

Adaptation to variable feedstock through retrofitting (IA 50%)

Proposals need to cover the following:

- Implement simulation models and decision support tools for the production chain in an energy intensive sector, including the detection of inefficiencies, in order to allow flexibility with respect to feedstock of variable composition, while offering energy efficiency and product quality;
- The development of tools and methodologies to streamline and support retrofitting;
- Find the most efficient operational input conditions to optimise the performances;
- Develop indicators to modify input variables and its potential of replication across the industry;
- Facilitate and adapt the equipment towards a larger number and more diverse feedstock in order to be ready for a transition in which variability in quality, quantity and price of feedstock are key to make the production competitive and sustainable;
- Solutions should demonstrate the feasibility and suitability of the concepts of retrofitting at industrial scale.

Demonstration of the technology in different process industries should be undertaken, covering both the technology (new ‘plug-ins’), as well as the process control (higher variability of the process requires new Monitoring & Control Systems).

Proposals submitted under this topic should include actions designed to facilitate cooperation with other projects; to enhance user involvement; and to ensure the accessibility and reusability of data produced in the course of the project.

Activities should start at TRL 5 and achieve TRL 7 at the end of the project.

The Commission considers that proposals requesting a contribution from the EU between EUR 8 and 12 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

As an exception from General Annex D, the funding rate for eligible costs in grants awarded under this topic will be differentiated: 100% of the eligible costs for

beneficiaries and linked third parties that are non-profit legal entities; and 50% of the eligible costs for beneficiaries and linked third parties that are for profit legal entities.

Process industry plants have to be operated for a long time to make their operations viable. They include equipment such as furnaces, reactors, raw materials handling and storage systems which sometimes have a lifetime beyond 30 years. Keeping these facilities up to date from a technological and from regulatory point of view (for instance related to zero waste regulations and to the circular economy) is a major challenge. Even industrial plants which are less than 10 years old, are often not equipped for new or renewable (e.g. biomass) materials and alternative or renewable energy input streams. More generally, this increased variety of inputs along with the need for energy efficiency improvements poses a real challenge and requires technological breakthroughs in the process industry.

- Increasing the resource and energy efficiency of the targeted processes by 20%;
- Decrease GHG emissions through retrofitting by at least 30%;
- Decreased utilisation of fossil resources in the process industry of at least 20%;
- Reduced OPEX by 30% and increased productivity by 20%;
- Effective dissemination of major innovation outcomes to the current next generation of employees of the SPIRE sectors, through the development, by education/training experts, of learning resources with flexible usability. These should be ready to be easily integrated in existing curricula and modules for undergraduate level and lifelong learning programs.

Relevant indicators and metrics, with baseline values, should be clearly stated in the proposal.

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