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## THE FEASIBILITY STUDY PREPARATION PLAN

*Project name:*

FEASIBILITY STUDY ON THE USE OF CO<sub>2</sub> CAPTURE AND STORAGE, HYDROGEN, AND OTHER INNOVATIVE TECHNOLOGIES IN LITHUANIAN INDUSTRIAL ENTERPRISES OPERATING IN THE MOST ADVERSELY AFFECTED AREA

December 2024

## Introduction, objectives and methodology

The Innovation Agency of Lithuania (Innovation Agency) is the public agency in Lithuania in charge of the Lithuanian innovation ecosystem and the promotion of innovation at all stages of the business development, from the first idea to the delivery of products and services to end-users.

It was created in April 2022, on the basis of Enterprise Lithuania and the Lithuanian Business Support Agency and consolidating the functions for the promotion of innovative activities performed by the Agency for Science, Innovation and Technology. Innovation Agency administers different innovation, digitalization and other business support measures, with a total value of more than € 500 million over the next years. It has more than 300 employees, and is headquartered in Vilnius, and has regional offices in 13 Lithuanian cities.

On July 4<sup>th</sup>, 2024, the Innovation Agency launched international tender to contract the elaboration of a “Feasibility Study on the Use of the CO<sub>2</sub> capture and storage, hydrogen and other innovative technologies in Lithuanian industrial enterprises operating in the most adversely affected areas” (Feasibility Study).

The winner of the tender to contract the elaboration of Feasibility Study (Vytautas Magnus University; Deloitte Technology & Transformation, S.L.U.; Universidad Politécnica de Madrid) signed the Agreement with Innovation Agency on 28<sup>th</sup> of November in 2024.

The objective of Feasibility Study is to evaluate the options to develop solutions to reduce the CO<sub>2</sub> emissions in the areas which will be more affected by the Just Transition, namely, the Kaunas, Telšiai and Šiauliai Counties. These Counties have some industries which are highly CO<sub>2</sub> intensive, so acting on these industries can lead to a reduction of CO<sub>2</sub> in the country.

The assessment will include an analysis of the specificities of these zones and industries, and will include the expected impact trends and risks, and propose scenarios about the future evolution of greenhouse gas reduction commitments of Lithuania, and how these objectives will impact on the industry.

Besides, specific actions and models to reduce the CO<sub>2</sub> emissions of these industrial sectors will be proposed. They will include the assessment of Carbon Capture, Utilization and Storage (CCUS) technologies, and how these technologies can be used if the CO<sub>2</sub> emissions cannot be reduced in origin. Besides, options to transport the CO<sub>2</sub> to appropriate geological deposits will be analyzed.

The assessment will also include an economic evaluation of the investments which would be needed, as well as the regulatory framework and changes which can be needed to develop such projects. If needed, changes in regulation and the design of investment promotion mechanisms will be proposed.

To sum up, the Feasibility Study has as objective to make sure that the Kaunas, Telšiai and Šiauliai Counties are ready to fulfill with the actions needed to reach the commitments of Lithuania regarding the European targets, and to increase the resilience of the CO<sub>2</sub> intensive industries in the Ecological Transition. It is necessary to offer these zones an alternative to

continue generating wealth and employment, even if the economic activities which are more relevant today will need to be deeply transformed in the next years. This economic change can offer opportunities for new businesses to be created, but they should be publicly supported, by the European Union, the central Lithuanian Government, the regional governments, and the Municipalities.

The Feasibility study will be realized by following **the description of the content** in Technical Conditions (Annex 1 of the Agreement). Conducting stakeholder interviews and **collecting relevant data is a critical step** in ensuring the feasibility study is thorough and well-informed. The data needed can be categorized into several key focus areas. Firstly, detailed information about the industrial profile and emissions is essential. This includes profiles of industrial enterprises in the target regions (Kaunas, Telšiai, and Šiauliai), the nature of their activities (such as manufacturing processes and raw materials used), historical and current CO<sub>2</sub> and GHG emissions levels by source (e.g., process emissions and energy consumption), and the carbon intensity of processes. Additionally, understanding energy consumption trends, including energy sources (fossil fuels, renewable energy, electricity) and efficiency levels, will provide valuable insights. All industrial enterprises will be grouped by sectors (fertilizers, cement, refinery, food, glass, etc.), and sector-related decarbonization scenarios will be developed.

