

# Flash project

Technico-economic potential of deep decarbonisation options in  
the industry: survey and lessons for Belgium  
DeepIn (Deep Industrial Decarbonisation)

## Information file for applicants

Submission deadline proposals  
9 September 2024 @ 17h00

### INTRODUCTION

This document provides specific information for research teams interested in submitting a research proposal in response to a Flash project call in the frame of the "Science4Policy (S4P) programme".

### FLASH PROJECTS

FLASH projects are short-term projects with a maximum duration of 12 months and a budget not exceeding 120.000€. The Flash projects are designed to deliver a rapid response to a pressing policy demand for which scientific evidence is requested from the academic community. A call for a Flash project is issued by BELSPO whenever requested by a Federal public administration and its Minister in charge.

Flash projects are not intended to produce new knowledge but use sound existing knowledge to generate scientific grounded evidence for policy action.

### CONTENT OF THE STUDY

Objective of the project:

#### 1. Background

The European Union and its Member States, including Belgium, will have to achieve climate neutrality by 2050. A process is underway to adopt reduction targets for greenhouse gas emissions by 2040. As such, the European Commission proposed a 90% reduction target compared to the 1990 level. The analyses currently available at both European and Belgian level indicate that the two sectors in which it will be particularly difficult or costly to achieve a net zero

emission target ("hard-to-abate sectors) are industry and agriculture. Agriculture and land use in general are already covered by ongoing research supported by the FPS Health. Industry is a particularly heterogeneous sector for which a good overview of the technical and economic potential is sorely lacking in Belgium. A series of foresight work looks at scenarios of climate neutrality in Belgium by 2050 and integrates the different sectors of industry (see among others FPS Health (2021), Energyville (2022), McKinsey (2023)). These scenarios indicate a wide range of residual emissions in industry that will need to be mitigated through the use of carbon capture and sequestration (CCS/CCUS) or offset by removals. Analyses at European level also exist and provide additional scoping elements (see various impact assessments carried out by the European Commission or by Wyns et al., (2019)) and at Belgian regional level (see Vlaio (2020) for example).

## **2. Need**

A much more detailed analysis, taking into account the latest technological developments and their costs, is needed in order to:

- reach a better understanding of federal, regional and even local policies to support the decarbonisation of industry in Belgium
- better anticipate the needs in terms of CCS, in particular with regard to the infrastructure needed for carbon transport, storage or recovery
- better anticipate needs and therefore public policies relating to carbon removals (negative emissions), whether through the "BECCS" technique (bioenergy with CCS), "DAC" (Direct Air Capture) or through natural removals from multiple sources.

We need to better understand, from a macro point of view, the implications of the technological options for the long-term decarbonisation of the main industries in Belgium (including steel, cement and lime production, refining, chemistry, etc.) by:

(1) gathering the state of the art in terms of the technical and economic potential of major technologies to reduce emissions for major industries in Belgium. This involves analysing all relevant work in order to provide the most comprehensive possible view of the range of technological possibilities for major Belgian industries (type of technologies, LRT, expected costs, etc.), including for example (non-exhaustive list) technologies to increase the energy efficiency of industrial processes, electrification technologies and/or to use carbon-neutral fuels, use of alternative raw materials (biomasses, recycled materials, carbon from CCS or DAC capture) in industrial processes, options to reduce the amount of materials needed for the same service rendered (material efficiency), as well as carbon capture technologies. The goal is to get as wide and complete a range of options as possible.

(2) establishing, on this basis, estimates of residual emissions in Belgium on the basis of scenarios of production volumes derived from or inspired by existing scenarios (see above) - This is to estimate orders of magnitude and not a fine assessment (which would require fine modelling).

## **3. References (selection)**

- EnergyVille (2022), A climate neutral Belgium by 2050, PATH2050.
- FPS (2021), Scenarios for a climate neutral Belgium by 2050, Federal Public Health Service.
- McKinsey (2023), Net zero or growth? How Belgium can have both, McKinsey.

