

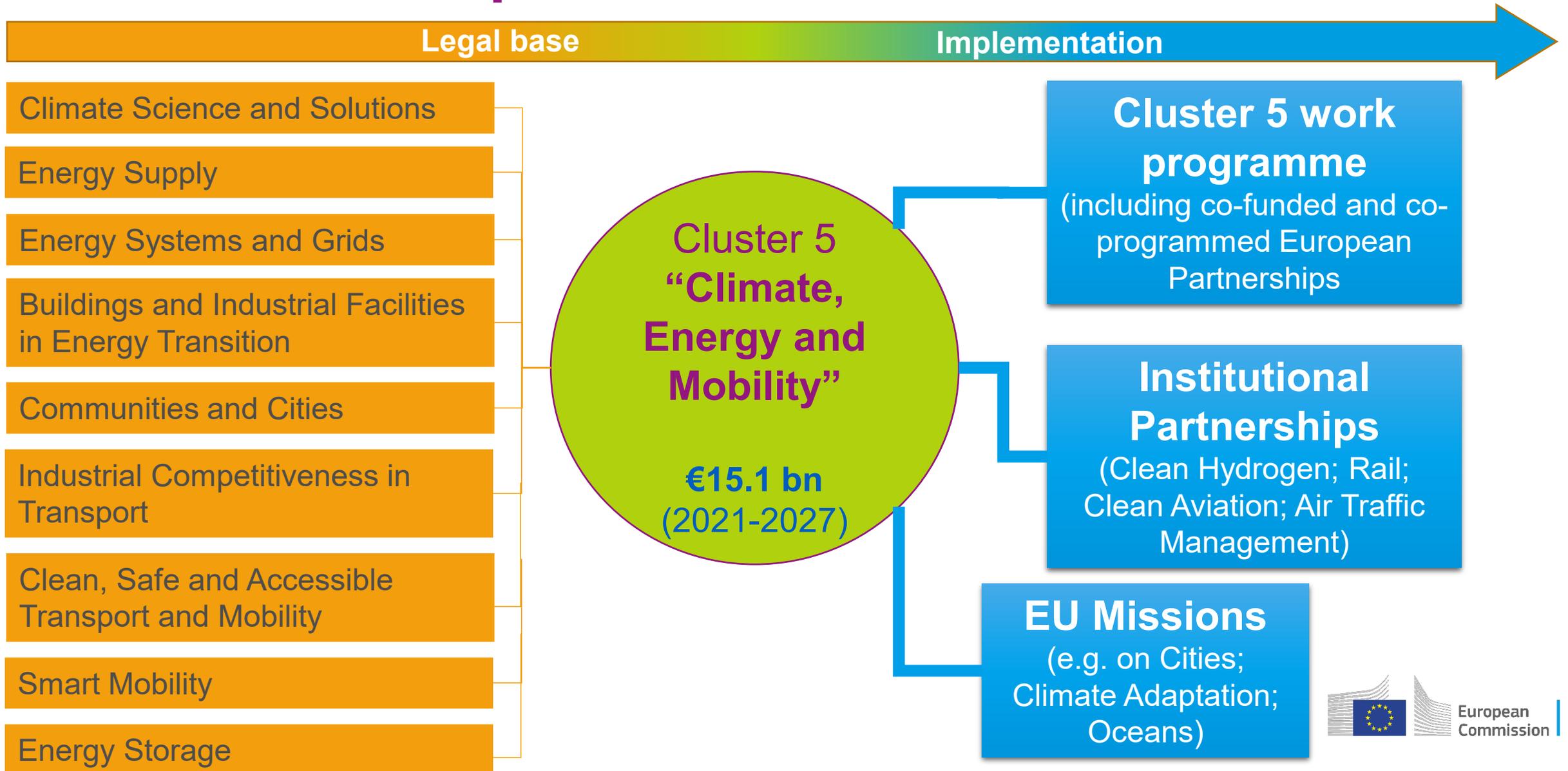


EMIRI General Assembly

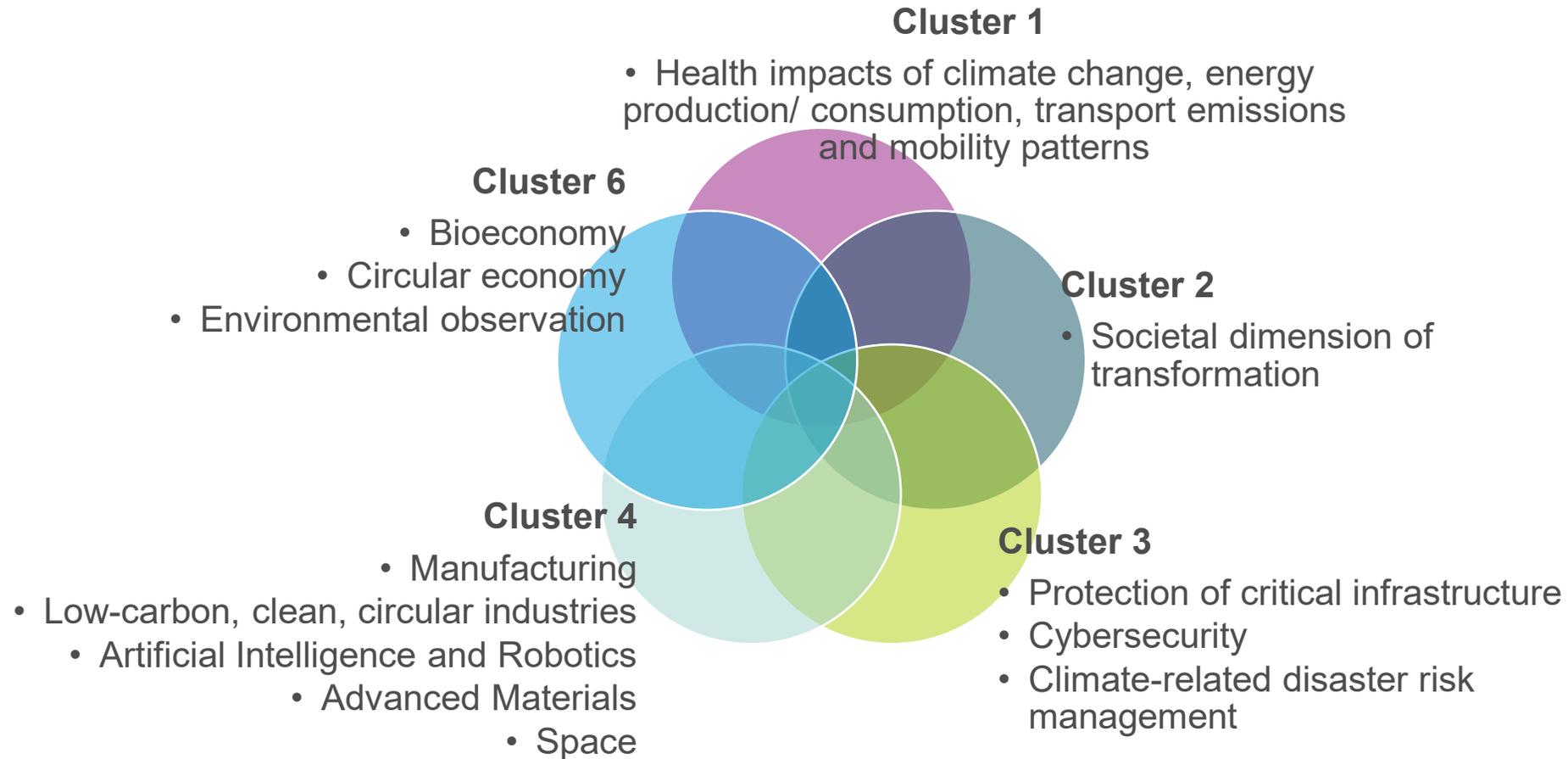
1 December 2022

*Helene CHRAYE
Deputy Director Clean Planet
HoU Clean Energy Transition
DG Research & Innovation
European Commission*

Horizon Europe Cluster 5 overview



Links to other clusters



European Partnerships

INSTITUTIONAL

Transforming Europe's rail system

(0.6 bn€ EU contribution;
0.6 bn€ private contributions)

Integrated Air Traffic Management

(0.6 bn€ EU contribution; 0.5 bn€ private contributions; 0.5 bn€ from Eurocontrol)

Clean Aviation

(1.7 bn€ EU contribution;
2.4 bn€ private contributions)

Clean Hydrogen

(1.0 bn€ EU contribution;
1.0 bn€ private contributions)

Total: 3.9 bn€ EU contribution

CO-FUNDED

CET | Clean Energy Transition

(210 M€ EU contribution)

DUT | Driving urban transitions to a sustainable future

(130 M€ EU contribution)

Total: 0.34 bn€ EU contribution

CO-PROGRAMMED

Built4People | People-centric sustainable built environment

(380 M€ EU contribution; 400 M€ private contributions)

