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D6.3.1: Stakeholder perceptions of CCUS in Germany and Romania (ALIGN-CCUS)

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Citation

Belka, M., Cismaru, D. -M., Schumann, D., Mors, E. ter, & Ciochina, R. -S. (2020). *D6.3.1: Stakeholder perceptions of CCUS in Germany and Romania (ALIGN-CCUS)*. Retrieved from <https://hdl.handle.net/1887/3134534>

Version: Not Applicable (or Unknown)

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Downloaded from: <https://hdl.handle.net/1887/3134534>

Note: To cite this publication please use the final published version (if applicable).

ACT ALIGN CCUS Project No 271501



This project has received funding from RVO (NL), FZJ/PtJ (DE), Gassnova (NO), UEFISCDI (RO), BEIS (UK) and is cofunded by the European Commission under the Horizon 2020 programme ACT, Grant Agreement No 691712

ALIGN CCUS

Accelerating Low carbon Industrial Growth through CCUS

Deliverable Nr. D6.3.1: Stakeholder Perceptions of CCUS in Germany and Romania



Dissemination level	Public
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Approved by the coordinator	Ing. Peter van Os (TNO)
Issue date	22.11.2020

Acknowledgement

Since work for the ALIGN-CCUS project started in 2017, the Task 6.3 team has gained tremendously from the support and expertise of many individuals which elevated the quality of this work and without whom this work would not have reached its full potential. Here we would like to thank those people.

We wish to thank all the interviewees who gave their valuable time and input. Their knowledge and expertise helped us tremendously to obtain answers to our research questions. We would also like to thank our ALIGN-CCUS project partners for their feedback and support during the work, especially Dr. Hawal Shamon (Forschungszentrum Jülich) and Dr. Peter Moser (RWE). Furthermore, we are grateful to any other persons who have not already been named that provided information, help, or feedback throughout the duration of this work.

Information requests

The full version of the D6.3.1 report will be made publicly available on the ALIGN-CCUS website once the linked D6.3.3 journal article has been published. Until then, the full version of the D6.3.1 report is available upon request.

For more information on the study or the interviews, please contact Dr. Diana Schumann from Forschungszentrum Jülich via d.schumann@fz-juelich.de.

Executive summary

The present report is part of ALIGN-CCUS Task 6.3.1. In the report we analyze stakeholder perceptions of CCUS (Carbon Capture, Utilization and Storage) in Germany and Romania. For the examination of the stakeholder perceptions of CCUS technologies in Germany and Romania we used a two-step approach. First, we identified stakeholders by means of a desk-based review in both countries. Second, we developed an interview protocol and conducted semi-structured face-to-face interviews with relevant stakeholders in Germany and in Romania. Afterwards we performed a software-based content analysis on the data obtained in the interviews.

The main objective of the interviews was to explore the stakeholders' experiences within CCUS projects, their perspectives on risks, benefits, and costs for CCUS implementation in their country, as well as their understanding of public acceptance as a non-technical risk for CCUS implementation. The different stakeholders interviewed were experts for CCUS in Germany and Romania.

In Germany 15 interviews were carried out with stakeholders from companies, academic research organizations, political institutions, political consultancies, and environmental organizations. Due to the experiences with and lack of public acceptance for CCS (Carbon Capture and Storage) in the past in Germany, the stakeholders interviewed were critical about the term CCUS. The interviewees preferred a separation between CCS and CCU (Carbon Capture and Utilization). While most of the stakeholders in Germany stated positive future predictions for CCU, they were critical concerning CCS. For example, CCU was described as a beneficial factor for gaining a competitive advantage for industry in Germany and a necessary step towards a low-carbon industry in Germany and Europe. In contrast, although the respondents agreed that CCS will be a necessary bridging technology, CCS was claimed as a "dead technology" for projects implemented in Germany, caused by the failed projects in the past, when society in Germany opposed CCS implementation.

Most interviewees in Germany supported the implementation of CCU projects for heavy industries, in the product chain for building material substitutes. CO₂ reuse was positive connoted and framed as resource by most stakeholders, while three stakeholders used the term 'waste' for describing CO₂. In general, the assessment of power-to-x technologies¹ was dichotomous. One group of the interviewees in Germany was in favor of using CO₂ to produce synthetic fuels in line with the argument of emission reduction in a short-time period. The other group was against the implementation of power-to-x technologies, because of non-permanent carbon binding possibilities in synthetic fuels and the energy intensity of those processes.

All stakeholders interviewed in Germany were aware of the importance of acceptance building measures for successful CCUS implementation in Germany. In general, the public was ranked as important for the implementation of CCUS technology, because they will benefit from low-carbon technologies as useful mitigation measures against climate change. Overall, high implementation costs were mentioned as an important factor influencing acceptance. Other important issues mentioned by the German stakeholders were the unsecure political environment and the lack of political support for CCUS projects.

In Romania, 17 interviews were carried out with stakeholders from industry, energy production, research and academia, institutions, and civil society (including mass-media and non-governmental organizations (NGOs)). The stakeholders from the industrial field were considered of particular interest, as having a decisive role in the implementation of CCUS projects in Romania.

¹ Power-to-X technologies involve electricity conversion, energy storage and reconversion pathways that use surplus electric power, typically during periods where fluctuating renewable energy generation exceeds load.

The main benefits of CCUS considered by most of the respondents in Romania were the reduction of CO₂ emissions according to international agreements and the maintenance of the industrial activities for the relevant industrial companies or for the fossil-powered energy producers. Among the costs of CCUS projects, the financial costs needed for implementation were mentioned in the first place. The main risks discussed mostly were leakages from pipelines or from storage sites (respondents were concerned themselves), the funds required for projects (which were considered insufficient) and conflicts among partners during the implementation of CCUS projects. Main challenges for the CCUS development mentioned in the interviews in Romania regarded the limited involvement and the lack of decision of the industrial and institutional actors who could play a leading role in the development of the CCUS field in Romania, i.e. management of industrial companies, public institutions, national funding institutions.

The most frequently identified issue linked to CCUS implementation mentioned by respondents from companies in Romania was the lack of funding for supporting the development of a CCUS project. Therefore, industrial companies (and energy companies as well) postpone the implementation of CCUS projects, although the CO₂ emitters are obliged to buy green certificates for compensating the pollution, and the price of these green certificates increased several times in the last years. By the contrary, interviewees from research institutes and research centers from universities in Romania showed interest and involvement in CCUS development, due to their participation in recent research projects. Finally, the members of mass-media or local publics in Romania demonstrated little knowledge or awareness about CCUS, but at the same time they expect publics to form a positive attitude about CCUS, if CCUS would be developed in connection with local economic interests.

Regarding public acceptance, the respondents in Romania considered the level of awareness about CCUS among the public to be very low (both for local and general publics), and most respondents believed that public information campaigns should be launched in order to build an informed opinion about CCUS and to prevent a negative attitude which could last long term.

The results of the stakeholder interviews conducted in Germany and Romania presented in this report are relevant from several points of view. The CCUS implementation challenges perceived by stakeholders offer concrete directions of intervention for public institutions, European institutions and decisionmakers at managerial and institutional level in case a specific CCUS project will be implemented. Also, the different involvement of actors emphasized by the results suggests that, on the one hand, from where a CCUS project should be started, and also what categories of stakeholders need to be addressed and how (e.g. in order to enhance their level of information or the level of motivation for involving more actors). Further, when communication strategies would be projected for the successful implementation of a CCUS project, the findings offer a picture on the factors that could be important for public acceptance (e.g. addressing local interests).

The interview results presented in the current report are further relevant because before we conducted the interviews in Romania, little was known about CCUS perceptions in Eastern European countries. The findings from the interviews in Germany regarding challenges and chances for advanced CCUS industries and markets could further be relevant for CCUS development in less developed CCUS countries like Romania. An example of this is the need for a political framework for carbon dioxide charges within the ETS system for CCUS technologies. Less developed CCUS countries like Romania could benefit from incentives or impulses for a development on EU level pushed by German stakeholders, as well as from their development pathways, mistakes, and benefits.