The next critical area is **technology readiness and decarbonization potential**. Data is needed on the current adoption of carbon capture, utilization, and storage (CCUS) technologies and the application of hydrogen or other innovative technologies. It is also important to evaluate the feasibility of adopting alternative production processes and energy sources, along with relevant technologies' maturity level and cost-effectiveness. This will help identify potential pathways for decarbonization.

**Infrastructure and resources** are another crucial area of focus. This includes data on the availability and capacity of renewable energy sources, the connectivity to national grids or pipelines for energy or hydrogen transport, and the logistics and infrastructure available for transporting captured carbon, such as pipelines, roads, and rail systems. Information about the geological suitability for carbon storage, particularly subsurface structures and Baltic Sea sites, will also be vital.

**Economic and financial data** will play a pivotal role in assessing the feasibility of proposed solutions. This includes operational costs associated with production and decarbonization measures, the financial implications of current emissions levels (such as EU ETS penalties), access to existing EU or national support mechanisms, and investment requirements for adopting decarbonization technologies.

**Understanding the regulatory and policy environment** is equally important. Data on current compliance with EU and national emissions regulations, as well as gaps in the legal framework that could affect the adoption of CCUS or hydrogen technologies, will be essential. Additionally, insights into policy incentives and constraints within the legal framework are needed to identify opportunities for support.

**Social and environmental aspects** must also be considered. This includes data on workforce skills and readiness for adopting and operating new technologies, as well as the potential

impacts on regional employment. Environmental impacts, including alignment with regional goals and risks or benefits to biodiversity and ecosystems, should also be analyzed.

**Stakeholder-specific data** is another critical element. This involves gathering insights from enterprises about their challenges in meeting decarbonization goals and their perspectives on the benefits and barriers to adopting new technologies. Community and public sector input on the socio-economic impacts of industrial transitions and the readiness of public institutions to support these initiatives will also be valuable.

Finally, benchmarking data will provide an **international context** by examining best practices from other regions or industries. This includes examples of successful adoption of hydrogen and CCUS technologies, lessons from decarbonization initiatives in similar contexts, and insights into what has worked elsewhere.

The primary sources of this data will include interviews with senior management and technical teams from industrial enterprises, policymakers, regulators, and community leaders. Secondary sources such as government reports, industrial statistics, scientific literature, and market analyses will also be instrumental. This data will help map the current state of emissions and technology use, identify feasible and impactful decarbonization scenarios, develop cost-effective action plans, ensure stakeholder alignment, and address regulatory gaps. By collecting and analyzing this information, the feasibility study will be well-positioned to provide actionable and impactful recommendations.

**A variety of technologies will be targeted** during the study preparation. Some examples (could be extended during the feasibility study preparation) were discussed in more details.

Carbon Capture, Utilization and Storage (CCUS) technologies are essential in addressing climate change by capturing carbon dioxide (CO<sub>2</sub>) emissions and converting them into valuable products. Today, several CCUS technologies are widely used across the globe. One common method of **carbon capture** is chemical absorption, which employs solvents like amines to capture CO<sub>2</sub> from industrial emissions, making it particularly prevalent in natural gas processing and ammonia production. Physical separation techniques, such as pressure swing adsorption and membrane separation, isolate CO<sub>2</sub> based on its physical properties and are utilized in industries requiring high-purity CO<sub>2</sub>.

The **prospects for the geological storage** of carbon in Lithuania will be assessed, including the size and suitability of potential geological structures and geological structures beneath the Baltic Sea. Possibilities to transport and store CO<sub>2</sub> in other locations, such as the Nord Sea will be evaluated. The entire value chain of carbon capture, transport and storage and other countries the best-case scenarios will be discussed in detail.

