



**TECHNO-ECONOMIC ANALYSIS OF  
CARBON MITIGATION TECHNOLOGIES  
CA21127**

# **Call for Short-Term Scientific Missions (STSMs)**

## **Call for STSM Applications Third Grant Period, 1 November 2024 – 31 October 2025**



**DELIVERING HARMONISED  
CCUS ASSESSMENT**

PROCESS MODELING  
TECHNO-ECONOMICS  
LIFE CYCLE ASSESSMENT

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### Scope of TrANsMIT COST Action

TrANsMIT proposes a COST Action on the techno-economic analysis (TEA) of the overall, integrated CO<sub>2</sub> Capture, Utilisation, and Storage (CCUS) value chain. It aims to bring together academia, research institutes and industry into a cutting-edge, pan-European knowledge network. The Action advances the research frontier of CCUS TEA from partially unharmonized and disciplinary research to harmonized, holistic pan-European, coordinated research on the full CCUS system, facilitating development of the most technologically, economically and commercially feasible CCUS technologies and systems. It will be achieved by harmonizing and coordinating the methods and tools used for CCUS TEA in Europe, leveraging the knowledge created by our partners in national or international research projects. The project focuses most on holistic assessment of the CCUS chain, and on those areas where most development is needed (e.g. CO<sub>2</sub> capture from air, CO<sub>2</sub> utilization). TrANsMIT has a strong focus on knowledge sharing and career development, tackling existing disparities in knowledge distribution and career opportunities.

For further details and specific objectives, please read the Memorandum of Understanding (MoU) of the TrANsMIT COST Action available at: <https://www.cost.eu/actions/CA21127/>

### Description

STSMs are integral part of our TrANsMIT objectives. These missions aim to support Researchers and Practitioners in advancing their career goals and generating COST Action TrANsMIT deliverables. Applicants for STSMs should be engaged in an official research program as PhD students and postdoctoral fellows or be associated with an institution or legal entity maintaining an active research focus. Host institutions, where applicants conduct their primary research, will provide the required infrastructure and knowledge resources to help grant beneficiaries complete their proposed STSMs. STSMs can also be used for visits related to the preparation of the proposals aimed to be submitted under EU funded projects not later than 30<sup>th</sup> September 2025.

Proposed STSMs need to align with one or more scientific objectives of TrANsMIT COST Action, which emphasizes the techno-economic analysis (TEA) and life-cycle assessment (LCA) of the comprehensive CO<sub>2</sub> Capture, Utilisation, and Storage (CCUS) value chain (including carbon dioxide removal options). Information on these objectives can be found on the TrANsMIT website. In particular, the STSMs need to align with the main goals of at least one of the WGs:

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WG	Main goals
WG1 - Knowledge integration and exchange	<ul style="list-style-type: none"> <li>- Inventorise current knowledge of, and best practices to, TEA of CCUS and identify existing challenges.</li> <li>- Support WG2 and WG3 in organising their knowledge exchange, in filling existing caveats and developing new knowledge.</li> </ul>
WG2 – Process modelling and simulation for CCUS	<ul style="list-style-type: none"> <li>- Systematically review approaches to process modelling and simulation of CCUS components aiming to establish the state-of-the-art and identify further development needs.</li> <li>- Contribute to the development of an open-access database to be shared within the Action and with the wider CCUS community, which includes process models and publicly available experimental/ pilot/demonstration results for validation.</li> </ul>
WG3 – Techno-Economic approaches for CCUS assessment	<ul style="list-style-type: none"> <li>- Systematically review current TEA/LCC methodologies, benchmarks and key performance indicators aiming to establish the current state-of-the-art in TEA of CCUS, identifying what are the current challenges (e.g. example costs of externalities and uncertainty, either from data and/or technology) and how they can be taken into account.</li> <li>- Harmonise and coordinate the further development of approaches to CCUS, focusing on the challenges identified TEA that will be disseminated within the Action and to a wider audience.</li> </ul>
WG4 – Training, dissemination and engagement	<ul style="list-style-type: none"> <li>- Disseminate and promote the use of best practices to TEA of CCUS and discuss approaches to solving existing challenges with practitioners, academics, researchers and students from across the CCUS community.</li> <li>- Promote best practices in TEA to the young generation of researchers and build capacity in the partner countries with a focus on ITCs.</li> <li>- Bridge the gap between the different elements of CCUS chain and emphasise the value and benefits of using best practice ex-ante TEA to underpin sound R&amp;D and policy decisions.</li> <li>- Engage with the general public to raise awareness and assess change in perception of CCUS over the duration of the Action.</li> </ul>
WG5 – Life-Cycle Thinking in CCUS	<ul style="list-style-type: none"> <li>- Review the state of the art regarding the application of LCA to CCUS systems, with specific regard to methodological aspects leading to harmonisation of analysis, such as (multi)functionality, long-term vision, LCI inventory, uncertainty assessment, system boundaries, biogenic CO<sub>2</sub> and carbon footprint “negativity”. Also extensions to LCC and SLCA will be analysed.</li> </ul>

