



PROJECT BRIEFING #9

STAKEHOLDER ACTIVITIES WITHIN THE NET-ZERO-2050 CLUSTER IN HI-CAM

VERSION #1 | MAY 2021

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Centres involved:



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AIM

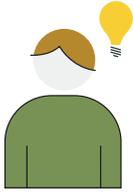
The **Net-Zero-2050** cluster's plan is to involve stakeholders at many stages. Here we present an overview of how we engage with stakeholders at different stages of the project.

TYPES OF ENGAGEMENT

Stakeholder engagement is key to both accelerating climate action fostering knowledge and technology transfer. Thus, **Net-Zero-2050**, Cluster I of the Helmholtz Climate Initiative, seeks active communication with stakeholders in order to move forward on the net zero challenge. The stakeholder involvement takes place across all four projects and the two case studies in **Net-Zero-2050**.

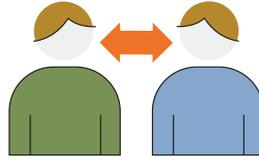
In this context, we refer to stakeholder activities in a broad sense a) to anticipate stakeholders' perceptions via an indirect contact and b) to receive expert knowledge by a direct contact in relation to negative emission technologies, carbon storage, and carbon neutrality in Germany. This covers the consultation of both internal and external experts in the field to receive their opinions and feedback on **Net-Zero-2050's** activities. On the other hand, the engagement aims to understand and to take into account the stakeholders' needs and concerns into the work of **Net-Zero-2050**, and to capitalize on stakeholder knowledge. Although the **Net-Zero-2050** partners are actively disseminating their findings through i.e., conference contributions or panel discussion, the description of the stakeholder activities in this project briefing excludes the dissemination of project results. Cluster III 'Communication' of the Helmholtz Climate Initiative takes care of the development of coherent communication strategies and campaigns to raise awareness and interact with society. This involves communicating the current state of climate research and findings relating to mitigation and adaptation pathways to the public.

A stakeholder in this context is any expert or group of experts who influences or is influenced by the research of **Net-Zero-2050**. This definition includes those not only undertaking or participating the research as part of the **Net-Zero-2050** team but also other academics, and those who are non-academics. While the definition of 'stakeholder' is very versatile, different engagement approaches have proven to be effective. Steuri et al. (in prep.), Bruno Soares & Buontempo 2019 and Durham et al. 2014 propose different levels of user engagement, distinguished by the degree of intensity of participation ranging from spreading knowledge as a one-way communication stream to intensive collaborations. Inspired by these levels, we can group the activities of **Net-Zero-2050** roughly into three levels user engagement levels: **understand**, **exchange** and **co-development**.



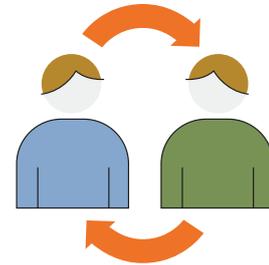
Understand

This level is based on a one-way communication channel. Here we gather information or advice from stakeholders and take those views into consideration in **Net-Zero-2050's** work. The analysis of information builds on both the anticipation of the stakeholders' perception by desk research (using secondary data) and on the engagement of stakeholders via a direct one-way contact through e.g. surveys.



Exchange

This level is based on a two-way communication channel. At a certain point of time, the status of work within **Net-Zero-2050** is discussed with stakeholders. This involves an exchange where different perspectives are explored. The feedback feeds into the work of **Net-Zero-2050**.



Co-development

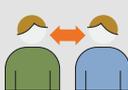
This level is based on a regular two-way communication channel. The exchange with stakeholders takes place several times in a row on the same topic. The aim is to consider the perspectives of the stakeholders directly in the development of concepts or products within **Net-Zero-2050**.

With the aim to bring together the versatile expert knowledge across **Net-Zero-2050** and to foster the interdisciplinary work of **Net-Zero-2050**, we launched a 'dialogue series' in January 2021. At an interval of four weeks, a workshop takes place inviting the experts of various fields. Each workshop is dedicated to a specific topic and organised by different partners.

