D2.3

Actionable results from working groups and MML workshops

skillbill

SKILL TO BOOST INNOVATION & PROFESSIONAL FULFILLMENT IN A SUSTAINABLE ECONOMY

Q-PLAN

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AUTHORS (Organisation)	Kyriakopoulou D., Kalaouzi A., D. Tzika (Q-PLAN International Advisors PC) Contribution by Vollmer,J. (European Renewable Energies Federation) Contribution by Stania Druskova (PEDAL Consulting SRO)
REVIEWERS	All partners
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V1.0	29/08/2025	Final Version, Ready for submission	Q-PLAN

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ABBREVIATIONS

AB	Advisory Board
CCW	Co-Creation Workshop
DHN	District Heating Networks
DoA	Description of Action
EU	European Union
EV	Electric Vehicles
GA	Grant Agreement
SJI	Stakeholder Joint Initiative
KPI	Key Performance Indicator
LHE(s)	Lighthouse Expert(s)
MML(W)	Mobilisation and Mutual Learning (Workshops)
P.A.	Public Authorities
REC	Renewable Energy Communities
RES	Renewable Energy Systems
SRIA	Strategic Research and Innovation Agenda
ToR	Terms of Reference
VET	Vocational Education and Training
WG(s)	Working Group(s)

Executive Summary

This report, D2.3 “Actionable results from Working Groups and mobilisation and mutual learning (MML) workshops – Final Version” presents the **outcomes and recommendations** resulting from the establishment, operation, and coordination of **Working Groups** within the Stakeholder Joint Initiative of the SKILLBILL project. This initiative aims to engage stakeholders from diverse backgrounds, including technology developers, universities, and vocational training centres, from its inception, ensuring their buy-in and commitment to foster the development and adoption of sustainable renewable energy and fuel technologies. The report outlines the official establishment and the key achievements of the initiative up to August 2025. The SKILLBILL **Stakeholder Joint Initiative** and its four **Working Groups** operated under a **framework** towards the advancement of sustainable renewable energy and fuel technologies, emphasising 'circularity-by-design' principles.

Overall, **four thematic Working Groups** were established, focusing on renewable **electricity**, sustainable **mobility**, biofuels and renewable **fuels**, and renewable **heat**. Each Working Group consists of interdisciplinary experts tasked with proposing actionable solutions, regulatory recommendations, and educational guidelines. Specific **terms of reference** were developed to outline the rights, obligations, and operational procedures of the Working Group members.

This report details the planning and execution of meetings, including agenda setting, participant roles, meeting facilitation, and documentation. Meetings were scheduled **biannually**, with additional **online tools** utilisation as needed, ensuring **continuous** progress and **collaboration** among group members. All the activities have been completed so far, i.e. **four rounds of WG meetings** and **two Mobilisation and Mutual Learning Workshops**.

The report concludes with proposed recommendations addressed by Working Group activities for the solutions which could drive the development and adoption of sustainable renewable energy and fuel techs, and directions fostering the regulatory environment conducive to the widespread adoption of sustainable renewable energy and fuel technologies. On top of them, this deliverable outlines guidelines for education and training programs. A cross-cutting theme that is addressed is the emerging job market and skills requirements, highlighting the need for targeted skilling, reskilling, and upskilling initiatives.

While the initial version established a monitoring framework to assess the performance and impact of the operation of the Working Groups and defined the Key Impact Indicators, this very final version tracks the progress against those predefined operational indicators and ensures that the initiative is in alignment with its objectives.

The work performed towards the organisation of the two Mobilisation and Mutual Learning Workshops, along with their insights and outcomes, is included in this version of D2.3 “Actionable results from working groups and MML workshops – Final Version”.

This final version D2.3 “Actionable results from working groups and MML workshops – Final Version” builds upon the previous version D2.3 “Actionable results from working groups and MML workshops – Initial Version”, submitted in August 2024 and includes (i) outputs from all WGs activities, (ii) summary of WG activities outcomes and (iii) a chapter on actionable results from Mobilisation and Mutual Learning Workshops.

1. Introduction

1.1 SKILLBILL at glance

SKILLBILL aimed at creating several paths towards **increased skills** with **innovative learning methods**, having as its ultimate goal the **renewable energy acceleration**. To achieve this, the project was set to greatly enhance **cooperation** between key players (stakeholders), using **open discussion** through a Stakeholder Joint Initiative, gaining access to useful insights into **training needs and practices**. Along these lines, for demand-driven innovation in the renewable energy systems (RES) sector, SKILLBILL delivered a **combination of training programmes** in this sector, addressed to the whole value chain of energy and **tailored policy recommendations**. Towards these outcomes, under the framework of SKILLBILL, an **online repository** named Green Portal has been developed. Moreover, a **permanent education programme** on RES at the European level had been developed along with **vocational education and training programmes**.

1.2 SKILLBILL Stakeholder Joint Initiative and the four Working Groups

The **Stakeholder Joint Initiative** (SJI) aimed to foster the development and adoption of sustainable renewable energy and fuel technologies through a **collaborative and inclusive approach**. **Engaging** diverse **stakeholders** from the initiative's inception was crucial to ensure their buy-in, commitment, and active participation from **diverse backgrounds and experiences**. This initiative was aligned with the principles of 'circularity-by-design,' aiming to tackle the need for **advanced skills in the RES sector** that would be environmentally, economically, and socially beneficial.

Under the umbrella of the SJI, SKILLBILL set up **four** interdisciplinary **Working Groups** (WGs). To kick off the operation of the WGs, a **co-creation workshop** (CCW) has been organised **to co-design the operational model** of the WGs as well as to identify the discussion's topics for the upcoming WG meetings. Details on the abovementioned are part of the D2.2 "Co-design of the joint stakeholder initiative"[1]. Along these lines, a dedicated protocol for the SKILLBILL WGs members had been co-elaborated to set out the **framework** as well as the approach to be followed for setting up and running these structures, ensuring the effective management of stakeholders' exchange.

The **initial version** of this deliverable, titled D2.3 "Actionable results from working groups and MML workshops – Initial Version"[2] aimed to describe the approach for the **official establishment of SKILLBILL's WGs** and, along with the **outcomes** of the WGs' **meetings** during the **two rounds** of the WG meetings that have been completed up to August 2024 (date of the submission of the initial version).

Specific objectives of the initial version were to:

- **Present** the **WG structures** that operated in the frame of the Stakeholder Joint Initiative (SJI), along with their thematic Working Groups (WGs) bringing together experts from various sectors to address specific areas within renewable energy and fuel technologies. These

[1] Q-PLAN. (2023). D2.2 "Co-design of the joint stakeholder initiative", SKILLBILL HE Project GA. 101075587

[2] Q-PLAN (2024) D2.3 "Actionable results from working groups and MML workshops – Initial Version" SKILLBILL HE Project GA 101075587

groups worked on Renewable Electricity, Biofuels and Renewable Fuels, Renewable Heat, and Sustainable Mobility.

- **Report** on the **main activities** in which WG members participated throughout the process of developing recommendations up to August 2024.
- **Detail the results** in the form of recommendations of the first two rounds of meetings, which kicked off the activities of the WGs. In that view, the recommendations addressed by WG members will be summarised to create concrete actions, policy suggestions, and educational guidelines to promote the development and adoption of sustainable technologies in this final version.
- **Establish a monitoring framework** and Key Impact Indicators for monitoring the operation and the results of the WGs, with a view to appropriately keeping track and quantifying the results of the project in terms of stakeholder engagement.

This **final version,** titled D2.3 “Actionable results from working groups and MML workshops – Final Version”, provides an update on the two final rounds of WG meetings and the organisation of two Mobilisation and Mutual Learning Workshops (MMLWs).

Specific additions of the final version are to:

- **Report** the main **activities** in which **WG** members participated throughout the process of developing recommendations up to August 2025.
- **Detail the results** of the **WG activities** and summarise the outcomes of all WG activities in the form of actions, policy suggestions and educational guidelines.
- **Track the progress** against the key impact indicators of the monitoring of the **operation** and the results **of the WGs** and quantify the results of the project in terms of stakeholder engagement.
- **Present the results** of the two **MMLWs** and the knowledge produced during those activities.

1.3 Report Outline

This report, D2.3 “Actionable results from Working Groups and MML workshops – Final Version” provides an overview of the activities and outcomes related to Task 2.3 “Set up, operation, and coordination of Working Groups” and Task 2.4 “Mobilisation and mutual learning based on working group outcomes” within the Stakeholder Joint Initiative. The report documents **the outcomes of the WGs activities**. It also includes a detailed section on running the four rounds of WGs meetings and their outcomes, **monitoring and evaluation** mechanisms, along with the organisation of two MMLWs.

The report is structured as follows:

- **Introduction**: Provides background information, objectives, scope, and structure of the report.
- **Overview of the work performed**: Details the initial design process, including the number and thematic focus of Working Groups, the operational model, and selection criteria for Working Group members, based on the outcomes of the co-creation workshop.
- **Methodological Approach**: Establishes the steps that have been followed for the WG meeting implementation towards the production of actionable results.
- **Working Group Establishment**: Presents the four WGs, including the LHE and the members, the timelines and the online tools for the collaboration, along with the WG identity.

- **WG Meetings Implementation**: Outlines the preparation, agenda setting, meeting facilitation, brainstorming session and documentation processes.
- **Actionable results and outputs from Working Groups**: Presents the outcomes from all four WG meeting rounds, along with a categorisation and a summary of them.
- **Monitoring Framework and Evaluation**: Describes the monitoring framework, the key performance indicators and the performance assessment of WG outcomes.
- **Mobilisation and Mutual Learning Workshops**: Reports the insights and outcomes derived from the two MMLWs.
- **Annexes**: Includes WG meeting agendas and Miro Boards picturing the interactive sessions that the participants had during the WG meetings, along with the Agendas of the two MMLs.

2. Overview of work performed

The work performed before is detailed in D2.1 "Stakeholder Map and Good Practices"[3], D2.2 "Co-Design of Joint Stakeholder Initiative"[1] and D2.3 "Actionable results from the working groups and MML workshop – Initial Version"[2]. These deliverables report the tasks undertaken in T2.1 "Stakeholder Community Mapping and User Research to Better Appreciate Current Training Needs and Skilling Practices" and T2.2 ", Co-Design of Stakeholder Joint Initiative." Below, a brief **overview** of the work is provided, pertaining to the **formation of the Stakeholder Joint Initiative** (SJI) and **the Working Groups** (WGs) **activities**.

2.1 Overview of the Working Groups Establishment

The **initial design** of the SJI was developed with the primary goal of fostering sustainable, renewable energy and fuel technologies. This process incorporated insights and evidence gathered from Task 2.1 "Stakeholder Community Mapping and User Research to Better Appreciate Current Training Needs and Skilling Practices," which involved **desk research for the identification of relevant stakeholders and interviews** with sector experts.

The **co-design phase** aimed to establish a clear structure and operational framework to guide the SJI and the WG within the SJI (the WGs are **smaller teams** within the SJI, each focusing on a different thematic area). By involving stakeholders in a co-creation workshop, a collaborative approach was established, fostering a **sense of ownership** and commitment to the forthcoming WG activities. The key steps in the co-design process included the organisation of a **co-creation workshop**, which concluded with the following outcomes for the **WGs Design**:

- The **number and thematic focus** of the Working Groups: ensuring their relevance to current technological and regulatory needs. Consequently, **four thematic Working Groups** were established, each concentrating on a critical area of renewable energy and fuel technologies. Each thematic Working Group was designed to bring together experts from different disciplines and collaboratively **address challenges and develop solutions**. The thematic focus areas are:
    - **Renewable Electricity**: Focusing on the development, integration, and optimisation of renewable electricity sources such as solar, wind, and hydroelectric power. It addresses issues related to grid stability, storage solutions, and smart grid technologies.
    - **Biofuels and Renewable Fuels**: Concentrating on the production, sustainability, and scalability of biofuels and other renewable fuels, this group explores advanced biofuel technologies, feedstock availability, and lifecycle assessments.
    - **Renewable Heat**: Targeting the generation and utilisation of renewable heat sources, including geothermal, solar thermal, and biomass heating systems. It examines energy efficiency, district heating, and innovative heating technologies.
    - **Sustainable Mobility**: Aiming to develop and promote sustainable transportation solutions, this group focuses on electric vehicles, hydrogen fuel cells, and sustainable

[3] Q-PLAN. (2022). D2.1 "Stakeholder Map and Good Practices", SKILLBILL HE Project GA. 101075587

urban mobility strategies. It investigates infrastructure needs, policy frameworks, and market adoption barriers.

During their meetings, the Working Groups were tasked with addressing several **key topics**. They were asked to develop **solutions** for driving the development and adoption of sustainable renewable energy and fuel technologies. This would include identifying and creating innovative solutions to **accelerate the deployment and integration of these technologies**. Additionally, the groups would propose meaningful **directions for regulatory shifts** that can help shape a **favourable environment** for the responsible **diffusion of sustainable technologies**.

