

Novel materials for supercapacitor energy storage (RIA)

TOPIC ID: HORIZON-CL4-2022-RESILIENCE-01-24

Deadline date: **30 March 2022 17:00:00 Brussels time**

Expected EU contribution per project: **6-8 M EUR**

Number of projects expected to be funded: **4**

Scope:

Compared to batteries, supercapacitor energy density is low and they use more expensive and critical raw materials (CRMs). Proposals should address the challenge for new material concepts to be used in supercapacitors to at least double the energy density over current technologies reduce cost and minimise or eliminate use of CRMs. Proposals submitted under this topic should include a business case and exploitation strategy, as outlined in the introduction to this Destination.

Synergies are possible with any relevant projects from topic HORIZON-CL5-2022-D3-01-11 from Cluster 5, and respective cooperation activities are encouraged, however R&I on energy system integration, compatibility of systems or standards for participation in flexibility market is excluded. The topic is open for international cooperation, while excluding industrial competitors from countries where the safeguarding of IPRs cannot be guaranteed.

Specific Topic Conditions

Activities are expected to start at TRL 3 and achieve TRL 6 by the end of the project – see General Annex B.

Cross-cutting Priorities:

International Cooperation

ExpectedOutcome:

Supercapacitors are attractive alternatives to batteries because they can be charged very quickly and can sustain vastly greater number of re-charge cycles than batteries without losing efficiency. However, their power energy is lower than that of batteries but recent material research breakthroughs have indicated that this can be substantially increased.

Projects are expected to contribute to the following outcomes:

- New supercapacitors with energy densities comparable to batteries in environmentally friendly electrolytes able to recharge in a fraction of the time required for current batteries, have no loss of performance over time and longer life;
- Substantial impact to energy storage systems solutions for applications ranging from consumer goods to electrification of transport and reduction of emissions;
- Innovative management systems for supercapacitors;
- Establish new industrial value chains with new energy storage products, tailored to meet the application requirements.