INSIGHTS INTO THE STAKEHOLDER ACTIVITIES

Each of the three levels of stakeholder engagement comprises a number of activities. Here we give some insight into the activities within **Net-Zero-2050** at each of the levels. Table 1 gives an overview of the activities. Below in ten short profiles, you will find a brief description of each activity behind the levels.

Table 1: The stakeholder activities of **Net-Zero-2050** are here broken down in single activities. They are assigned to the three levels. Activities that are in planning are marked in blue.

Title	 Understand	 Exchange	 Co-development
Net-Zero-2050 Roadmap		X	X
Roadmap Scenarios		X	
Framing System		X	
Technology Assessment Matrix		X	X
Net-zero-2050 web atlas	X		X
Spatial Heterogeneity: Challenge and Opportunity for Net-Zero	X		
Storage and re-use of CO ₂ and H ₂		X	X
Soil Carbon App	X	X	
Climate-neutral city - dialogues with citizens and stakeholders	X	X	
Climate-neutral Helmholtz Society		X	

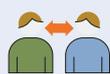
PROFILE 1

Net-Zero-2050 Roadmap

Description

The Net-Zero-2050 Roadmap will be the main outcome of **Net-Zero-2050** with the aim to demonstrate the Helmholtz Association’s leading role through its scientific findings and activities in contributing to a net-zero Germany in 2050.

Status



Exchange

The concept of the **Net-Zero-2050** Roadmap was discussed at **Net-Zero-2050** workshop in February 2021.

Outlook

Through various ways such as workshops and active exchange, knowledge from each project within **Net-Zero-2050** will feed into and shape the **Net-Zero-2050** Roadmap.

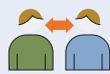
PROFILE 2

Roadmap Scenarios

Description

Focusing on different combinations of carbon dioxide removal options and the German energy system, the Roadmap Scenarios (as a part of the **Net-Zero-2050** Roadmap) show different, cross-sectoral trajectories to reach net-zero in Germany by 2050.

Status



Exchange

The third workshop of the ‘dialogues series’ invited internal experts to discuss synergies and trade-offs between carbon dioxide removal options in the German context.

Outlook

Reflection/review of Roadmap Scenarios via online workshop with external stakeholders mainly from intermediary institutions (with an open invitation to other groups) is planned.

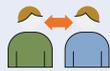
PROFILE 3

Framing System

Description

Providing a framework for the Carbon-Emission-Based System, the Framing System describes different dimensions in the German context, e.g. the economic and socio-cultural dimension.

Status



Exchange

The Framing System was discussed internally with the Principal Investigators in **Net-Zero-2050** and additionally sent to external experts for reflection.

Outlook

The received feedback was fed into the finalisation of the Framing System. The overall system being relevant for **Net-Zero-2050** is planned to be published, including both the Carbon-Emission-Based System and the Framing System.

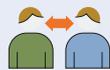
PROFILE 4

Technology Assessment Matrix

Description

The Technology Assessment Matrix (TAM) is a tool that provides a comprehensive comparison of the available carbon dioxide reduction measures in Germany to reach Net Zero 2050.

Status



Exchange

The first workshop of the ‘dialogue series’ in January 2021 was dedicated for assessing the applicability of the TAM indicators with internal **Net-Zero-2050** experts (ranging from technological CDR to natural sink enhancement experts). The revised version of the TAM will be filled within **Net-Zero-2050** to provide a comparative feasibility assessment of available carbon dioxide removal options within the German framing system.



Co-development

The first draft of the TAM indicators was designed by an inter-disciplinary group of experts including climate dynamic, ecology, economy, and social scientists, as well as technological and legal experts.

Outlook

Further review of the TAM indicators by external experts is ongoing.

PROFILE 5

Net-zero-2050 web atlas

Description

This online-based communication tool provides information on the potentials to avoid emitting CO₂ or to remove it from the atmosphere, in order to achieve net zero in 2050 based on the **Net-Zero-2050** findings.