**Captured CO<sub>2</sub> could be used** in a variety of processes. **Enhanced Oil Recovery (CO<sub>2</sub>-EOR)** is an adopted technology where captured CO<sub>2</sub> is injected into oil reservoirs to boost oil extraction. This process is especially popular in the United States and serves as a significant driver for CO<sub>2</sub> capture. Historically, Europe has not widely adopted CO<sub>2</sub>-EOR, primarily due to the lack of readily available, low-cost CO<sub>2</sub> sources and the significant capital and operational expenditures required. However, recent developments indicate a growing interest in CO<sub>2</sub>-EOR within Europe. For instance, in December 2024, INEOS and its partners announced an investment in

the Greensand Future project off the coast of Denmark. This initiative aims to inject up to 400,000 tonnes of CO<sub>2</sub> annually into a depleted oilfield, commencing operations by late 2025 or early 2026. While the primary focus of this project is CO<sub>2</sub> storage, it also reflects the increasing consideration of CO<sub>2</sub>-EOR techniques in the region. CO<sub>2</sub> is utilized in **urea production**, which is a key component in nitrogen-based fertilizers, consuming a considerable portion of captured CO<sub>2</sub>. **Methanol synthesis** is gaining attention for converting captured CO<sub>2</sub> into methanol, a versatile building block for various chemicals and sustainable fuels. Another promising technology is **mineralization**, where CO<sub>2</sub> reacts with minerals to form stable carbonates, a process increasingly explored for applications in the production of construction materials. Captured CO<sub>2</sub> can be used as a **feedstock to produce polyols**, which are essential components in polyurethane plastics. These plastics are widely used in applications such as **insulation, furniture, and automotive components**. By integrating CO<sub>2</sub> into the production process, manufacturers can decrease reliance on fossil-based raw materials while sequestering carbon in durable products. This approach not only contributes to emissions reduction but also supports the transition to a circular economy by transforming waste CO<sub>2</sub> into valuable resources.

Apart from conventional CCUS solutions, non-conventional approaches, such as **carbon farming, methane pyrolysis** will be discussed. Carbon farming in Europe is gaining traction as a strategy to combat climate change by capturing CO<sub>2</sub> in soils and biomass through sustainable agricultural practices. The European Union has introduced frameworks like the Carbon Removals and Carbon Farming Regulation, promoting robust certification and quality standards. Programs like the Common Agricultural Policy (CAP) eco-schemes provide financial incentives to farmers, while pilot projects are supported through EU initiatives such as LIFE. Despite its potential, challenges like measurement difficulties, reversibility of soil carbon sequestration, and the need for robust monitoring persist. Addressing these issues is critical to ensuring the effectiveness and scalability of carbon farming across the region.

CO<sub>2</sub> is also used in **algae cultivation**, where it promotes algae growth. The resulting biomass can be processed into biofuels, animal feed, and other products, offering a sustainable utilization pathway. While these technologies vary in their level of deployment across regions and industries, ongoing research and development aim to enhance their efficiency, scalability, and economic viability, contributing to global efforts to meet carbon reduction targets.

**Methane pyrolysis** is an emerging technology for producing hydrogen while minimizing carbon emissions. The process involves breaking down methane (CH<sub>4</sub>) into hydrogen gas (H<sub>2</sub>) and solid carbon at high temperatures, typically using a molten metal or catalyst. Unlike traditional hydrogen production methods, such as steam methane reforming, methane pyrolysis does not emit CO<sub>2</sub>, making it a cleaner alternative. The solid carbon byproduct can be used in various industries, including construction and manufacturing. With its potential to support the transition to a low-carbon economy, methane pyrolysis is gaining attention as a viable pathway for sustainable hydrogen production.

In addition to Carbon Capture, Utilization and Storage (CCUS) technologies, technological routes which include **direct electrification** of high temperature technological processes, and the use of **green hydrogen** and **green derivatives** will be evaluated. The main priorities will be

to evaluate the possibility to electrify the technological processes with the maximum amount of green electricity used at lowest price and produce and use hydrogen and green derivatives at the lowest levelized cost. The influence on the companies competitiveness by applying such green approaches will be qualitatively evaluated.

The section dedicated to **regulatory issues** will focus on analyzing four critical aspects of legal regulation aimed at reducing CO2 emissions in industrial enterprises through the adoption of innovative technologies. The primary objective of this analysis is to propose and identify the legal frameworks necessary to meet the 2050 goals and targets set for the industrial sector, as outlined in Point 26 of the Climate Change Management Agenda and the National Energy and Climate Action Plan. First, it will examine the legal frameworks governing the use of hydrogen and other innovative technologies for emissions reduction. Second, it will analyze the legal regulation of carbon capture technologies. Third, it will assess the legal regulation of carbon capture and utilization (CCU) technologies in industrial enterprises. Fourth, it will evaluate the legal regulation of carbon capture, transport, and storage (CCS) technologies in industrial enterprises. Each of these analyses will follow a systematic approach: identifying relevant legislation at the international, EU, and national levels; conducting a comprehensive analysis of legal acts to assess their impact, transposition, and alignment with international and EU legislation; and providing a case study of at least one example of implemented regulation in an EU Member State. Finally, based on legal, technical, and socio-economic analyses, the study will propose amendments to national legislation to enhance its effectiveness and coherence.

### Risk Assessment and Mitigation Plan

The implementation of a Risk Management Plan is key to considering beforehand the different potential risks that the Project can face. A **risk** is defined as an event which may, or may not happen in the future, and that will negatively affect the results or development of the project. A risk is also the potential that a threat exploits vulnerabilities of an asset or group of assets, to cause loss of or damage to these assets.

Other useful definitions are:

- **Risk event** is a change in the circumstances, which can have an immediate effect on the project's activities, and which may or may not happen in the future.
- **Impact** is the consequence of a risk event, and can be expressed qualitatively or quantitatively. The event can potentially have an adverse effect on the progress and success of the project.
- **Likelihood** is the measure for the probability of something happening.
- A **stakeholder** is an entity (person, organization, etc.) which is involved in the project, and which can be affected by risk events and their consequences.
- A **mitigation measure** is a carefully designed strategy that can be implemented to minimize the effect of a risk event, when it happens.

It is essential to understand and control risks to increase the confidence of the team members, to make easier the decision-making processes, and to reach goals.

The main risks in this project are:

- **Technical:** Lack of knowledge or technical skills or abilities to carry out the activities and overcome difficulties.
- **Financial and economic:** Economic difficulties of a partner which is forced to quit or reduce part of its activities, unreasonable costs and estimates, inability to meet the cost objectives.
- **Resources availability:** Possibility that some resources leave the project, specifically the ones who have key roles.
- **Managerial:** These risks are associated to diversions in the time estimations of the design, development, and deployment of the project. These diversions can be non-realistic or unreasonable schedule and resource estimates or even project execution falling short of the schedule objectives, as a result of failure to implement the risk management plan.
- **Ethical:** They are related to the misbehavior of any team member, or aspects related to the privacy or the protection of the personal information of all the involved stakeholders.
- **Legal and Regulatory:** They have to do with changes in the regulatory framework in Lithuania or the European Union, which can lead to a reduction of interest in the project outputs.

These risks can also combine, increasing their impact on the project. The specific corrective measures will be chosen after evaluating the impact of the arising risk, and its relevance for the project.

Each risk event can be classified according to a risk rating value, according to its likelihood and the impact. Three risk rating values are normally used: Low, Medium, and High.

- **Low:** It is a risk which has little or no impact on the performance and the quality of the project's output. This means that this risk does not lead to significant deterioration of the project's performance, delay in the schedule or cost increase. The Working Team can easily handle these risks according to the planned mitigation activities.
- **Medium:** It is a risk which may affect negatively the performance and quality, schedule and cost of the project. A detailed strategy and special actions can be required to control these risks.
- **High:** These risks are highly likely to cause a significant degradation of performance and quality, significant delays in the schedule, increase of cost, or degradation of end-users' privacy. This type of risk should be immediately identified and be controlled by mitigation techniques and significant actions.

### Risk Management Process

The risk management process involves three steps: Risk assessment, Risk treatment and Risk monitoring:

a) **Risk assessment:**

This process includes, in turn, three subprocesses:

- **Risk identification:** Process where the critical risk events which can happen and negatively affect the project's activities and goals, are identified.
- **Risk analysis:** Assessment of the identified risks.
- **Risk evaluation:** Process of determining the likelihood of occurrence variance and the consequences of these risks.

The process has to be carried out systematically, iteratively, and collaboratively, with the collaboration of all involved team members.

**Risk identification** involves finding, recognizing, and describing risks that may prevent an organization from achieving its objectives. It is necessary to ensure an active communication and smooth cooperation between the stakeholders, to ensure that relevant and updated information regarding the risks is being used.

The risk map which is presented in the coming chapters has been elaborated considering the following factors:

- The goals of the project, and the requirements which have to be achieved.
- The activities and tasks which are needed.
- The nature of the assets and resources.
- The threats and the consequences of them on the project's objectives.
- The time-related factors.