They also developed **guidelines for education and training programs** to facilitate skilling, reskilling, and upskilling, ensuring that the workforce can **meet the demands** of emerging technologies in the **renewable energy sector**. Towards the end of the project, a final plenary digital workshop was organised. This workshop consolidated and **cross-fertilised ideas** across all Working Groups, ensuring that their collective insights and solutions were integrated effectively. The topic of the last plenary meeting was on the **identification of new jobs** and the **skills required** for emerging technologies in the renewable energy sector. This holistic approach ensured that the initiative not only focuses on technological advancements but also on the **socio-economic impacts and educational needs** required to support a sustainable transition.

The **operational model serving as a framework** for the initiative was co-defined during the co-creation workshop to provide clear **direction to the Working Groups** (WGs) by understanding the needs and interests of sectoral stakeholders. This **operational model set the foundation** for the SJI, ensuring a structured and collaborative approach to driving the development and adoption of sustainable renewable energy and fuel technologies.

2.2 Operational Model (framework)

The baseline Operational Model outlined the **governance structure** and **processes** for the SJI, ensuring effective coordination, clear roles, and efficient processes. This model was crucial for the successful implementation and operation of the SJI and the activities of the WGs. Key components included:

- The **WG manager**, represented by Q-PLAN, was responsible for the overall coordination and implementation of the WG activities. This included organising meetings, ensuring adherence to the operational model, and facilitating communication among all stakeholders.
- **SKILLBILL Partners** played a supportive role in the operation of the Working Groups. They provided expertise and ensured alignment with the initiative's goals by participating in WGs meetings, in case that felt under their expertise.
- **Lighthouse Experts** (LHE), selected from partners UNITUS, USE, METROPOLIA and EREF, chaired the WG meetings and led the technical part within thematic WGs. They were responsible for guiding discussions, ensuring productive content-rich meetings, and driving the groups towards achieving their objectives.

Meetings were held **online** to accommodate diverse geographic locations and ensure maximum participation. This format leveraged digital platforms for seamless communication and collaboration. According to the Operational Model developed, each Working Group was meeting **every six months** to discuss progress and share insights, towards the ultimate goal of providing concrete recommendations. These regular meetings maintained the momentum and ensured continuous engagement.

A **common online chat and file-sharing platform** was established to facilitate direct and fast communication and collaboration among Working Group members. This platform supported real-

time discussions, document sharing, and collaborative work, ensuring that all members could contribute effectively regardless of their location. Additionally, a centralised repository was maintained for all WGs' documents, ensuring easy access. This repository supported transparency and efficient information sharing.

This **Operational Model** established a guide for the SJI, ensuring that all components work seamlessly together to drive the development and adoption of sustainable, renewable energy and fuel technologies.

2.3 Official invitation of Working Group members, selection and official membership

The successful establishment and operation of the Working Groups (WGs) within the Stakeholder Joint Initiative (SJI) depended on the careful engagement of members. This section outlines the steps and processes involved in identifying, reaching out to, and formally inviting potential members to join the WGs.

The initial step involved a concise stakeholder analysis to **identify potential** members from various sectors, as presented in the previous section and also in D2.1 “Stakeholder Map and Good Practices.”[3] This analysis aimed to ensure a broad spectrum of expertise and perspectives within the WGs. Conducting a thorough stakeholder analysis allowed for the mapping of relevant individuals and organisations in the field of renewable energy and sustainable technologies. The identification process targets key sectors within the **quadruple helix**: (i) the scientific community such as professors, lectures and researchers (universities), (ii) government, energy authorities & policymakers such as experts in environmental and energy affairs, experts on green finance and sustainable economy, (iii) energy associations such as energy communities and energy clusters, (iv) industry and technology providers such as technology developers, engineers, (v) SMEs such as technicians and manufacturers, and (vi) potential investors such active investor if the field of RES, and green financing providers. A diverse pool of candidates was essential for incorporating a wide range of expertise, perspectives, and experiences, which would enrich the discussions and outcomes of the WGs.

To ensure broad awareness and engagement, information about the SJI and the invitation process was **disseminated** through SKILLBILL channels. SKILLBILL’s communication platforms were leveraged to **share information about the WGs** and the **invitation process**. Newsletters and social media were used to reach a wider audience and attract potential members. These updates maintained engagement and encouraged continuous participation.

Once potential members were **identified**, the next step was to reach out and invite them to participate in the WGs. **Formal invitations with an Intro to SKILLBILL** were sent to the identified potential members, outlining the goals of the SJI, the benefits of participation, and the commitments required from the members, along with SKILLBILL project objectives at a glance. These invitations were personalised and highlighted the significance of each member's potential contribution to the initiative. In addition to formal invitations, a **dedicated file** for the **WG Design** was provided as an overview of the operational model of the initiative. This document covered the objectives, structure, and expected outcomes of the WGs, serving as a **guide** to address any queries and provide clarifications to potential members.

Developing **criteria** for selecting Working Group members was essential to ensure a balanced and interdisciplinary representation. **Diversity is prioritised** against **specific criteria** in terms of expertise in RES or training in the field, interest, availability and relevance, achieving commitment to active participation, representation within stakeholder actors, and gender balance, to foster an inclusive and comprehensive approach.

Once potential members **expressed their interest** in joining the WGs, the official membership procedures were undertaken, and the **Terms of Reference** (ToR) were shared with all confirmed members. This step ensured that all members were fully informed about the **governance structure, roles, responsibilities, and processes** within the initiative, along with their **obligations and rights**. Toward the **official membership, an official acceptance process was** required. This process included the completion of an online form, which encompassed **a declaration of acceptance** and an **informed consent form** for appropriate data management (this form addresses issues such as data collection, storage, usage, and privacy, ensuring compliance with relevant data protection regulations).

According to the Terms of Reference, all members of the WGs should demonstrate a **commitment** to actively participating and contributing to the WG activities. This commitment included their engagement to **attend scheduled meetings** and engage in collaborative activities, in order to contribute with their expertise and work towards the common goals of the initiative. **Active participation** was critical to the success of the ongoing work of the Working Groups, ensuring that all perspectives are considered and that the groups could effectively address the challenges and opportunities in sustainable renewable energy and fuel technologies.

By following this structured methodology, the SJI ensured a careful selection and engagement process for WG members, fostering a diverse and committed team of experts, and building a strong foundation for the successful implementation of the initiative’s objectives.

3. Methodology approach towards actionable results of Working Groups

The methodological approach for the Stakeholder Joint Initiative (SJI) is designed to ensure the effective establishment, operation, and engagement of Working Groups (WGs), towards actionable results from their discussions. This approach encompasses a series of carefully planned steps to facilitate collaboration, communication, and productivity among all stakeholders, ensuring the achievement of the initiative's objectives.

3.1 Set up of WGs in a structured formation

WG members came from various sectors, including technology developers, universities, vocational training centres, industry experts, and regulatory bodies. Additionally, members within the SKILLBILL consortium with relevant expertise were included in the WGs to share their insights and experiences in the field. All the abovementioned procedures are described in Section 2. The **matching** of **members** – stakeholders to specific **thematic focus WGs** was based on their priorities and interests, ensuring alignment with the thematic focus areas of the groups. The WGs were organised into **thematic groups** focusing on key areas of renewable energy and sustainable technologies and are determined based on current technological and regulatory needs, ensuring relevance and impact. This **structured formation** ensured that each WG comprises a **diverse representation of expertise, perspectives, and experiences**, fostering an inclusive and concise approach to achieving the SJI's goals. Moreover, a structured timeline had been developed with focus topics to be discussed in parallel among the four WG meetings.

3.2 Working Group Matrix

A detailed matrix was developed by the WG Manager (Q-PLAN) to **keep track** of WG membership, serving as a methodological tool to capture the expected roles and **contributions** of each member for the **activities** foreseen throughout the project. This matrix was designed to **monitor stakeholder inclusion, regional representativeness, and gender aspects**, enabling the WG manager to assess engagement **results** and implement any necessary corrective actions to better align with the project's objectives.

The WG matrix included specific **details** on each member's unique **expertise and skills** that each member brings to the WG, leveraging diverse knowledge and experience to address complex challenges. On top of expertise, **demographics**, availability for participation, and contributions were also kept track. It served as a visual tool to ensure clarity and accountability within the groups, helping members understand their roles and how they relate to the overall objectives of the SJI. The WG matrix followed a clear and structured format:

- **Stakeholder Details**: The initial columns listed the different stakeholders included in the WGs, identified and officially confirmed as members.
- **Demographics**: Subsequent columns collected anonymised data to quantify stakeholder engagement results concerning organisation, region, nationality, and gender.
- **Membership**: The remaining columns gathered information regarding participation in WG activities.

The matrix was a dynamic tool, a live document, **regularly updated** to reflect any changes in membership, roles, or responsibilities. It was an internal tool for the WG manager, to ensure continuous **alignment** with the SJI's **objectives**. A full, up-to-date version is maintained in the WG Manager's file stream.

Contact Details				Anonymised Details		Demographics		Project Meetings				Additional Info
Name of contact person	Email address of contact person	Proposed by partner (Please Select)	Organisation Name	Stakeholder Group (Please Select)	Expertise in RES (Please select)	Country	Age of contact person (Please Select)	Gender of contact person (Please Select)	1st Meeting	2nd Meeting	3rd Meeting	Plenary Meeting	Comments

Figure 1. WG members' matrix overview

3.3 Lighthouse Experts

Lighthouse Experts (LHEs) were appointed to lead each WG. These experts were chosen based on their extensive **knowledge, experience, and leadership** in specific thematic areas. The LHEs were drawn **within the SKILLBILL consortium** to ensure high commitment and accountability to the project's goals. Their role was critical for several reasons:

- **Guiding Discussions**: LHEs were responsible for steering the conversations within the WGs, ensuring that discussions remained focused and productive towards actionable results. They leveraged their expertise to provide direction and clarity during the meetings.
- **Facilitating Meetings**: LHEs facilitated the WG meetings, creating an environment that encouraged open dialogue and collaboration. They ensured that all members had the opportunity to contribute and that meetings ran smoothly and efficiently.
- **Meeting Objectives**: LHEs played a pivotal role in ensuring that the WG's objectives were met. They set clear goals for each meeting and work closely with members to achieve these targets.
- **Providing Strategic Insights**: With their experience, LHEs offered insights that helped shape the direction of the WGs. They identified opportunities, anticipated challenges, and proposed solutions that align with the SJI's broader goals.

Their involvement guaranteed that the WGs have strong, knowledgeable, and dedicated leadership, for the development and adoption of sustainable renewable energy and fuel technologies.

3.4 SharePoint set-up

A shared **digital collaboration platform**, Microsoft Teams, was set up to facilitate communication and document sharing among WG members. This platform was equipped with various tools for **real-time collaboration**, **file sharing**, and **centralised storage**, allowing members to work together seamlessly regardless of their geographic locations. MS Teams served as a **central hub** for all WG activities, providing a user-friendly interface; members can benefit from:

- **Effective Communication**: MS Teams enabled several paths such as instant messaging (chat), voice calls, and virtual meetings. This ensured that members could communicate in real-time, discussing ideas and resolving issues promptly.

- **Centralised Storage**: MS Teams offered centralised storage for all WG-related documents, making it easy to organise, access, and share files. This ensured that all members had access to the latest versions of documents and could retrieve necessary information without hassle.
- **Security and Compliance**: MS Teams provided security features, including data encryption and compliance with global standards. This ensured that all communications and documents are secure and that the platform adhered to the necessary legal and regulatory requirements.
- **Accessibility**: The platform was accessible from various devices, including desktops, laptops, tablets, and smartphones. This flexibility allowed members to participate in WG activities from anywhere, at any time, ensuring continuous engagement and contribution.

By utilising Microsoft Teams, the SJI ensured that all WG members had a reliable and efficient platform for collaboration. This not only enhanced communication and coordination but also fostered a user-friendly working environment, contributing to the successful achievement of the initiative's objectives.

3.5 Online Presence on Website

An online presence for the SJI was established on the project's website in collaboration with the Dissemination Manager, providing a dedicated section to highlight their work. This section included detailed **information** about the WGs, their **objectives**, and **updates** on their activities. It served as a public portal designed to showcase the **progress and outcomes** of the WGs, thereby increasing transparency and engagement with a broader audience. The features of the WG online presence included the following:

- **Detailed WG Information**: The website had an overview of each WG, including their specific goals and thematic focus areas. This information provided visitors with a clear understanding of the purpose and scope of each group's work.
- **Activity Updates**: Regular updates on WG activities, such as meeting summaries, ongoing projects, and significant milestones, were posted. These updates kept stakeholders and the public informed about the latest developments and achievements.
- **News Articles and Announcements**: The website included a news section where articles and announcements related to the WGs were published. This section covered various topics, including upcoming events, significant findings, and collaborative efforts, ensuring continuous engagement with the audience.

By establishing an online presence for the WGs on the project's website, the initiative not only promoted **transparency** and **accountability** but also enhanced stakeholder engagement and **public interest**. This digital presence ensured that the work of the WGs was visible, accessible, and appreciated by a **diverse audience**, thereby supporting the overall goals of the SJI.