Status



Understand

The web-atlas is built upon a proven format and on experiences we made in former projects, including direct stakeholder involvement. Experience and feedback from previous similar web-platform have revealed the need for different levels of information for such type of knowledge transfer tool.

Outlook

An atlas-user dialogue workshop to optimise the web-atlas usability is planned after completion of the first draft version.

PROFILE 6

Spatial Heterogeneity: Challenge and Opportunity for Net-Zero

Description

Mapping the heterogeneity in stakeholder preferences and distribution with regard to the energy transformation.

Status



Understand

Desk research, based on secondary data, in combination with an Multi-Actor-Multi-Criteria analysis was applied to get a picture of the preferences of stakeholders towards scenarios, differences in preferences over time and regional differences in attitudes towards transformation pathways.

Outlook

Information on possible resistance against and preferences for transformation pathways will be published in a policy paper and other scientific papers this year.

PROFILE 7

Storage and re-use of CO₂ and H₂

Description

Finding sub-surface storage solutions and quantifying their potential contribution to Net-Zero.

Status



Co-development

Regular working meetings with the cement and oil industry are conducted to develop a joint carbon capture, utilisation and storage concept (CCUS). Together with a large industrial manufacturing company we develop a CO₂-geothermal project.

Outlook

A stakeholder dialogue is planned to additionally foster the contact with industry and regulators (e.g., the mining authority for underground regulations).

An information event for political decision makers is planned on the available knowledge and ongoing research on CCS and CCUS

PROFILE 8

Soil Carbon App

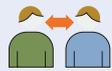
Description

The Soil Carbon App will provide high resolution information on the potential of soil carbon storage for different agricultural management options under changing climate conditions.

Status



The concept for the app was carefully designed along a solid understanding of the requirements of the potential users of the app.



We have consulted experts from the Thünen Institute for exchange on the topic of soil carbon and app development.

Outlook

An exchange with internal partners is planned, as well as with external partners from the Thünen Institute, hopefully be realised before the end of the project, to collect feedback on the app's concept.

PROFILE 9

Climate-neutral city – dialogues with citizens and stakeholders (Case Study I)

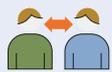
Description

Based on a synthesis of previous initiatives and activities regarding climate-neutral cities, a case study with stakeholders and public will be carried out in the city and county of Karlsruhe, using different formats of interaction.

Status



Synthesis of twelve German cities on the way to climate-neutrality as well as key supporting initiatives for cities as a living document provided online.



Collecting and structuring lessons learned from different formats of interaction with public – like workshops in a concept of co-design – regarding the case of geothermal energy.

Outlook

Further workshops and interactions with stakeholders are planned with a stronger focus on city representatives and stakeholders, also taking into account current lessons learned from other already ongoing activities in Karlsruhe.

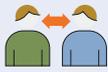
PROFILE 10

Climate-neutral Helmholtz Society (Case Study II)

Description

This Case Study develops on the one hand - in cooperation with the Helmholtz centres – a first CO₂ balance and on the other hand a roadmap for a climate neutral Helmholtz Society.

Status



Exchange

The main task of the Case Study is the contact and regular exchange with the Helmholtz centres in order to obtain information about their emissions and energy consumption. Some centres are already in the process of implementing or developing their own reduction and climate protection measures. These will be taken into account in the case study and can help other centres as a guide.

Outlook

The exchange with Helmholtz centers continues and the CO₂ balance is constantly being developed and expanded.

SLOW DOWN

The current Covid-19 pandemic, that started beginning of 2020, has slowed down some of involvements of stakeholders. The delays refer to sending out surveys but also workshops and interviews that could not be held, especially with external stakeholders. Some of the on-site activities could be replaced by video calls. Some activities have been replaced by stronger focus on desk research.

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More results from the project Net-Zero-2050 are available here:

www.netto-null.org

www.helmholtz-klima.de/en/press/media-library

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Centres involved:

