa.es



- Poner el ratón sobre el canal de tu interés
- Botón derecho y “copiar dirección de enlace”
- Ir a tu lector de noticias y añadir el enlace en “añadir fuente”

Cómo usarlo

Conclusions

- Energy in Cluster 5 => Destination 3, Destination 4 and Destination 2
- CSP => Cluster 5 Destination 3 + co-fund Clean Energy Transition
- Work Programme Cluster 5 published on 15 June WP Cluster 5

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