3.6 Meeting Preparation

The **agenda** for WG meetings was developed by the WG Manager in close **collaboration with the LHEs**. This involved outlining key discussion topics, setting **clear objectives** for each meeting, and finalising the agenda to ensure it aligned with the overall goals of the SJI. The finalised agenda was **shared with all WG members** well in advance of the meetings to ensure they were prepared and could contribute effectively to the discussions.

Prior to each WG meeting, **formal digital invitations** were sent to WG members, detailing the meeting agenda, objectives, and logistical information. To ensure maximum participation, **Doodle polls** were used to determine the availability of members. This step was crucial for scheduling

meetings at times that were convenient for most participants, thereby encouraging full attendance and active engagement.

Based on the responses to the Doodle polls, the **final date and time** for the meeting were set. **Reminders** were sent out to all members to ensure they were aware of the upcoming meeting and were prepared to participate. These reminders included key points to be discussed, and any preparatory materials required, ensuring that members came to the meeting **well-prepared and ready to contribute**.

3.7 Brainstorming sessions (Miro)

Brainstorming sessions were conducted using Miro, an online collaborative platform able to facilitate creative thinking and problem-solving within the WGs. Brainstorming sessions leveraged innovation and collaboration, allowing members to share ideas and collectively design innovative solutions in an interactive environment.

Each brainstorming session was prepared by the WG manager in collaboration with the LHEs. An empty session template was set up in Miro, tailored to the specific objectives and themes of each WG meeting. This preparation included designing the Miro Boards to ensure a logical flow of thinking, defining key areas for discussion, visualising contributions and setting up collaborative tools such as sticky notes and voting mechanisms.

- **Facilitation of creative thinking**: This **structured** yet **flexible** way allowed WG members to freely contribute their **ideas and insights**, encouraging **open** and uninhibited creative thinking, essential for **tackling complex challenges**.
- **Collaborative Problem-Solving**: Miro's **real-time collaboration** enabled all members to work together simultaneously, regardless of their locations. This synchronicity was crucial for effective problem-solving, as it allows for **immediate feedback, discussion, and refinement** of ideas. The platform supported various collaborative activities, such as **prioritising solutions** and ensuring that all voices were heard and considered.
- **Guided Sessions**: **LHEs** played a critical role in **guiding** these sessions. Their knowledge and strategic insights steered the discussions towards **productive outcomes**. The LHEs, working closely with the WG manager, ensured that the brainstorming activities aligned with the **WG's objectives** and paved the way towards actionable recommendations.
- **Focused Outcomes**: The end goal of each brainstorming session was to **generate concrete ideas and solutions** that could be developed into formal recommendations. The structured approach within Miro helped in **organising thoughts and prioritising key points**, which were then documented in a dedicated report of the meetings.
- **Documentation and Follow-Up**: All contributions and discussions within Miro were documented in **real-time**, creating a comprehensive **record of the session**. This documentation includes all elements, notes, and action items, which were then used to inform the WG's outcomes and recommendations.
- **Enhanced Engagement**: Miro kept all members actively involved in the brainstorming process, giving them the ability to visually represent ideas and see contributions from all members in real time. All that, fostered a sense of **collaboration and ownership**, enhancing the overall engagement and productivity of the WGs.

By leveraging Miro for brainstorming sessions, the WGs were equipped with a tool to harness **collective intelligence** and **drive innovative solutions**. This methodological approach not only

facilitated effective collaboration but also ensured that the creative potential of each member was fully utilised, leading to meaningful and impactful outcomes.

3.8 Presentations

The presentations within the Stakeholder Joint Initiative (SJI) meetings were designed to ensure that all members were aligned with the project's objectives and operational model and to facilitate productive and actionable discussions. These presentations served as the foundation for each meeting, providing critical information and setting the stage for collaborative efforts while ensuring continuity from previous meetings.

Introduction to SKILLBILL and Operational Model: The **1st round of WG meetings** began with an **introductory** presentation on **SKILLBILL**, outlining the project's mission, objectives, and key components. This introduction helped new members gain a common understanding and/or refresh of the project's scope and importance. Following the introduction, the WG manager provided a detailed **overview** of the operational model. Key elements were discussed, including meeting schedules, member roles, communication, and collaboration tools. A significant portion of the introductory presentation was emphasised on actionable outcomes. This focus helped streamline efforts and directed the WGs towards achieving tangible results that contribute to the broader objectives of SKILLBILL.

Continuity from Previous Meetings: Each meeting included a **review** of the key points and decisions from **previous meetings** to ensure continuity and coherence in the WG's activities. This helped members stay informed about **past progress** and built on **previous discussions**. By maintaining a clear link between past and current meetings, the WGs could **maintain momentum** and ensure that their efforts were **cumulative and progressive**.

All presentations were documented and made available to WG members via the shared digital collaboration platform and via e-mails. By structuring the presentations in this manner, the SJI ensured that all members are well-informed, focused on actionable outcomes, and effectively guided by the LHEs.

3.9 Reporting and Materials Circulation

A standardised **reporting template** was developed to capture the outcomes of WG meetings. This template included sections for documenting discussions and recommendations. The use of a consistent reporting format ensured that all important information was recorded systematically, facilitating the aggregation and analysis of data across different WGs. This helped in tracking progress, identifying challenges, and making informed decisions.

Mechanisms were put in place to ensure that members who were **unable to attend** meetings could **contribute afterwards**. This included sharing meeting reports, brainstorming sessions, and providing the opportunity for absent members to **submit their input and feedback asynchronously**. These measures ensured that all members **remained engaged** and could contribute to the WG's activities, regardless of their ability to attend meetings in person.

After each meeting, the **final reports** and **all related materials** were **circulated to all WG members**. This ensured that everyone was **informed** about the discussions and decisions made and can stay engaged with the ongoing work. By keeping all members updated and involved, the SJI fostered a sense of collective responsibility and ensured that the initiative **progressed smoothly and effectively**.

By following this enriched methodological approach, the SJI ensured a structured and collaborative environment for the WGs. This approach not only facilitated the achievement of the initiative's

objectives but also fostered a sense of ownership and commitment among all members, promoting effective communication, engagement, and productivity.

3.10 Keep WG members enageged

To **maintain engagement and enthusiasm** among WG members between meetings, continuous **interaction** was fostered through the digital collaboration platform. **Initiation of discussions** in chat groups, along with the **circulation of interesting and relevant materials**, helped keep members engaged and informed. Updates, and shared articles or reports related to the WG's thematic focus areas were distributed. This approach helped members remain connected to the group's activities and gently **motivated** them to contribute.

3.11 Analysis of the recommendations

The analysis of outcomes from WG meetings involved a review and categorisation of the proposed solutions and recommendations. This process included **summarising the key points** from each meeting and **comparing** them to identify **common themes**, areas of **consensus**, and any **differing viewpoints**. The analysis helped to **prioritise** recommendations based on their impact and alignment with the initiative's objectives. This approach ensured that the most valuable and **actionable recommendations were highlighted**. The summarised analysis utilised in the MMLWs, thus provided a clear understanding of the group's collective insights and guided discussions and decision-making.

Going into details, the analysis of recommendations involved several key steps:

1. **Collection of Recommendations**: All recommendations generated during WG meetings were **collected and documented**. This included capturing detailed notes from brainstorming sessions, discussions, and any suggestions made by members. The reporting template was used to ensure consistency in the documentation process.

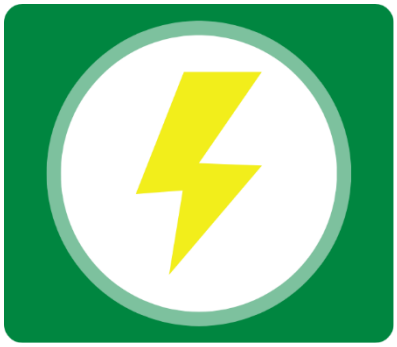
2. **Initial Review and Categorisation**: The collected recommendations were initially reviewed by the WG manager.

3. **Comparative Analysis**: A comparative analysis was conducted to identify **common themes, areas of consensus**, and any **differing viewpoints** among the recommendations. This involved comparing the summarised recommendations within and across different thematic areas to: (i) **identify overlapping solutions** if multiple WGs had proposed similar solutions to common challenges, (ii) highlight unique contributions recognising innovative ideas that stood out and may offer significant benefits or new perspectives.

4. Working Groups Establishment and deployment

4.1 Sustainable and Renewable Electricity

Table 1. Identity of Electricity WG

Icon	Thematic Focus
	Sustainable and Renewable Electricity & Skills Gap impacting its full deployment potential

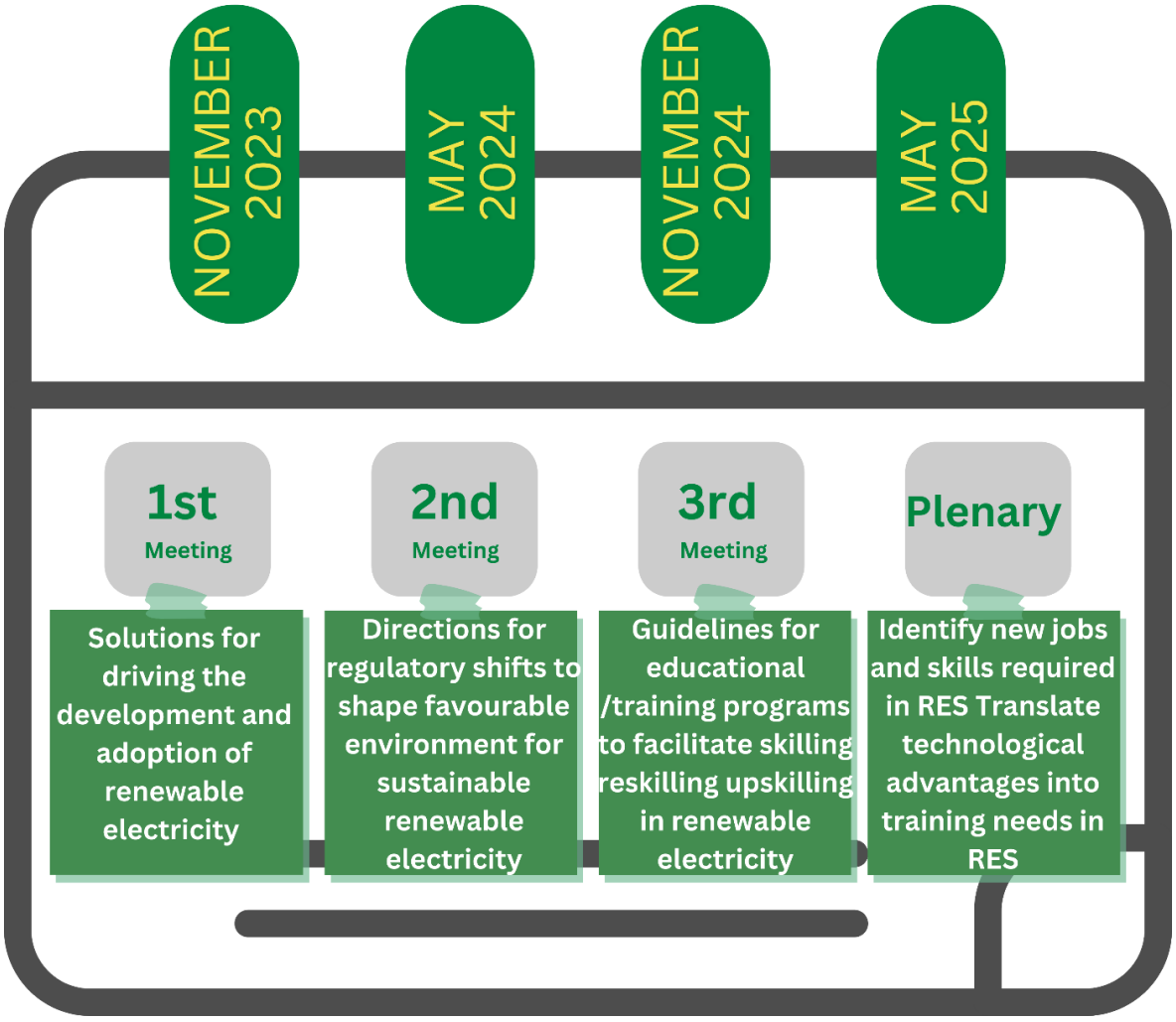


Figure 2. Electricity timeline and topics

4.1.1 *Electricity LHE*

Table 2. Electricity LHE Profile

Dirk Hendricks		
	**QUOTE**	*"Our way forward is Renewables, Renewables, and Renewable! To decarbonize Europe, we need a rapid and consequent expansion of renewable energies – all of which are our best bed on the transition to net-zero."*
	COMPANY & POSITION	European Renewable Energies Federation
	SECTOR	EU policymaking
	BASED IN	Brussels
LinkedIn: https://www.linkedin.com/in/dirk-hendricks-90a374a/?originalSubdomain=be	**SHORT BIO**	Dirk Hendricks joined EREF in February 2015. In this role as Secretary General, he acts as the Federation's main representative in the dialogue with European decision-makers and stakeholder community in environment, climate action and energy policy. He oversees and manages EREF's interest representation and project development and management, benefiting from the outstanding expertise he acquired working for more than 20 years in the European and global renewables sector. He successfully developed and coordinated a number of EU projects as well as building cross-sectorial networks and partnerships. His professional career includes further executive positions with the European Small Hydropower Association, and the EU Liaison Office of the World Future Council Foundation. Mr Hendricks focussed on the promotion of renewables in the EU and Africa. He participated in the development of the current and

		future Renewable Energy Directives and its implementation and specialised in renewable financing schemes. He successfully developed and coordinated EU projects such as StreamMap. He contributed to major energy and policy initiatives and legislative acts as well as industrial promotion of the European renewable energy sector.

4.1.2 *Electricity WGs members*

Table 3. Electricity Working Group Members

Person	Organisation	Position	Country	Gender
External Expert 1	International Hellenic University	Associate professor	Greece	Male
AB Member	Stadin AO, Helsinki Vocational College and Adult Institute	Professional teacher, electricity and automation	Finland	Male
External Expert 2	Technical university of Kosice	Head of Laboratory for Research and Innovation of Batteries	Slovakia	Male
External Expert 3	EDP	R&D engineer	Portugal	Male
External Expert 4	Merchant Marine Academy of Macedonia	Lab Teaching Associate	Greece	Female
External Expert 5	Nanotechnology lab LTFN	Researcher	Greece	Female
External Expert 6	Naturgy Rinnovabili Italia	Country manager	Italy	Male
External Expert 7	ReadyGlobal	Council Member	USA	Male
External Expert 8	Slovak innovation and energy agency	Project manager	Slovakia	Male
External Expert 9	European Energy Research Alliance (EERA)	Project manager	Greece	Male

External Expert 10	Deep blue	Senior dissemination consultant	Italy	Female

4.1.3 *Electricity Share Point*

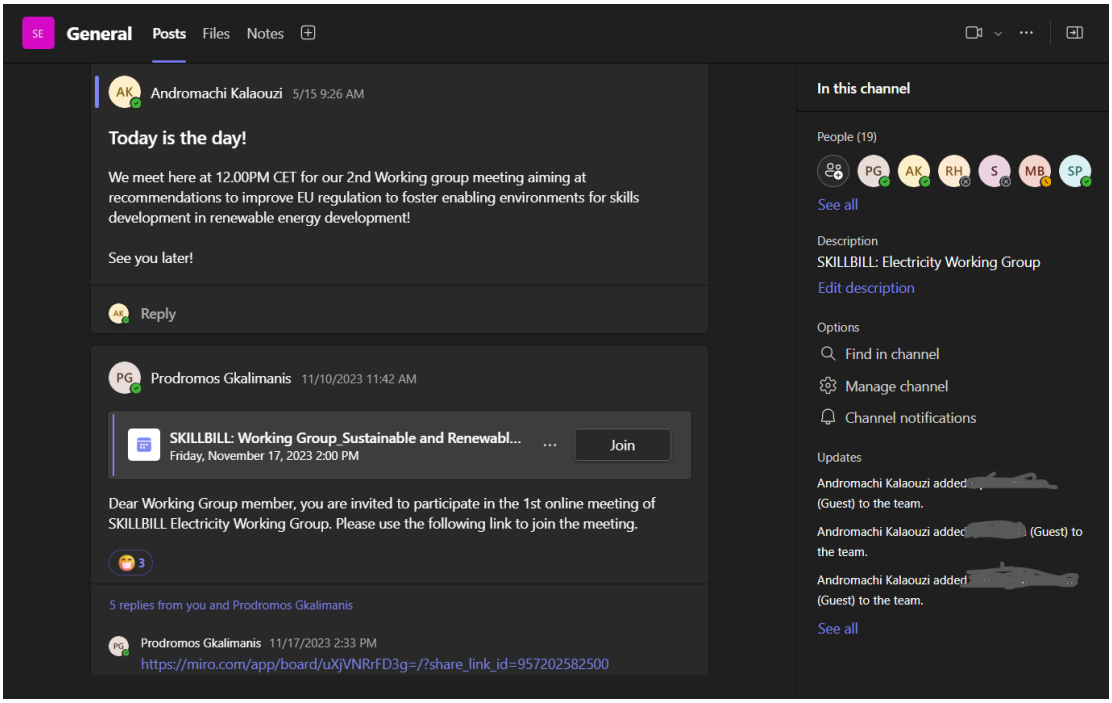


Figure 3. Electricity WG Share Point general overview in MS Teams

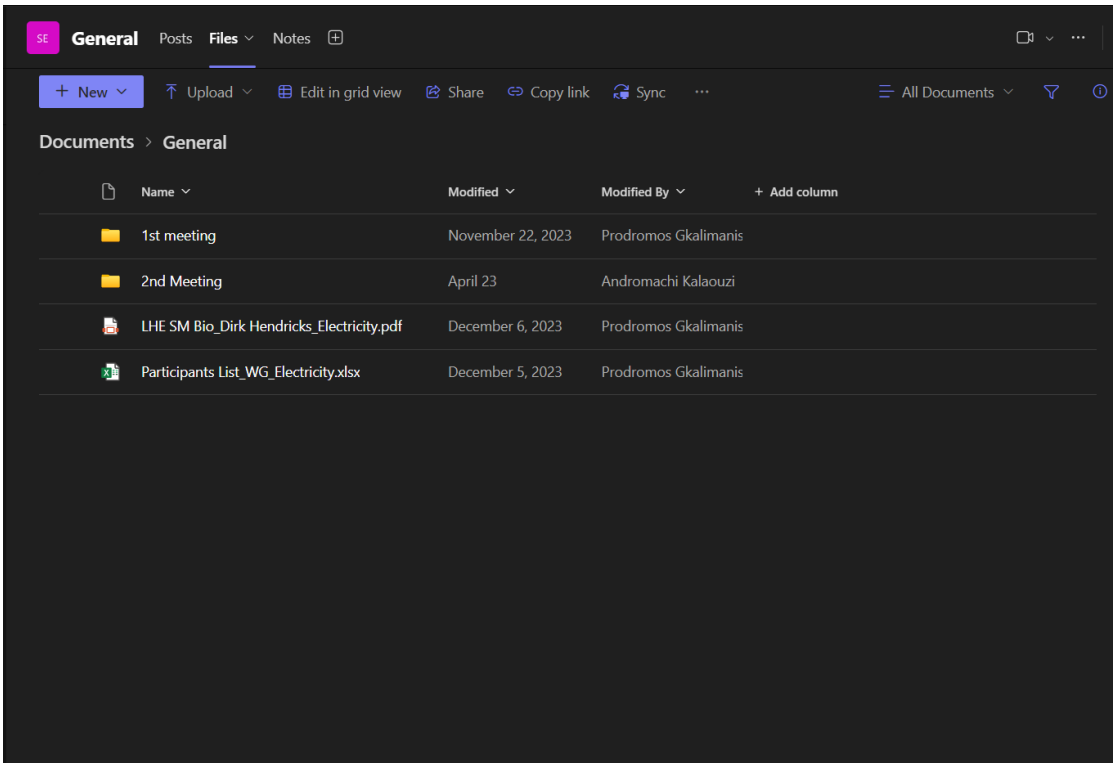


Figure 4. Electricity WG Share Point file repository in MS Teams

4.1.4 *Electricity Chat that has been sent*

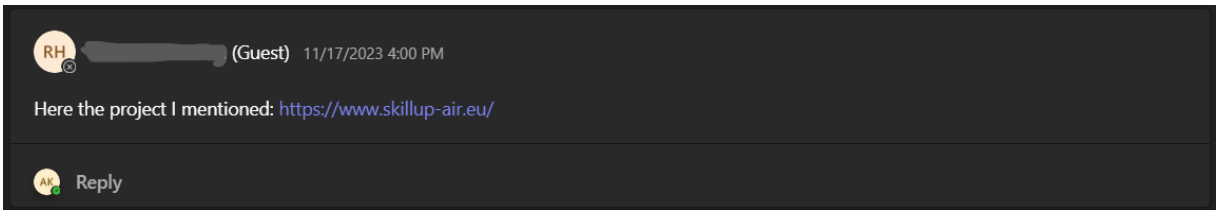


Figure 5. Electricity communication between members

4.1.5 *Electricity Online Presence*

The dedicated section on the official SKILLBILL webpage can be found here.

Figure 6. Electricity digital presence in the SKILLBILL website

4.2 Sustainable Mobility

Table 4. Identity of Mobility WG

Icon	Thematic Focus
	Sustainable Mobility & Skills Gap impacting its full deployment potential

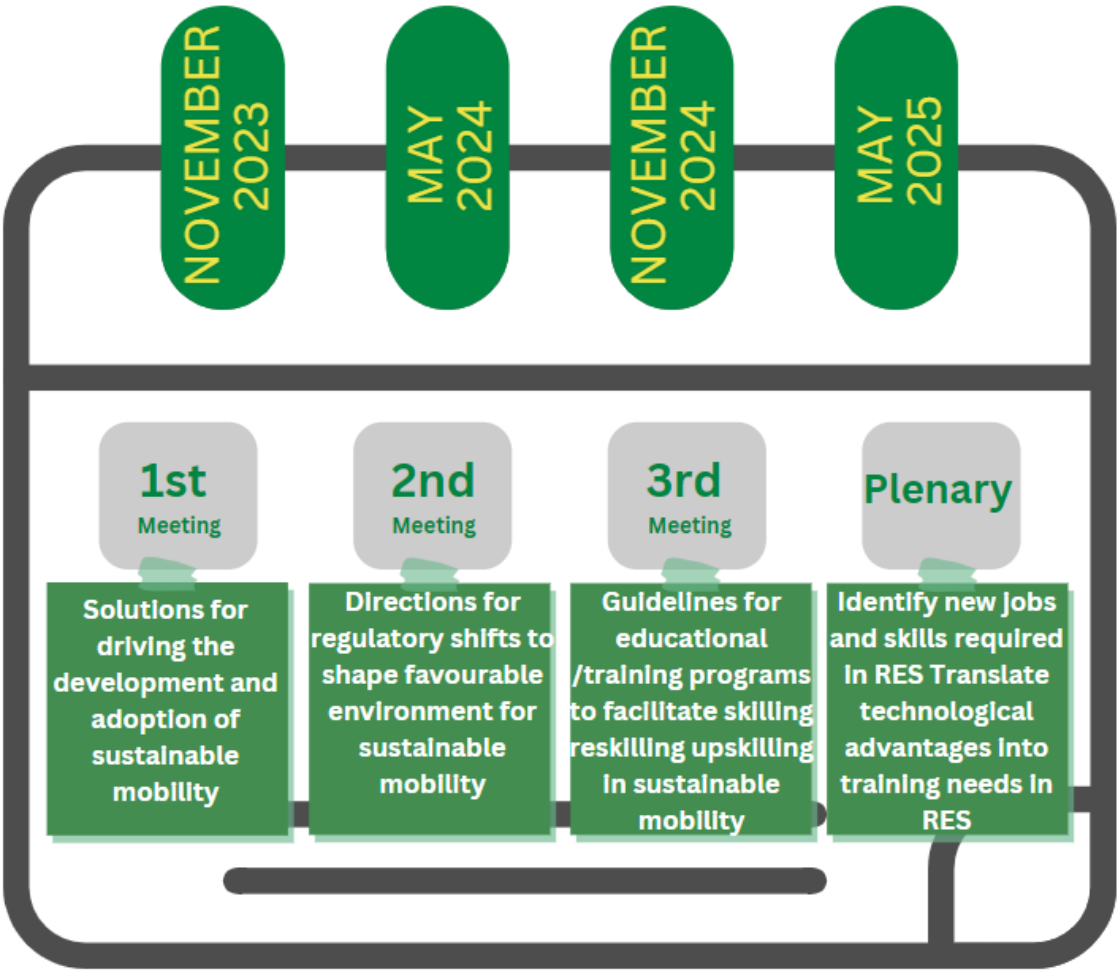


Figure 7. Mobility timeline and topics

4.2.1 *Mobility LHE*

Table 5. Mobility LHE Profile

Johan Wideberg		
	**QUOTE**	*"Building a Sustainable Future. One Ingenious Solution at a Time."*
	COMPANY & POSITION	Universidad de Sevilla, Professor
	SECTOR	University
	BASED IN	Seville, Spain
LinkedIn: linkedin.com/in/wideberg	**SHORT BIO**	Johan Wideberg holds an MSc in Mechanical Engineering from the University of Lund, Sweden, and a PhD in Industrial Engineering from the University of Seville. With four years of experience in multinational companies focused on R&D, he later spent 25 years at the University of Seville within the Transport Engineering and Infrastructure group, including nine years as deputy director of the School of Engineering. He also completed research stays at KTH, Sweden, and University College London, and served as the principal investigator in multiple national plan and similar projects, as well as leading privately funded projects. His research primarily revolves around sustainable mobility, with a focus on heavy vehicles and port engineering.

4.2.2 *Mobility WG members*

Table 6. Mobility Working Group Members

Person	Organisation	Position	Country	Gender
Alessandro Rosati	AzzeroCO2	Researcher, Expertise in Mobility[5]	Italy	Male

Person	Organisation	Position	Country	Gender
Project Partner that is no longer member of WR[4]	White Research	Expert in gender issues[5]	Greece	Female
External Expert 1	Freelancer	Freelancer, Expertise in Mobility Issues	Greece	Female
External Expert 2[4]	Slovak Business Agency	Manager for international cooperation and support of SMEs	Slovakia	Female
Azat Kuitunen	Metropolia University of Applied Sciences	Project Manager in Clean and Sustainable Solutions Innovation Hub “Smart Mobility” [5]	Finland	Male
External Expert 3[4]	Metropolia University of Applied Sciences	Expert in Mobility issues	Finland	Male
External Expert 4	CNR STEMS (Centre of Science and Technology for Sustainable Energy and Mobility)	Senior Researcher	Italy	Male
External Expert 5	Hellenic Institute of Transport (CERTH/ HIT)	Research Associate	Greece	Female
Oscar Nissin	Metropolia University of Applied Sciences	Director of Innovation, Background in automotive design[5]	Finland	Male
Evangelos Genitsaris	Q-PLAN	Project Manager, mobility Expertise [5]	Greece	Male

[4] Participation retrieved

[5] The person is either a SKILLBILL personnel or another expert deriving from SKILLBILL partnership, thus not receiving remuneration.

4.2.3 *Mobility Share Point*

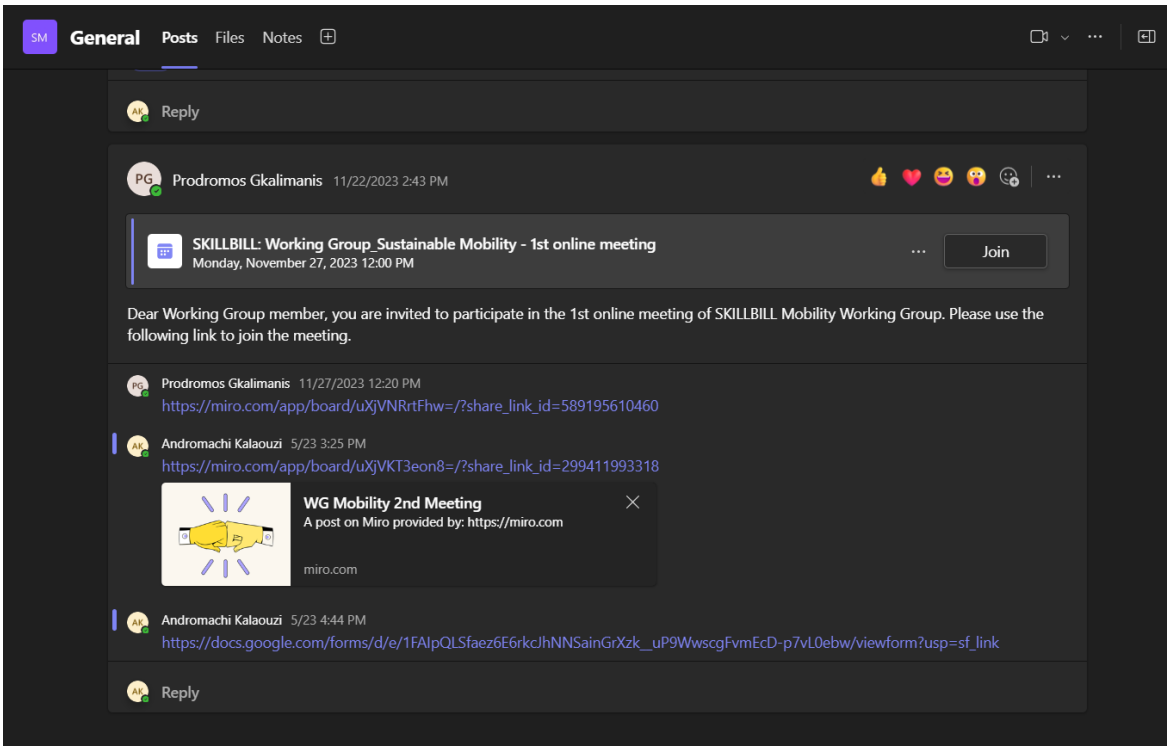


Figure 8. Mobility WG Share Point general overview in MS Teams

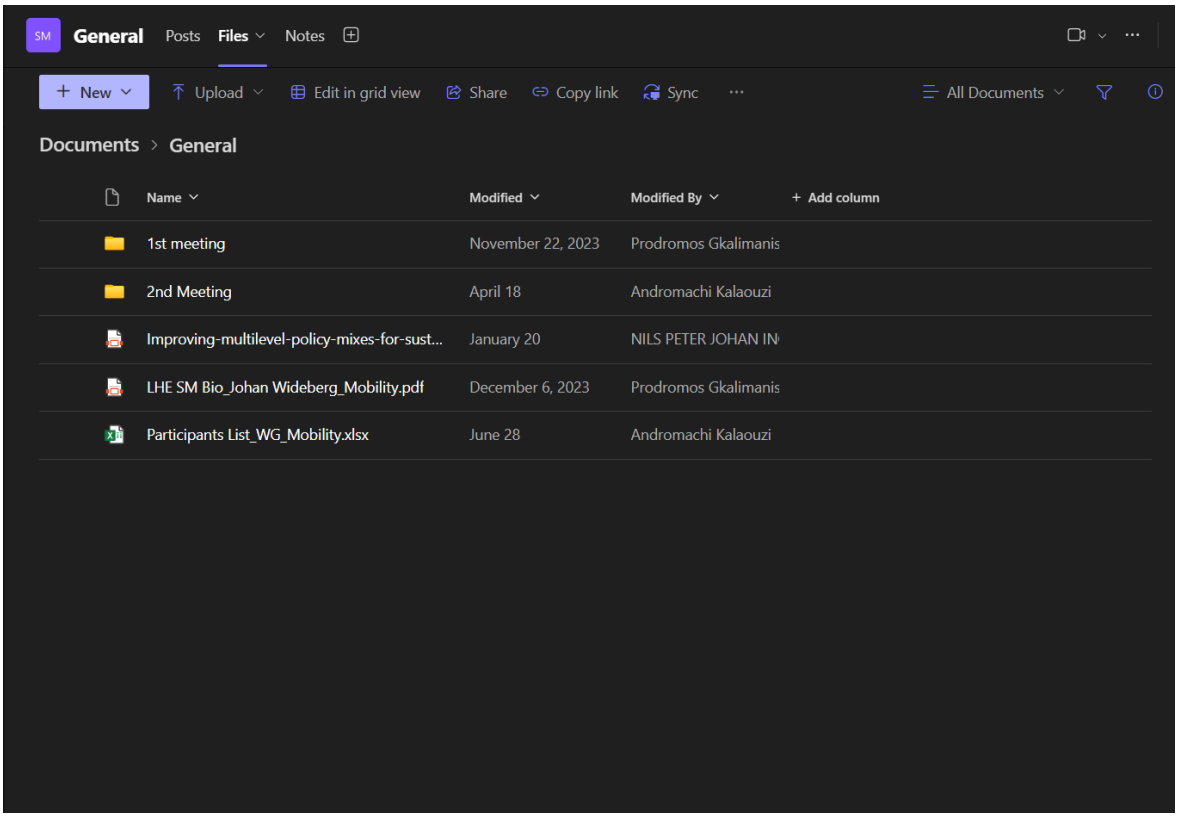


Figure 9. Mobility WG Share Point file repository in MS Teams

4.2.4 *Mobility chat that has been sent*

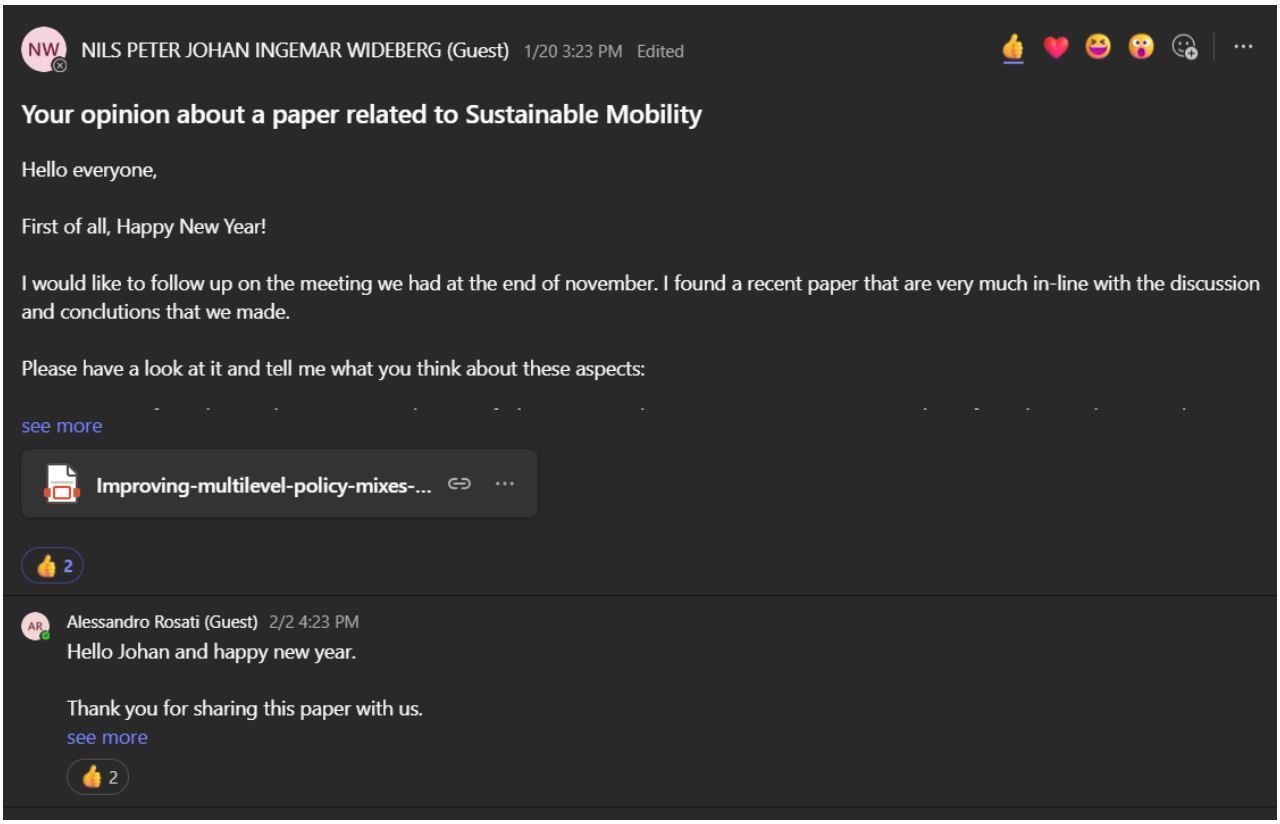


Figure 10. Mobility communication between members and LHE

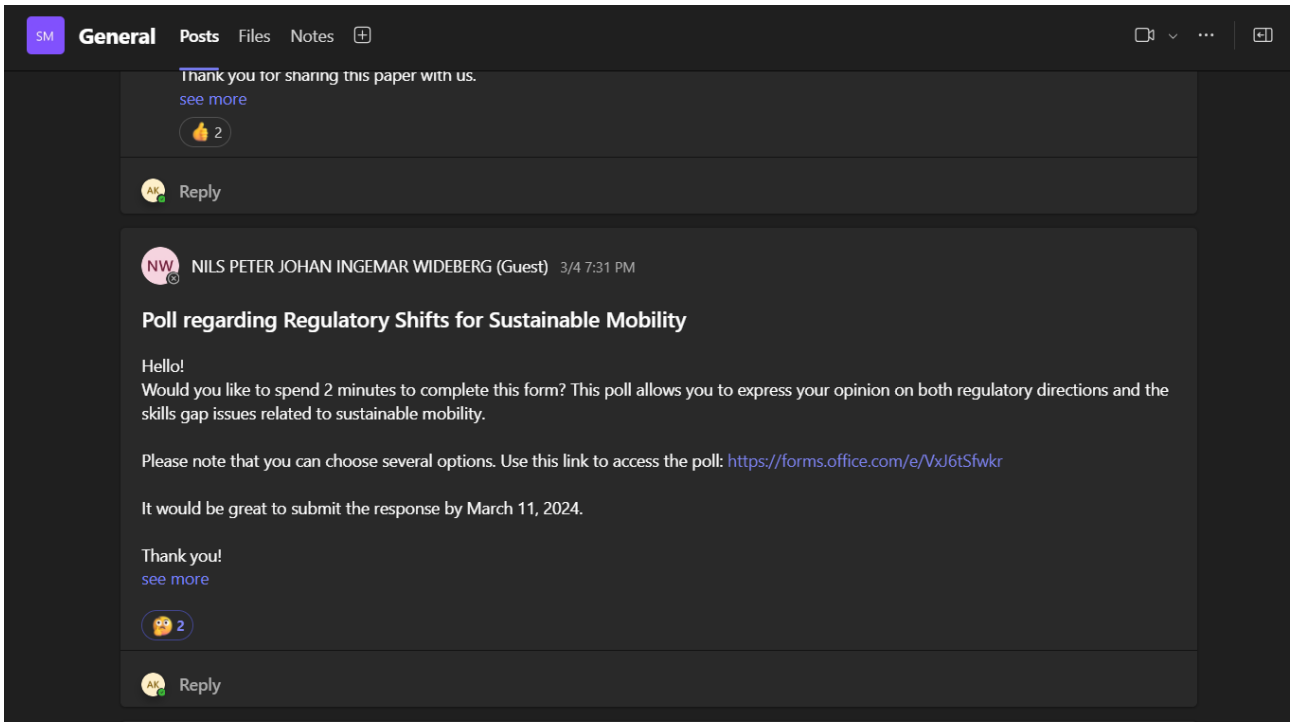


Figure 11. Mobility communication between members and LHE

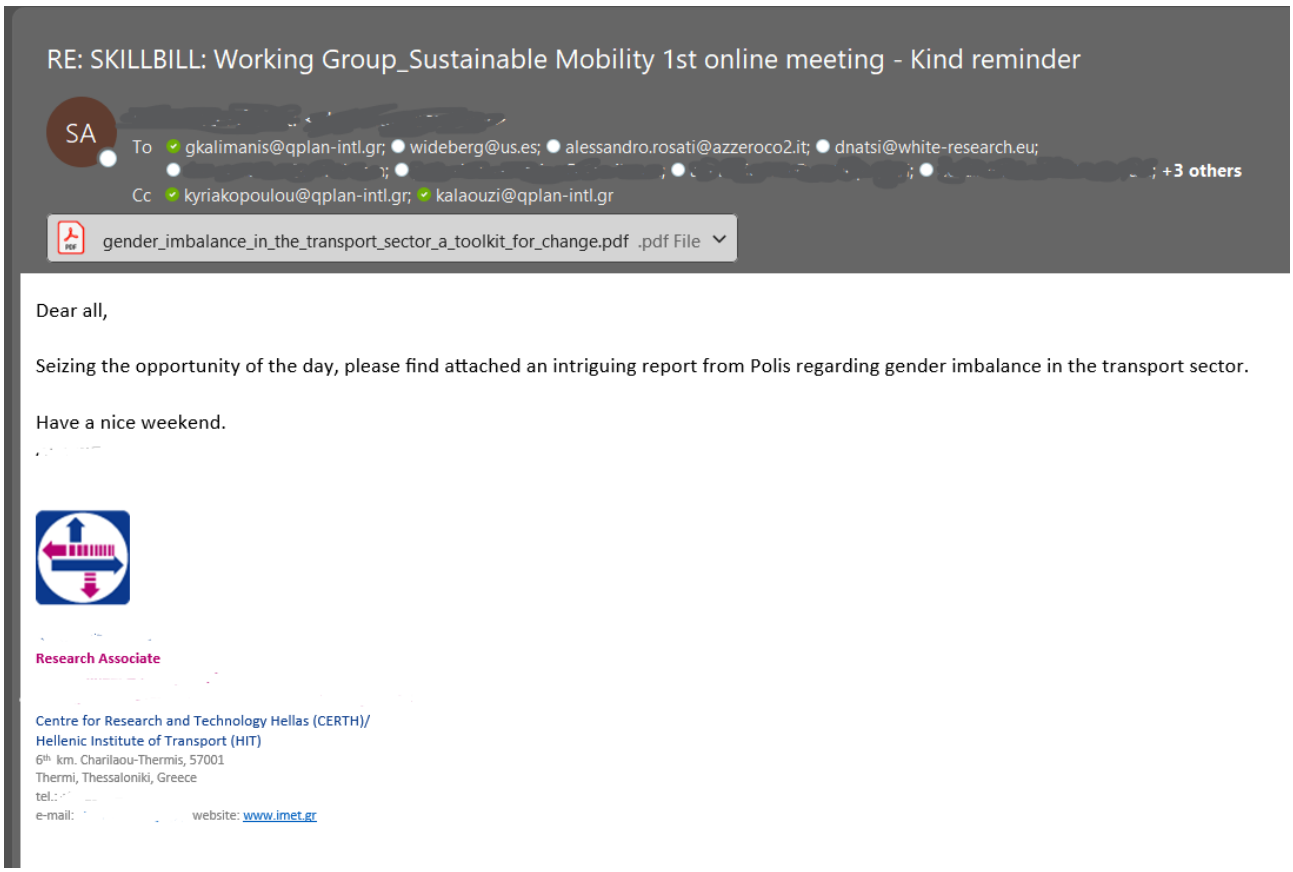


Figure 12. Mobility communication between members

4.2.5 *Mobility Online Presence*

The dedicated section on SKILLBILL official webpage can be found here.

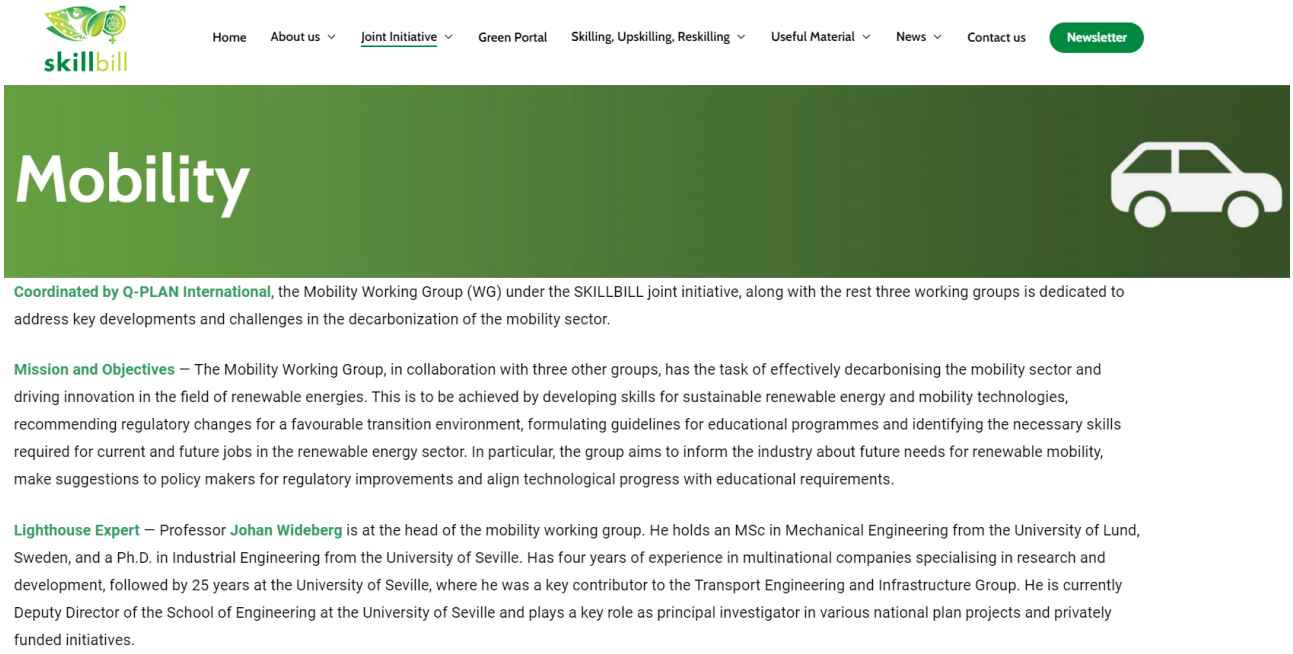
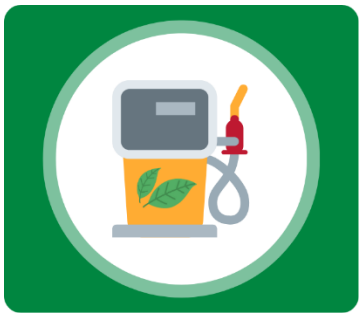


Figure 13. Mobility digital presence in the SKILLBILL website

4.3 Sustainable and Renewable Fuels

Table 7. Identity of Fuels WG

Icon	Thematic Focus
	Sustainable and Renewable Fuels & Skills Gap impacting its full deployment potential

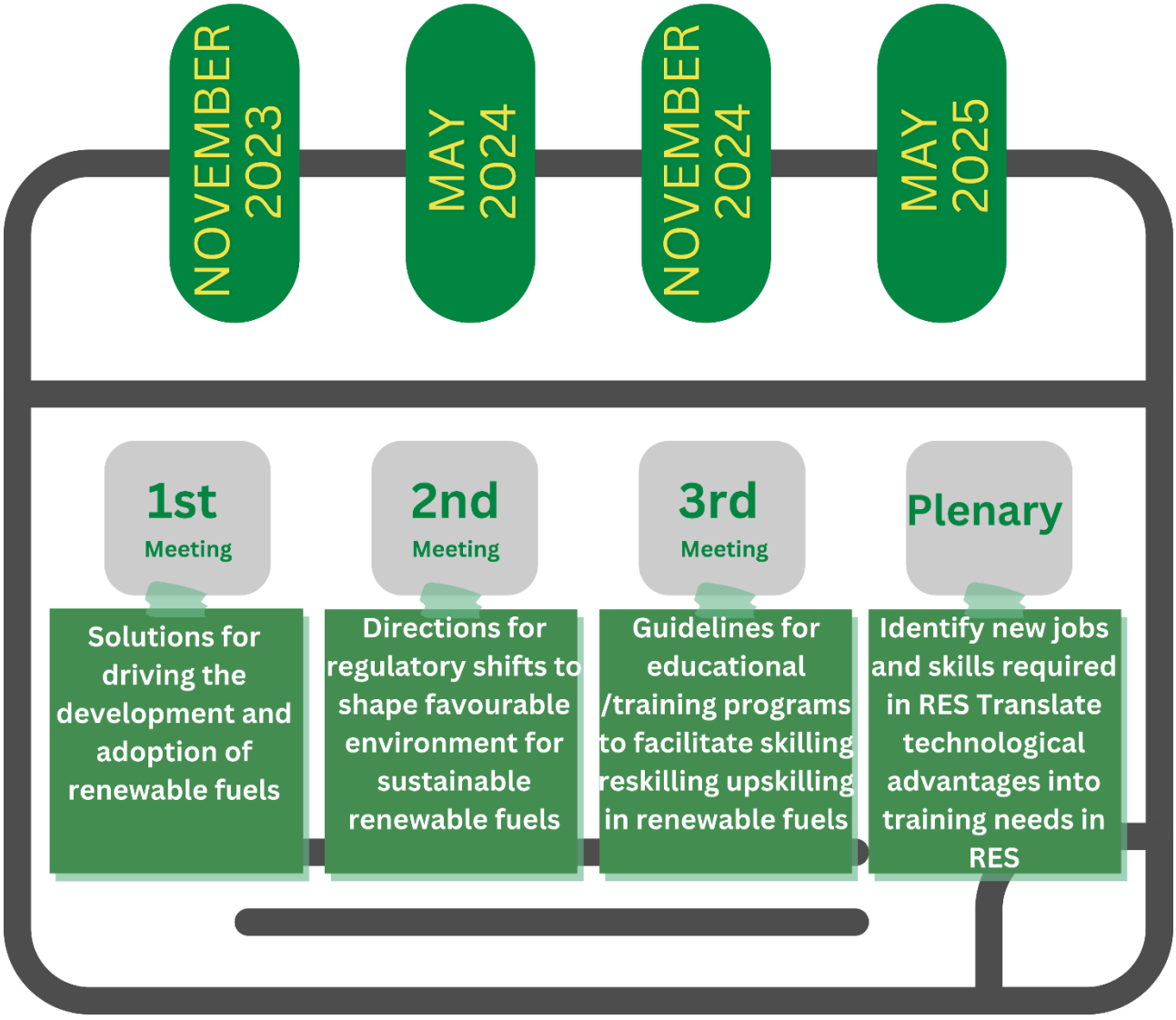


Figure 14. Fuels timeline and topics

4.3.1 *Fuels LHE*

Table 8. Fuels LHE Profile

Esa Toukoniitty		
Photo 	**QUOTE**	*"Renewable Energy and Circular Economy- creativity for a better tomorrow"*
	COMPANY & POSITION	Metropolia University of Applied Sciences Senior Lecturer
	SECTOR	Renewable Energy and Circular Economy
	BASED IN	Smart and Clean Solutions, Metropolia University of Applied Science
LinkedIn: linkedin.com/in/esa-toukoniitty	**SHORT BIO**	Esa Toukoniitty is an Adjunct Professor (Dr. Sci. in Chem. Eng.) with more than 20 years of experience in research and teaching of technology and natural science. He is currently involved in circular economy and renewable energy projects, training, and education. His main activities in the SKILLBILL project are in the development of a European Specialization School in renewable energy. He is involved in the development of Biofuels, Waste to Energy and Power-to-X Technologies courses.

4.3.2 *Fuels WG members*

Table 9. Fuels Working Group Members

Person	Organisation	Position	Country	Gender
External Expert 1	Centre for Research and Technology Hellas	Research director, Chemical Process Engineering Research Institute	Greece	Female
Enrico Giovanni Facci	AzzeroCO2	Project Manager, research in Biofuels [5]	Italy	Male
Galatsopoulos Anastasios	White Research	Project Manager, Biomass Project Background [5]	Greece	Male

Person	Organisation	Position	Country	Gender
Evangelia Tiaka	White Research	Associate Project Manager, Biogas Project Background [5]	Greece	Female
External Expert 2	ANETH S.A. Development Agency	Member of the Local Action Group of CLLD/LEADER	Greece	Male
External Expert 3	CNR IIA (National Council of Research)	Researcher in the Institute of Atmospheric Pollution Research	Italy	Male
External Expert 4	EcoVibes	Environmental Consultant	Greece	Female
External Expert 5	Košice Self-governing region	Project manager	Slovakia	Female
External Expert 6	Slovak biogas association	Secretary General	Slovakia	Male

4.3.3 *Fuels Share Point*

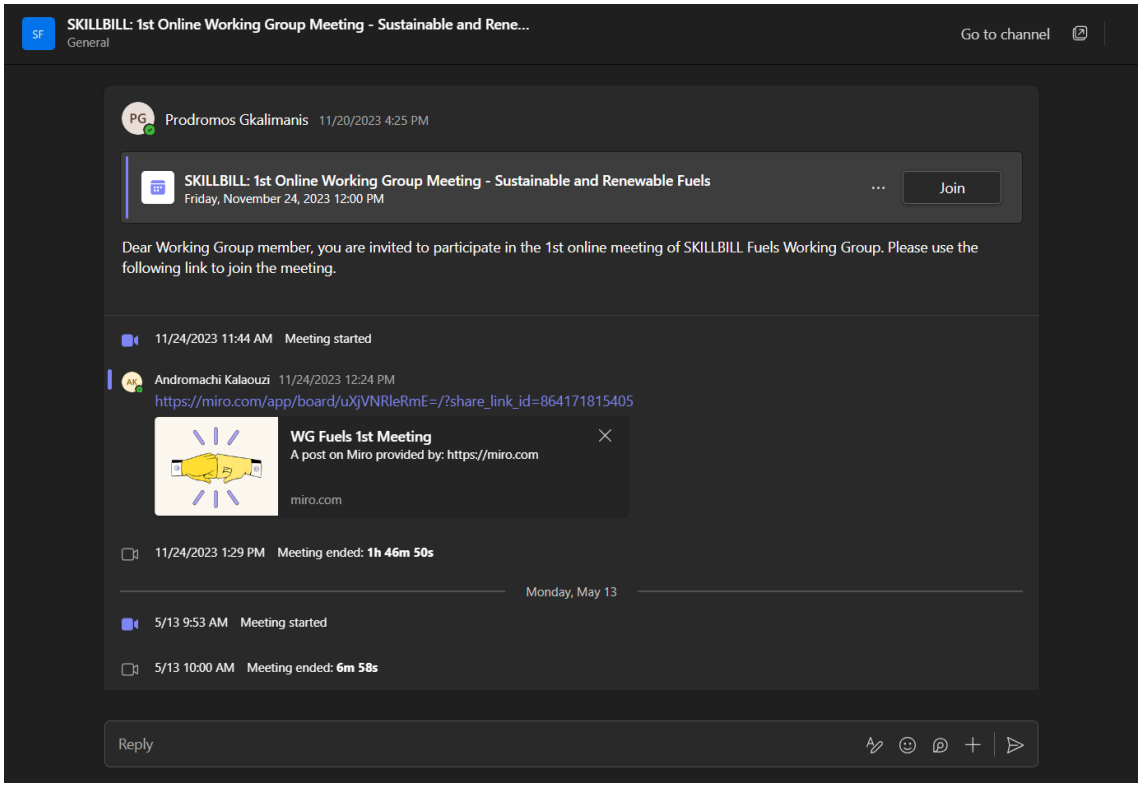


Figure 15. Fuels WG Share Point general overview in MS Teams

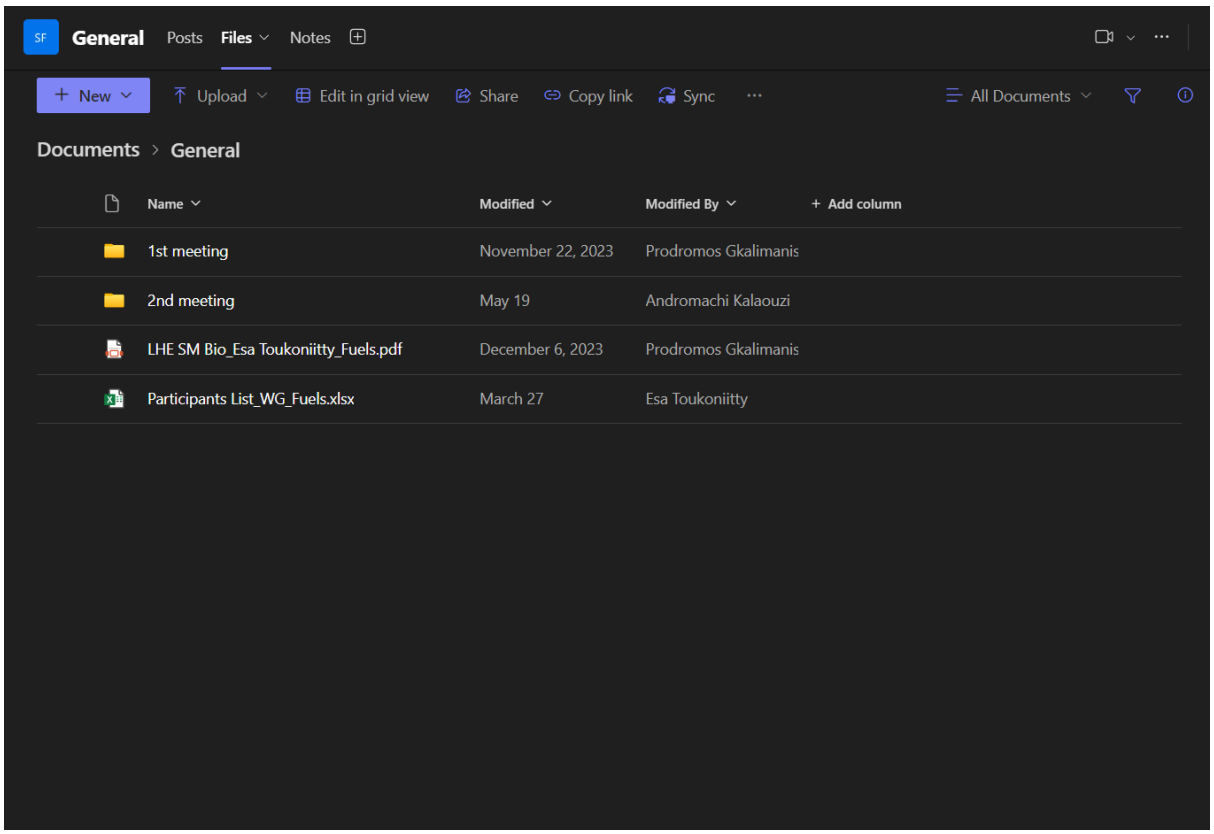


Figure 16. Fuels WG Share Point file repository in MS Teams

4.3.4 *Fuels chat that has been sent*

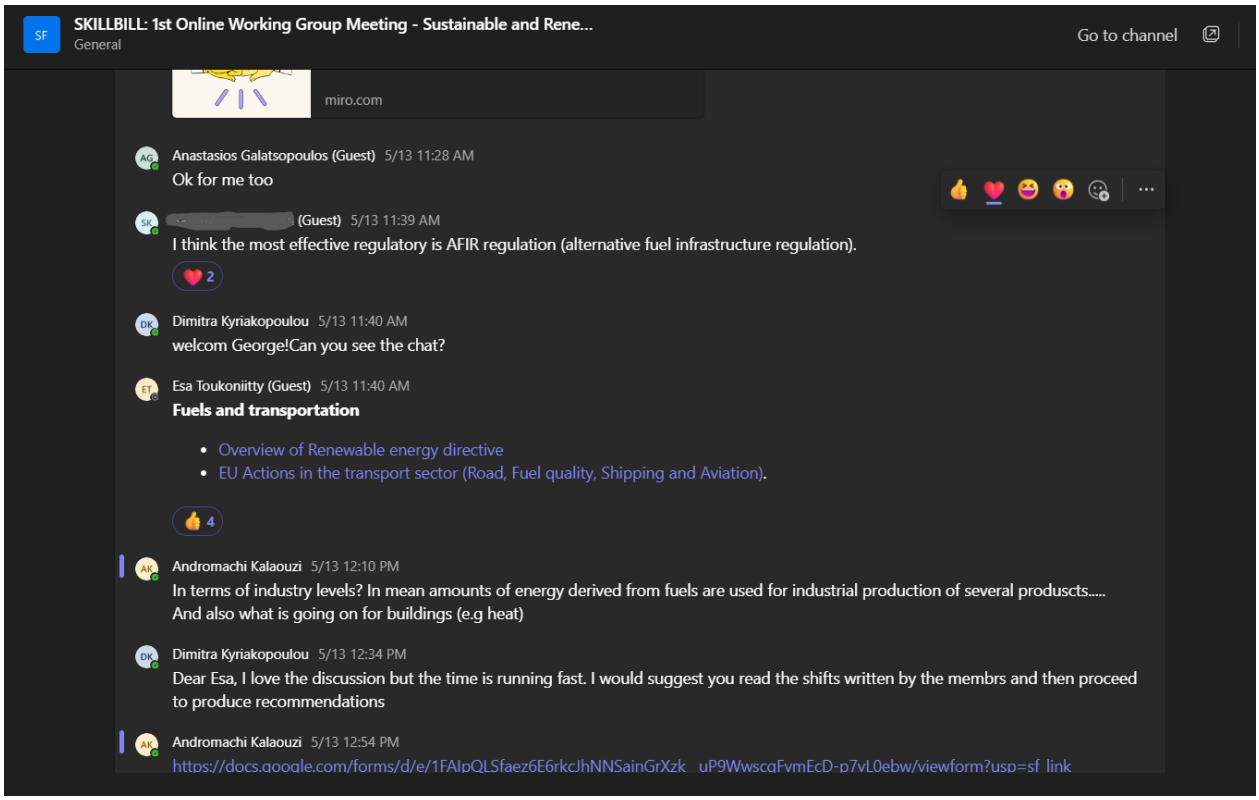


Figure 17. Fuels communication between members and LHE

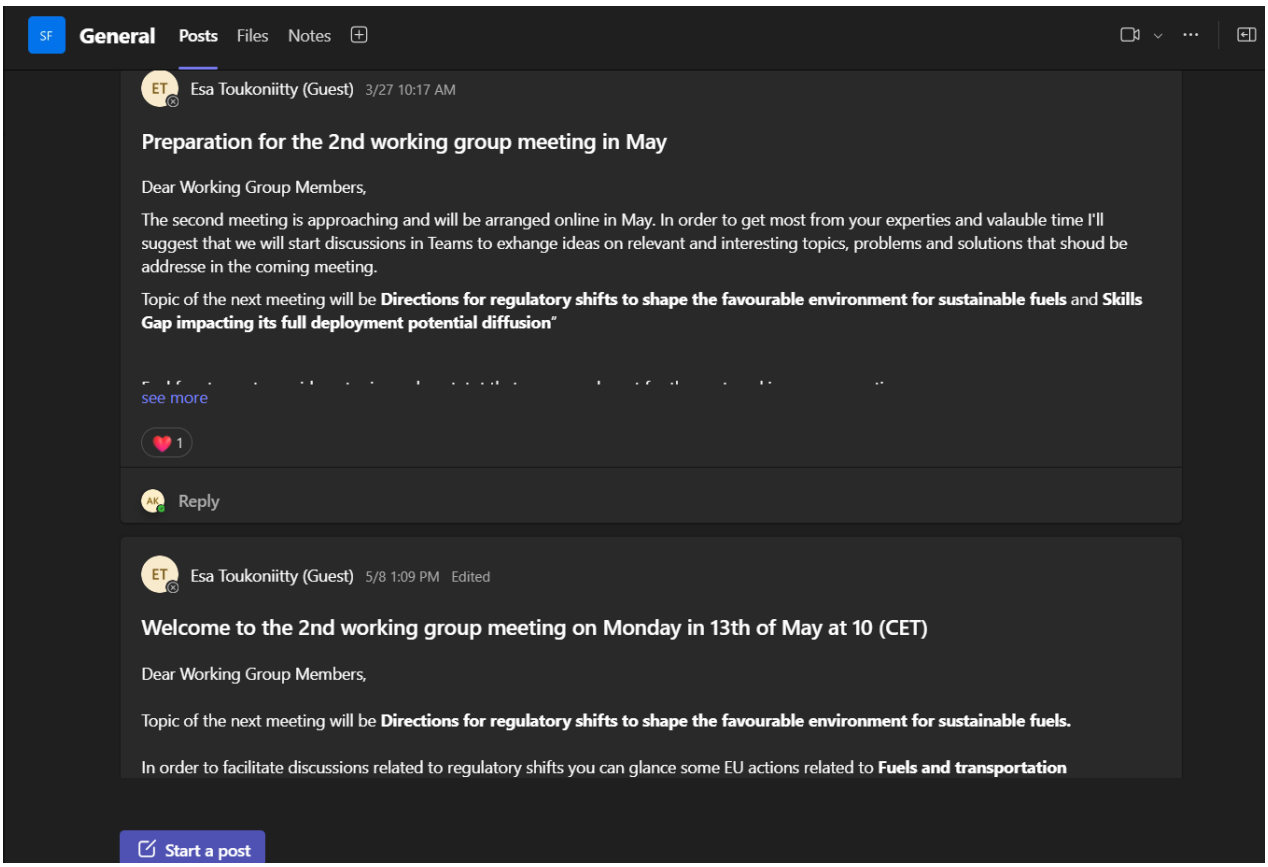


Figure 18. Fuels communication between members and LHE

4.3.5 *Fuels Online Presence*

The dedicated section on SKILLBILL official webpage can be found here.

