

HORIZON-CL5-2021-D3-02-02: Next generation of renewable energy technologies

Specific conditions	
<i>Expected EU contribution per project</i>	The EU estimates that an EU contribution of around EUR 3.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
<i>Indicative budget</i>	The total indicative budget for the topic is EUR 33.00 million.
<i>Type of Action</i>	Research and Innovation Actions
<i>Technology Readiness Level</i>	Activities are expected to achieve TRL 3-4 by the end of the project – see General Annex B.

Expected Outcome: Project results are expected to contribute to all of the following expected outcomes:

- Available breakthrough and game changing renewable energy technologies enabling a faster transition to a net-zero greenhouse gas emissions EU economy by 2050.
- Knowledge and scientific proofs of the technological feasibility of the concept including the environmental, social and economic benefits to contribute to R&I strategy and policy forecast.
- Establishing a solid long term dependable European innovation base.

Scope: The proposal is expected to address high-risk/high return technology developments for game changing renewable energy technologies including catalyst development, dedicated storage systems and integration of renewable energy technologies into a single energy generation system, heating & cooling systems, fuels production systems, hybrid electricity generation solutions between different renewable energy sources, direct utilization of renewable energy sources.

The following areas should not be covered as they fall within the scope of partnerships or other calls:

- Pure material research;

- Conventional hydrogen production and fuel cells;
- Batteries.

However the production of renewable hydrogen directly from renewable energy sources is within the scope of the topic.

The proposal should validate its concept to TRL 3 or TRL 4 through a robust research methodology and activities, establish the technological feasibility of its concept, consider transfer developments in sectors other than energy whenever relevant, as they may provide ideas, experiences, technology contributions, knowledge, new approaches, innovative materials and skills.

In developing its concept the proposal is expected to address the following related aspects: lower environmental impact, better resource efficiency (materials, geographical footprints, water, etc...) than current commercial renewable technologies, issues related to social acceptance or resistance to new energy technologies, related socioeconomic and livelihood issues. Considerations should be given to the regulatory frameworks for their adequate integration.

The project should also document the research process thoroughly - methods, data, results - to ensure that future research and deployment builds on lessons from positive and negative attempts made, through for example public deliverable, ORDP, etc. in order to ensure that the final results and data are actually available after the project end.