ZEWT | Zero-emission waterborne transport

(530M€ EU contribution; 3300 M€ private contributions)

CCAM | Connected, Cooperative and Automated Mobility

(500 M€ EU contribution; 500 M€ private contributions)

2ZERO | Towards zero-emission road transport

(615 M€ EU contribution; 615 M€ private contributions)

Batt4EU | Towards a competitive European industrial battery value chain

(925 M€ EU contribution; 925 M€ private contributions)

Total: 2.95 bn€ EU contribution

Total: 7.2 bn€

REPowerEU

Joint European action for more affordable, secure and sustainable energy

- Ensure **energy security** through diversification and increased RE production
- Mitigate the potential risk of **energy poverty** as a result of severe price hikes
- Increase the production of **biomethane** and renewable **hydrogen**
- Develop the value chain for **solar and wind energy and for heat pumps**, also boosting the EU's competitiveness and **tackle strategic dependencies**
- Channel EU financing to **next-generation technologies**, mobilising InvestEU or Member States' support
- Secure supply of critical and other **materials**
- Accelerate investments in **reskilling and upskilling** of the workforce, which are essential to support the transformation

R&I contribution to REPowerEU

- **R&I crucial for accelerating the clean energy transition** and consequently the achievement of independency from Russian fossil fuels.
- DG R&I supports the **hydrogen accelerator** of REPowerEU, e.g. through the Horizon Europe cluster 5 WP, the Clean Hydrogen Joint Undertaking and the European Innovation Council (EIC) WP.
- R&I accelerates the achievement of the REPowerEU objective of doubling the Fit for 55 goal for **biomethane** production.
- DG R&I, with DG ENER, advances on the possible implementation of **regulatory sandboxes**, following the adoption of the REPowerEU Communication.
- DG R&I will map and **assess results of relevant Horizon 2020 projects** that are linked to REPowerEU to accelerate the deployment of R&I project results.
- R&I will accelerate the realization of other REPowerEU objectives related to the decarbonisation of **industry, energy savings and energy efficiency** and objectives related to the societal dimension of REPowerEU.

Challenges at stake / 1

- Energy is the lifeblood of the economy. Ensuring a supply of affordable and secure energy is the prerequisite for a healthy modern industrial economy and ensuring welfare of citizens
- Energy production, conversion and use is responsible for more than two thirds of greenhouse gas emissions
- The clean energy transition will reduce greenhouse gas emissions, but increase pressures on some parts of planet resources (materials, water)
- For instance:
 - materials demand for the manufacturing of renewable energy technologies (e.g. rare earths, lithium) and the construction of installation of low-carbon power plants (e.g. cement, steel for wind, ...)
 - demand for water associated with the clean energy transition (e.g. for hydrogen or biofuel production) deserves attention

Challenge for policy makers: not solve the climate change problem at the expense of other dimensions of environmental sustainability

R&I as a strategic role to play, for example in ensuring that new clean energy technologies are conceived with the "**circularity by design**" approach

Challenges at stake / 2

- Energy should be a priority for materials development as they are of primary importance in energy:
 - production, storage, distribution, conversion and applications for renewable energy and for CCUS;
 - Increasing energy efficiency in buildings
 - Developing clean transport means
- R&I on new materials must include citizens' needs in the design process at all steps, R&I should help to design tools and means to do so
- R&I in clean energy technology needs synergy with research in advanced materials.

What we already do

- The concept of Circularity by design, which strongly relies on material performance, is already promoted in a number of R&I activities such as Horizon Europe Cluster 5 (mentioned 7 topics in the 2023-2024 work programme which has just been pre-published), in SET Plan revamp as cross cutting and task force, in JU on hydrogen..)
- Developing open innovation test beds (1 topic on hydrogen production in Horizon Europe Cluster 5 in 2023-2024 work programme) addressing the issue of circularity and efficient material use and targeting the objective of strengthening , should have a life cycle assessment / relocating critical steps of value chain inside the EU
- In the new working programme, about one third of the topics from the Sustainable, secure and competitive energy supply destination insists on aspects related to efficient material use, including reduction, recycling, upcycling and substitution.

Conclusion

R&I value is to anticipate challenges and to provide solutions

REPowerEU will accelerate the clean energy transition

Energy transition relies highly on better use of planet resources, sustainability and circularity, including for industry processes for all new equipment we need at all steps of energy the value chain – work hand in hand with materials R&I

Anticipating this constraint on sustainable use of planet resources will ultimately prepare for future competitiveness of the EU industry.

Thank you for your attention!

Contact: helene.chraye@ec.europa.eu