**Risk analysis and evaluation** involves the understanding of the nature of the identified risks, including the assessment of possible negative outcomes, critical deviations from the timeline, divergences from known best practices and the likelihood of the events.

Each risk event is assigned a value (Low, Medium, or High) for its likelihood and its impact on the project. A 3x3 Risk Matrix calculates the risk exposure for each risk event, based on likelihood and impact.

The risk is calculated using the following equation:

$$Risk = Impact \times Likelihood$$

To obtain numerical values for risk a value of 1 is assigned to Low, 2 to Medium, and 3 to High (alternative values could be proposed, or a more detailed level classification could be used).

The following is the 3x3 Risk Matrix which can be proposed for the project:

		Likelihood		
		Low (1)	Medium (2)	High (3)
Impact	Low (1)	Low (1)	Low (2)	Medium (3)
	Medium (2)	Low (2)	Medium (4)	High (6)
	High (3)	Medium (3)	High (6)	High (9)

Table 1: 3x3 Risk Matrix

The algorithm to analyse a risk contains the following steps:

- Identify each risk and collect information for that risk.
- Assign a value for the likelihood and the impact of each risk.
- Assess a risk rating with the use of the 3x3 Risk Matrix.

The final step of the Risk Management is the risk evaluation process, which involves a quantitative evaluation for each risk (based on Impact and Likelihood): Low (1-2), Medium (3-4) and High (6-9).

**Risk treatment** includes the proposal of mitigation measures and the implementation of a detailed mitigation strategy, once the project risks have been identified and assessed.

Seven techniques can be proposed for handling risks:

- Avoiding the risk, by not starting or changing the activity which triggers the risk.
- Identifying and minimizing parameters with high-risk potential.
- Removing the risk source.
- Changing the likelihood of the risk.
- Changing the consequences.
- Sharing the risk (e.g., using contracts or buying insurance).
- Retaining the risk with informed decision.

For each risk, the different alternatives should be evaluated in terms of feasibility, expected effectiveness, cost and schedule implications, and the effect on the project.

**Risk monitoring** is required to make sure and improve the quality of the project's outcomes, once each risk has been identified, analysed, and evaluated. A good risk monitoring process systematically tracks and evaluates the outcome of risk-handling actions. The process includes the comparison of the expected and desired results of the mitigation measures, with the actual results which are obtained once the contingency plan is developed.

Risk exposure has to be continuously re-evaluated and modified according to the changes in the project, and the results of monitoring and control will be carefully documented.

The main tool to identify and keep track of the different risks in the project is the Risk Table. It contains detailed information for each risk, including the likelihood and impact of each risk, as well as the proposed contingency plan. As mentioned, the proposed Risk Table is preliminary, and some additional risks can be identified along the project.

The following table is a summary of the main risks that could impact the Project. Besides, appropriate mitigation and contingency measures have been proposed:

Description of the risk	Risk probability	Relevance	Associated contingency plans
A team member does not reach a deadline	Medium	Medium	<p>The Project Manager will schedule regular meetings each fortnight, to review the advances of the different tasks and activities.</p> <p>If necessary, as deadlines are approaching, these meetings will be more frequent.</p> <p>Before each meeting, a reminder will be sent to all members of the Working team, to prepare a presentation of their advances, and to raise any risk or problem they are facing.</p> <p>All the Deliverables which will be submitted to the Innovation Agency will be prepared at least 1 week before the deadline, and will be reviewed by, at least, two different persons.</p>
Lack of quality of the deliverables	Low	High	<p>The entities involved in the project have large experience and skills in the activities which have to be developed in the project.</p> <p>Besides, very experienced professionals have been selected. All involved professionals have at least 10 years' experienced in the needed activities.</p> <p>All the documents shared with the Innovation Agency will be reviewed at least by two different persons.</p>
A team member leaves the project	Low	High	<p>All members of the team have shown a high commitment to the project, and are highly interested in the best success.</p> <p>However, if one of the consortium members could not continue working the other two would invite a substitute with a similar profile and competences. If possible, a remaining member will take over the tasks of the leaving member.</p> <p>In the event that one of the members needed to leave the project, the transfer of tasks and knowledge will be carried out in good faith, trying to minimize the impact on the project.</p>