- Vlaio (2020), Naar een koolstofcircular in CO2-weapon Vlaamse industry. Available at [www.vlaio.be](http://www.vlaio.be).
- Wyns et. al., (2019), Industrial Transformation 2050 - Towards an Industrial Strategy for a Climate Neutral Europe, IES. Available at [www.ies.be](http://www.ies.be).

4. **Research domain:** Technology, Economy, Climate

5. **Keywords (5 maximum):** Decarbonisation, industry, technologies, Belgium

6. **Specific research questions**

The project will address the following research questions:

1) What is the state of the art in estimating the technical and economic decarbonisation potential of the main industries present in Belgium?

2) What level of residual emissions in industry should Belgium expect by 2040 and 2050?

7. **Duration & schedule:** The project will last a maximum of 5 months.

8. **Deliverables**

Deliverable 1 – Report (Deadline for Deliverable 1: 31/03/2025)

The deliverable will consist of a report in English; this report will provide full details of the analyses carried out.

Integration:

- the results will contribute to update of the 2050 climate neutrality scenarios (see [www.climat.be/2050](http://www.climat.be/2050))
- they will contribute to Belgium's positioning in various European issues concerning industry (ECOFIN, COMPET, ENVI, etc.)
- dissemination via publication and the organisation of an event on the subject
- exploitation by regional governments and other relevant federal governments, stakeholders, including employers' organisations.

9. **Impact, KPIs and objectives**

KPI 1) Integration into new scenarios of climate neutrality by 2050

KPI 2) Taking into account (reference to) results in the context of Belgium's positioning vis-à-vis European policies, in particular around the reduction targets by 2040 and their implementation

KPI 3) Consideration of (reference to) results in the context of the positioning of stakeholders (including industrial actors) in various bodies (e.g.: CFDD, CCE, specific opinions, etc.)

10. **Specific conditions and implementation**

The budget is estimated at around 40 k€.

The research team should meet the administration in charge (1) at the beginning of the project to help present the context and the existing work at the policy level and (2) several times during the project to help align the methodological choices with the purpose of the study.

The proposal will anticipate possible risks related to difficulties in accessing certain private information.

## BUDGET

The budget allocated to a project is depending on its duration in months. An average of 10.000€/month is allocated for a Flash project and the total duration shall not exceed 12 months.

The eligible costs are:

- Personnel costs: Staff costs include the (full) costs relating to staff recruited under employment contracts and to non-salaried staff (lump sum payment per Person/Month);
- Specific operating costs: This includes the cost of goods and services directly related to the implementation of the project and of which the list is included in the proposal.
- Indirect costs: Lump sum to cover the general operating costs set at 15% of personnel and specific operating costs.

## APPLICATION

Flash proposals must be written in English and signed electronically. Proposals (in pdf format) should be sent to [flash@belspo.be](mailto:flash@belspo.be) by mentioning the Flash proposal acronym in the subject line of the e-mail. Applicants are required to meet the conditions set forth in this information documents and to comply with the scope of the call for the Flash project. The template of the application form can be accessed via the BELSPO website, [Documents for promoters | S4Policy | P4Science & S4Policy \(belspo.be\)](#).

The closing date for this Call is **9 September 2024 at 5.00 p.m.**

## EVALUATION AND SELECTION

The Flash proposals are evaluated and recommended for funding by a panel of independent foreign experts under the supervision of BELSPO, within 3 weeks after the submission deadline. The evaluation criteria are the adequacy of the budget and human resources, the skill(s) of the scientific team(s) and the methodological approach.

The evaluation form template can be consulted on the website: [Documents for promoters | S4Policy | P4Science & S4Policy \(belspo.be\)](#)

The final decision is taken by the Chairman of the Board of Directors of BELSPO upon the advice of the Inspector of finances, within the available budget.

## CONTACT AND QUESTIONS

For any further questions about this call for Flash proposals, please get in touch with the Belspo Flash team via e-mail: [flash@belspo.be](mailto:flash@belspo.be).