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The possible STSM Home and Host Institutions must be framed in the scenarios summarized in the following table.

Applicant's Home Institution	STSM Host Institution
Located in a Participating COST Full Member/COST Cooperating Member	Located in another Participating COST Full Member/ COST Cooperating Member Located in a Participating COST Partner Member An Approved International Partner Country Institution An Approved NNC Institution The EU Commission or a EU Body, Office or Agency An Approved European RTD Organisation An Approved International Organisation
Action MC observer from a NNC Institution	Located in a Participating COST Full Member/ COST Cooperating Member
Located in an Approved European RTD Organisation	Located in a Participating COST Full Member/ COST Cooperating Member

List of potential Hosts as declared in the survey send to all TrANsMIT COST Action members (on January 29<sup>th</sup> 2024) can be found under this link:

[STSM Call 2023 24 HOSTs.pdf](#). Going to a Host beyond these on the list is also possible.

### Purpose of a STSM

STSM are exchange visits to support individual mobility, strengthen existing networks and foster collaboration between COST Action Participants. An STSM should specifically contribute to the scientific objectives of the COST Action, whilst simultaneously allowing those partaking in the missions to learn new techniques, gain access to specific data, instruments and/or methods not available in their own institutions.

During this Grant Period we would like to highlight the importance of developing an **open-access database to support the CCUS** (Carbon Capture, Utilization, and Storage) community. It is the most important deliverable of TrANsMIT Action. We're inviting interested members to contribute by reviewing the literature and collecting key data from published studies on CCUS technologies.

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The database will focus on key parameters across three categories:

- **Process Modelling:** Details on modelling objectives, techniques, software used, key parameters (e.g., flow rates, concentrations), assumptions, and validation status.
- **Techno-Economic Analysis:** Data on capital and operating costs, payback periods, revenue streams, market size, and cost-benefit analyses.
- **Lifecycle Assessment (LCA):** Information on system boundaries, environmental impact categories (e.g., GHG emissions), energy/material use, and regulatory compliance.

### STSMs criteria

The following criteria will be used to assess the eligibility of each STSM:

- Each STSM must have clear outputs that are aligned with the objectives and deliverables of TrANsMIT. These will be evaluated considering:
  - Scientific excellence
  - Feasible plan and budget of the application
  - Active participation in the Action
  - Contribution of the proposed STSM to the Action outcomes
- Each STSM must last at least 5 days and a maximum of 3 months.
- All provisioned work must be carried out within a single grant period during the action lifetime.
- Following the completion of the STSM, the recipient will be required to write and upload the STSM report to e-COST platform not later than 30 days after the end date of the STSM.

Other important criteria for the STSM mobility are:

- The STSM needs to be carried out in their entirety within a single Grant Period and always within the Action's lifetime;
- The COST Association and the Grant Holder of the Action cannot to be considered as being an STSM grantee's employer, i.e. the STSM Grant cannot be considered as a salary;
- STSM grantees should make their own arrangements for all provisions related to personal security, health, taxation, social security and pension matters.



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### Grant funding

The total budget for STSM in this call is €28 000 and the number of STSM grants are anticipated to be around eight (8).

An STSM Grant is a fixed financial contribution which takes into consideration the budget request of the applicant and the outcome of the evaluation of the STSM application. The grant amount is determined by evaluating the applicant's budget request and the reviewers' assessment of the STSM application. **Please note that STSM Grants may not necessarily cover all expenses related to a specific mission**, being only a contribution to the overall travel, accommodation and meal expenses of the Grantee. Applicants are encouraged to evaluate their budget request based on a high benefit/cost ratio and justify it based on the perceived cost of living in the host country/city.

Section A2-3 of the Annotated Rules for COST Actions defines a maximum limit €4000 of financial support for each STSM, which should not be disregarded in any circumstance.

Grant funding will be released after the completion of the mission and upon approval of all necessary reports and documentation. If the pre-payment is requested, request should be directed to the Grant Holder Manager, Katarzyna Piecha-Sobota (Katarzyna.Piecha-Sobota@polsl.pl).

### Period of STSM and application deadlines

The period of STSM should be completely framed inside the Grant Period and yet reserve some margin for presenting the scientific report for approval and final payment. Therefore, **the STSM should be finished the latest by 30 September 2025**. The following two cut-off dates for the submission and notification of results of STSM proposals will apply:

Cut-off	Application deadline	Notification of results
1 <sup>st</sup>	26 <sup>th</sup> February 2025	5 <sup>th</sup> March 2025

### STSMs Application Procedure

The application procedure is legally bound to the Annotated Rules for COST Actions. Eligible STSM applicants must submit their STSM applications online at the following web address: <https://e-services.cost.eu/stsm>.

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Prior to this submission, it is the responsibility of the applicant to obtain a written agreement from the Home and Host institutions stating that the applicant may perform the activities detailed in the STSM work plan on the agreed dates. **Templates for these declarations can be found at [STSM Template HOME.docx](#) and [STSM Template HOST.docx](#).** Please **specify in your application your area of interest** (Process Modelling, Techno-Economic Analysis, Lifecycle Assessment) when developing an input to **CCUS database** and provide a reason for your choice. Moreover, STSM applicants should be also registered at the Action e-cost system.

The following information is needed for the on-line application form:

- Action number (CA21127);
- Title of the planned STSM;
- Start and end dates of the STSM;
- Applicant's details, including academic profile and workplan;
- Applicant's bank details;
- Host institution details;
- Requested budget.

### Selection committee

A scientific committee – STSM Committee – composed of the Grant Awarding Coordinator, the Action Chair and/or Vice-Chair and the Working Group leaders will evaluate all the STSM proposals and define a seriation for the attribution of the grants. In case of conflict of interest, the member that is constrained in his duties should designate a substitute.

The evaluation will return a value between 0 and a maximum of 10 points. The criteria for evaluation will include: scientific quality, alignment with Action objectives, expected impact, budget, etc.: up to 5 points; ITC participant outgoing or hosting: 0.5 point, Early Stage Researcher (up to 40 years old): 0.5 point; Academia-industry STSM: 2 points; Contribution to CCUS database development: 2 points. .

### STSM reporting and Payment

The STSM Grantee has 30 calendar days from the end date of the mission to submit a scientific report to the STSM Coordinator along with a proof of evidence of the stay (i.e. some pictures of the trainee working at the host institution facilities). Moreover, a written confirmation by a senior researcher affiliated to the Host Institution regarding the successful achievement of the objectives of the STSM and approval of the scientific report is also necessary.

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Please note that failure to submit the scientific report, the proof of evidence of the stay and the Host Approval of the scientific report within 30 days will effectively cancel the grant.

The template of the scientific report can be downloaded at [http://www.cost.eu/STSM\\_report\\_template](http://www.cost.eu/STSM_report_template); it includes:

- Purpose of the STSM and framing in the TrANsMIT Action;
- Description of the activities carried out during the mission;
- Summary of relevant results;
- Future collaborations, including forthcoming publications resulting from the developed work and/or joint project proposals agreed during the stay.

The payment of the Grant is subject to the approval of the STSM scientific report by the STSM Committee, on behalf of the Action's MC, and the final decision is uploaded in e-COST by the STSM Coordinator. Based on this, the Grant Holder will execute the payment of the grant directly to the grantee or the host institution as requested in the application.

### STSM Contacts

<b>Grant Awarding Coordinator</b>	<b>Action Chair</b>	<b>Action Vice-Chair</b>
Dr Daria Katla daria.katla@polsl.pl	Prof. Anna Skorek-Osikowska anna.skorek@polsl.pl	Dr Mijndert van der Spek m.van_der_spek@hw.ac.uk