Description of the risk	Risk probability	Relevance	Associated contingency plans
A key professional in a team member leaves the project, or remains unavailable	Medium	Medium	<p>Each member of the team will allocate at least 2 people to be in charge of the project, to collaborate in its development.</p> <p>If it is forecast that a professional working on the team leaves the project (e.g., job change, illness or leave), the other member will take charge of the activities carried out by him or her, and another professional will be allocated to the project.</p>
Lack of feedback from local stakeholders in the industrial zones of Lithuania	Medium	High	<p>One of the members of the team, Vytautas Magnus University, has a large presence in Lithuania, and will make sure that the involvement of local stakeholders is adequate.</p> <p>In addition the cooperation with the Innovation Agency team on data collection is envisaged.</p> <p>In any case, continuous interactions with the stakeholders, the development of communication channels and the active dissemination of the project information and results will be able to increase the awareness and interest.</p>
Language issues due to the lack of knowledge of Lithuanian by some team members	Low	Medium	<p>Communications will be done in Lithuanian, and then translated to English by Vytautas Magnus University, if for any stakeholder language could be an issue.</p>
Language issues due to the involvement of team members from different countries	Low	High	<p>All professionals participating in the project will have a high English level (spoken, listened and written).</p>
Lack of financial capacity of any of the team members	Low	Medium	<p>All project partners have good financial reputation and excellent credit ratings. Vytautas Magnus University and Universidad Politécnica de Madrid are public entities.</p>

Description of the risk	Risk probability	Relevance	Associated contingency plans
Lack of coordination between the team members which participate in the same tasks or activities	Medium	Medium	<p>For each Work Package, Task and Activity, a leader has been appointed. That leader will be responsible for the fulfilment of the task, even if it can be supported by the other two members of the team.,</p> <p>The number of team members is limited.</p>
Lack of relevance of the recommendations prepared in the project	Medium	Very high	<p>The recommendations will be prepared by different partners, which can offer their particular views. Recommendations will be shared with the Innovation Agency and the contacted stakeholders, to obtain their views, and to make sure that the recommendations are appropriate.</p>
Bad or inadequate dissemination capabilities	Low	Very high	<p>Team members have large experience in projects which involve communication and dissemination activities. All of them have participated in EU Horizon2020, Horizon Europe projects, and regularly organize and participate in fairs, events, and seminars, both in a national and international level.</p>
Unexpected situation which reduces travels or contact (e.g., COVID19)	Low	Low	<p>Past events, such as the COVID19 epidemics, show that unexpected events can happen, that can adversely affect the project. Team members have large experience in teleworking and coordinating through conference calls. The biggest impact could be the reduced opportunities for scheduling onsite meetings with stakeholders, or to present the results of the project in a final event in Lithuania.</p> <p>Although it has proven to be more effective to do the final event physically, webinars were regularly organized during the pandemics, and they have remained as an appropriate option in some cases. Specifically, they are a good opportunity to reach bigger audiences, reducing the need for travels, or time in trips even in Lithuania.</p>

## Working team and Coordination

Vytautas Magnus University (VMU) and Deloitte Technology & Transformation, S.L.U. propose to organize a strong project organization, designed according to the characteristics of the project, and the activities which have to be carried out in the project.

The objectives of the proposed project organization are:

- To guarantee that all parties (Innovation Agency, Vytautas Magnus University, Deloitte Technology & Transformation, S.L.U. and Universidad Politécnica de Madrid) are fully committed to the project.
- To quickly solve potential incidents or issues which can arise during the project.
- To make sure that the expected objectives are achieved in time, and with the highest quality.
- To establish a working team to face up, with the maximum guarantee of success, the excellence in the fulfilled tasks, and the achievement of the established objectives, in the limited time scope.

To make sure that these objectives are fulfilled all parties have designated highly qualified and experienced professionals, which will be able to face the challenge of the project, and manage and control the Project execution, provide guidelines and feedback to the consultant working team, and validate the right advance of the project.

The three engagement teams will work with Innovation Agency to complete the work, develop a good relationship, and transfer the knowledge and results of the project.

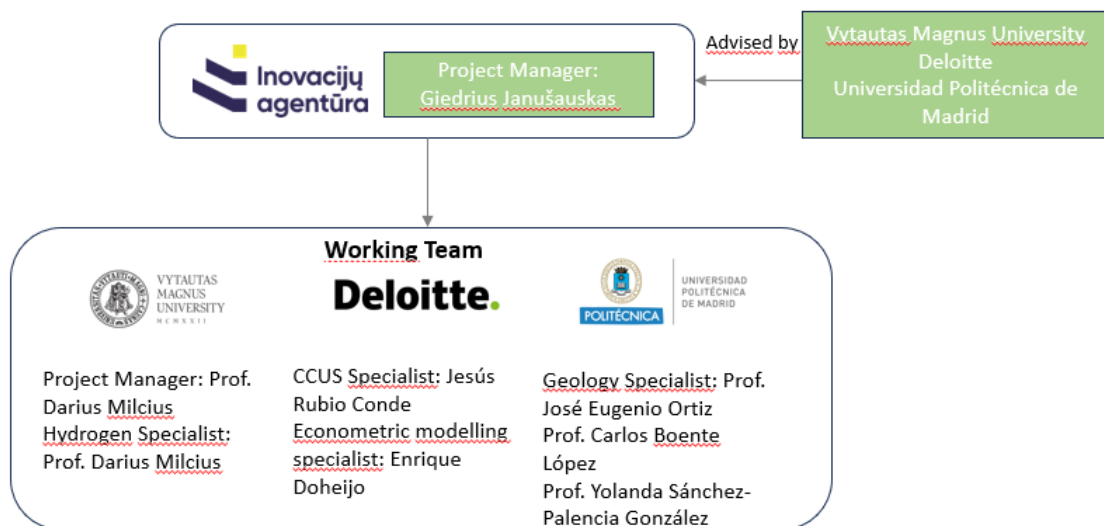


Figure 1: Project Organization Chart

## Proposed calendar and meetings

The project consists of a **series of tasks** (Figure 2), milestones, and deliverables aimed at achieving industrial decarbonization. The first task involves providing an overview of the current situation in terms of industrial decarbonization, scheduled to take place over the first three months. Subsequent tasks focus on reducing CO<sub>2</sub> emissions in technological processes, carbon capture from technological processes or air, carbon utilization, and carbon storage, all of which will occur between months two and five. The final stages of the project include the preparation of a Final Report, spanning months five through eight, and the development of proposals to the National Industrial Competitiveness Commission “Industry 4.0,” to be completed in month eight.

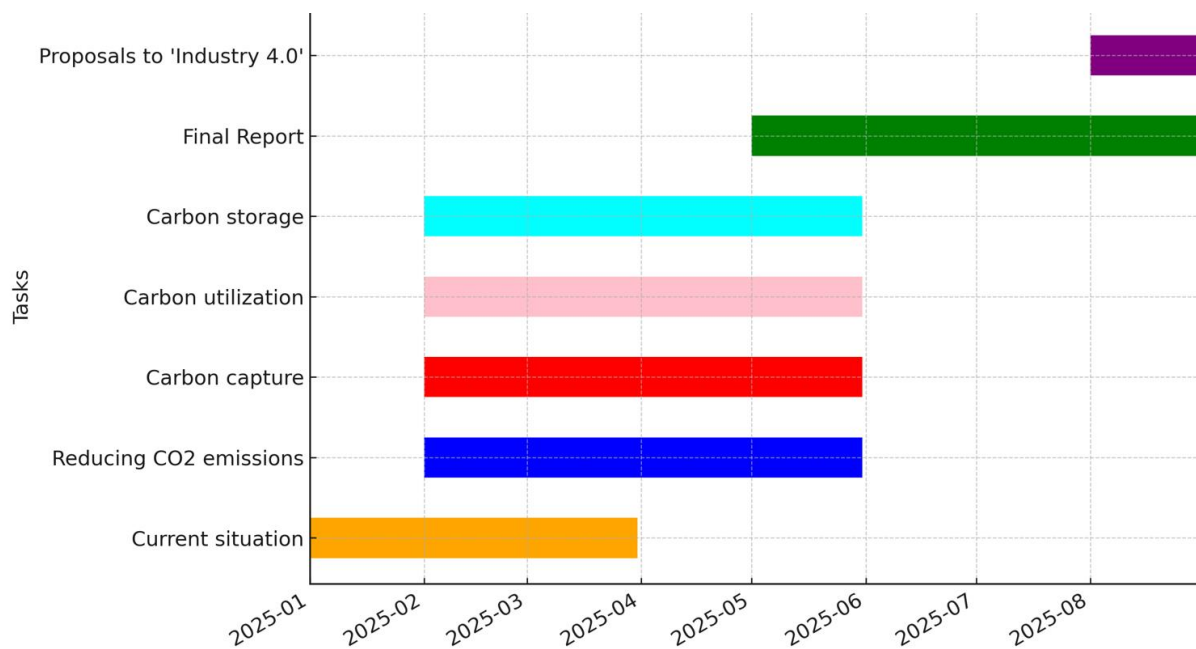


Figure 2. Tasks Chart.

**Key milestones** (Figure 3) include the creation of a list of industrial enterprises in both the Non-ETS and ETS sectors, the preparation of a data collection questionnaire, and the development of comprehensive action plans for transforming industrial enterprises to align with climate neutrality targets as outlined in the Climate Change Management Agenda and the NECAP. The first action plan, covering the initial set of enterprises, will be ready by month three, while the second and third plans, covering the subsequent groups of sets of enterprises, will be completed in months five and seven, respectively.

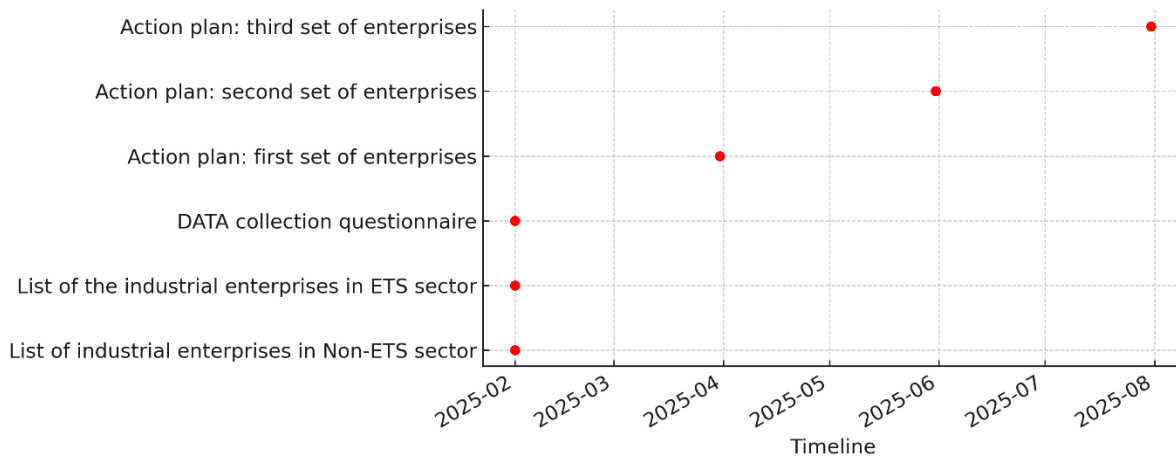


Figure 3. Milestones Chart.

All the deliverables will be prepared following the Agreement between Innovation Agency and the project team. The **most important deliverables** for this project are a **Final Report and proposals to the National Industrial Competitiveness Commission “Industry 4.0”** due in month eight. These outputs will serve as critical resources for guiding industrial decarbonization efforts and aligning them with national and global climate goals.

The project includes a **series of scheduled meetings with the stakeholders and the Working Group** to ensure progress and alignment with project goals. The first meeting will be organized with the invited stakeholders to present the feasibility study preparation plan, which will be organized online during the last week of January 2025. The list of invited stakeholders will be prepared and agreed upon with the Working Group in the middle of January 2025. The second meeting is planned for the first week of March 2025 (the exact date will be confirmed), marking an opportunity to discuss initial milestones and tasks. The third meeting is set for the first week of May 2025 (the exact date will be confirmed), focusing on evaluating mid-project achievements and adjustments as necessary. The fourth meeting, set for the last week of June 2025 (the exact date will be confirmed), will serve as a platform for summarizing outcomes, final discussions, and preparing for the subsequent phases or finalization of the project. These meetings will involve members of the Working Group and stakeholders, including social and economic partners, to foster inclusivity and align the project's goals with broader societal and economic interests.