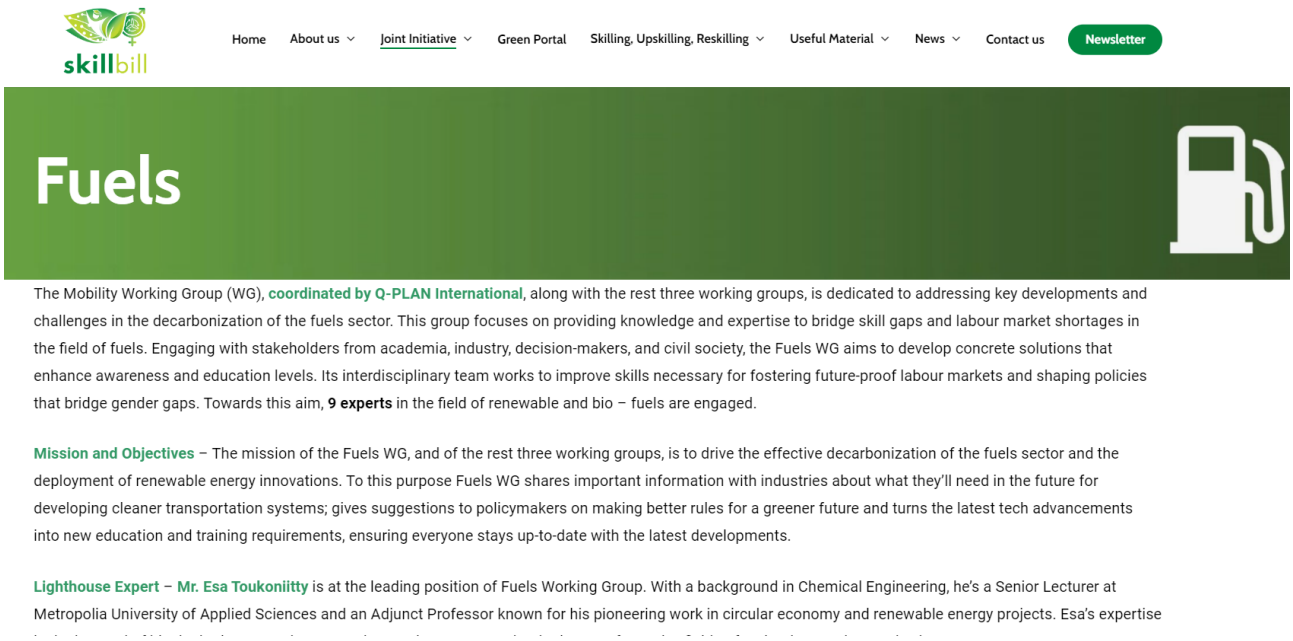


Figure 19. Fuels digital presence in the SKILLBILL website

4.4 Sustainable and Renewable Heat

Table 10. Identity of Heat WG

Icon	Thematic Focus
	Sustainable and Renewable Heat & Skills Gap impacting its full deployment potential

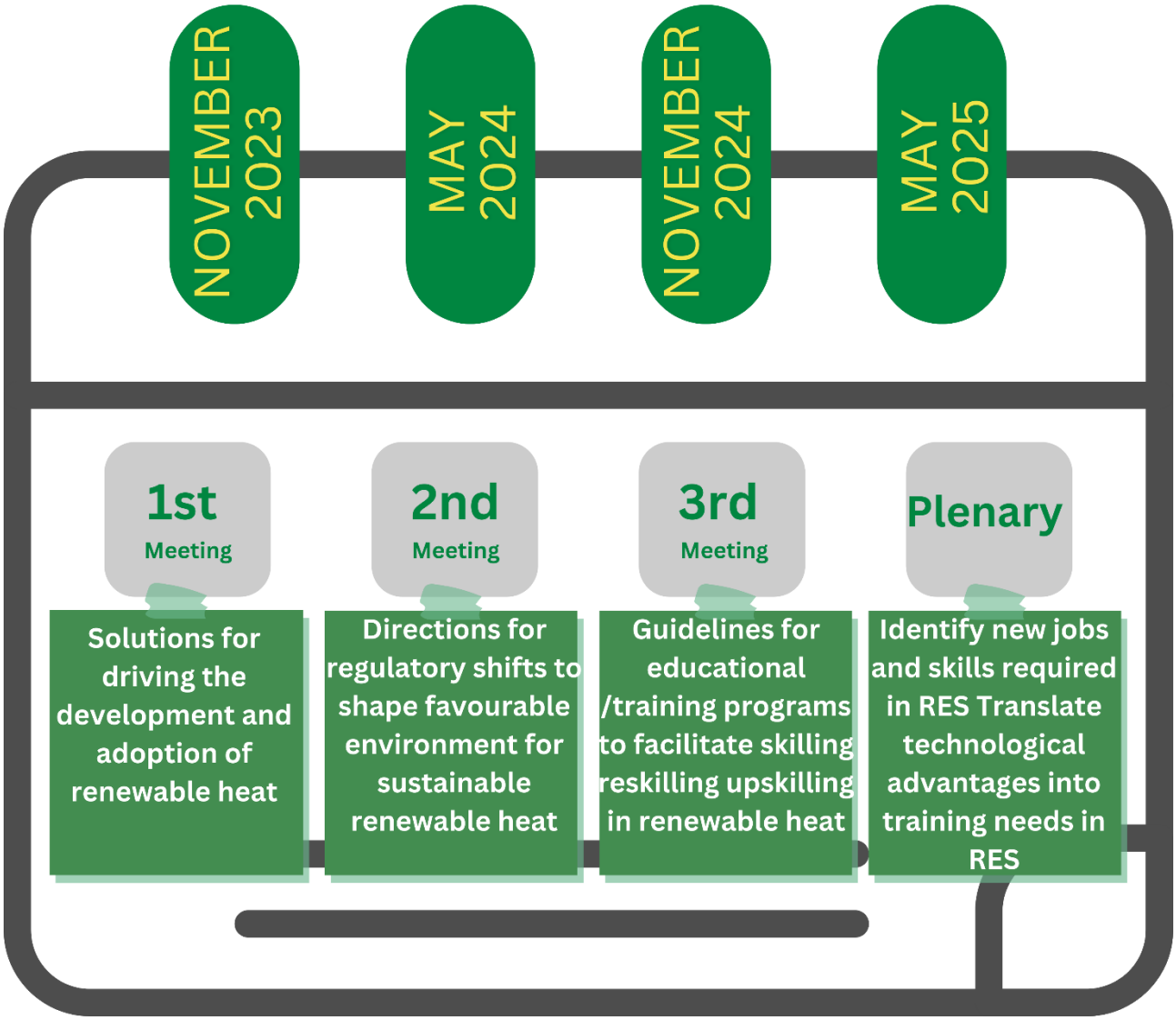


Figure 20. Heat timeline and topics

4.4.1 *Heat LHE*

Table 11. Heat LHE Profile

DANIELE GROPPI		
Photo 	**QUOTE**	*"Learning is the only thing the mind never exhausts, never fears, and never regrets"*
	COMPANY & POSITION	Assistant Professor at Tuscia University
	SECTOR	Higher Education & Research
	BASED IN	Viterbo, Italy
LinkedIn: https://www.linkedin.com/in/daniele-groppi-3aa320137/	**SHORT BIO**	Daniele Groppi is an assistant professor at Tuscia University and his research fields are building physics, energy planning and energy systems modelling & design. He obtained his PhD in Sapienza University of Rome with a thesis entitled "The role of sector coupling in planning the transition of a smart energy island" analysing the potential of so-called Smart Energy Systems in order to increase the Renewable Energy Sources penetration by fully exploiting the synergies offered by sector coupling with the heating and other sectors, aiming, through demand side management and investment in innovative technologies, at an optimal energy use. He has been collaborating in several EU funded projects since the start of his career gaining experience in research and project management.

4.4.2 *Heat WG members*

Table 12. Heat Working Group Members

Person	Organisation	Position	Country	Gender
External Expert 1	Bulgarian - Romanian Chamber of Commerce And Industry	CEO	Bulgaria	Female
Antti Tohka	Metropolia UAS	Principal Lecturer [5]	Finland	Male

Person	Organisation	Position	Country	Gender
External Expert 2	Ambiente Italia	Senior Project Manager	Italy	Male
External Expert 3	Slovak Association of the Photovoltaic Industry and RES	Project Manager	Slovakia	Male
External Expert 4	FIPER	General Secretary	Italy	Female
External Expert 5	AIEL - Italian Bioenergy Association	Technology and Projects area manager	Italy	Male
External Expert 6	ENEA	Researcher in National Agency for New Technologies, Energy and Sust. Economic Development	Italy	Female

4.4.3 *Heat Share Point*

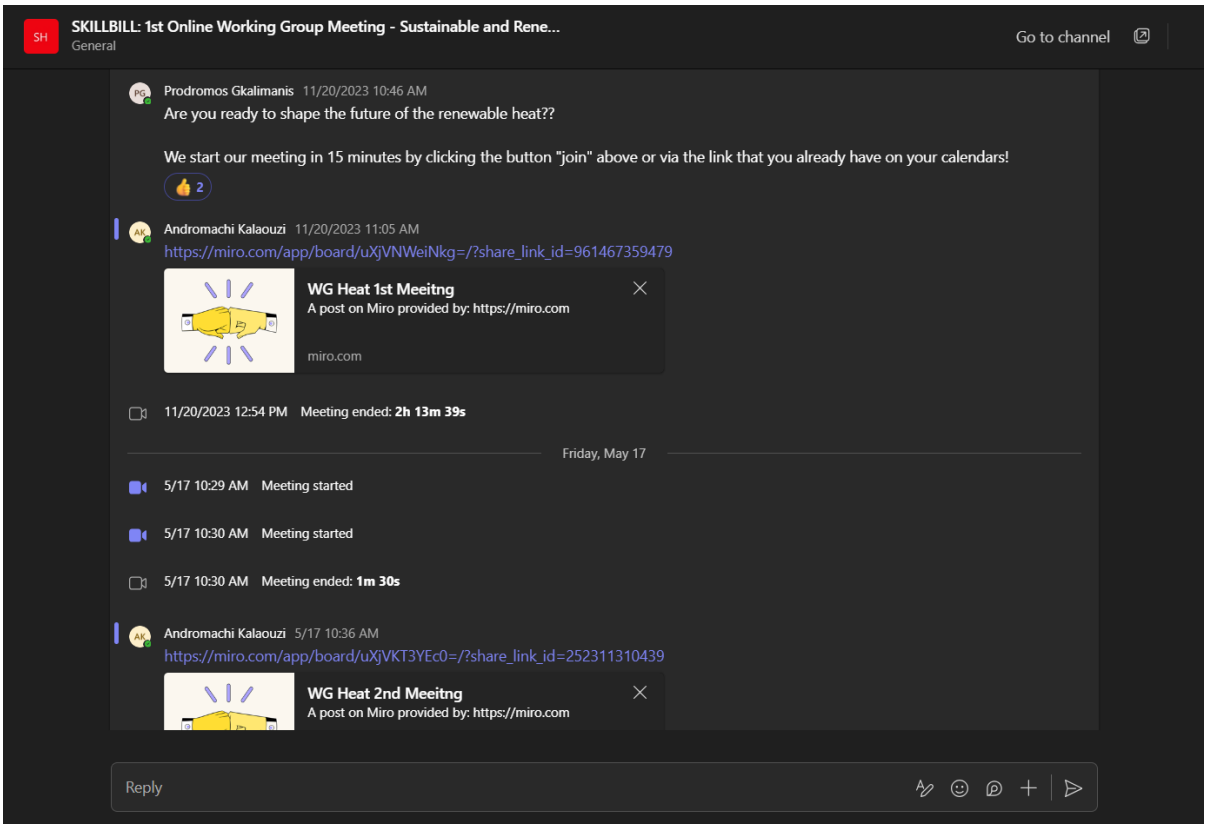


Figure 21. Heat WG Share Point general overview in MS Teams

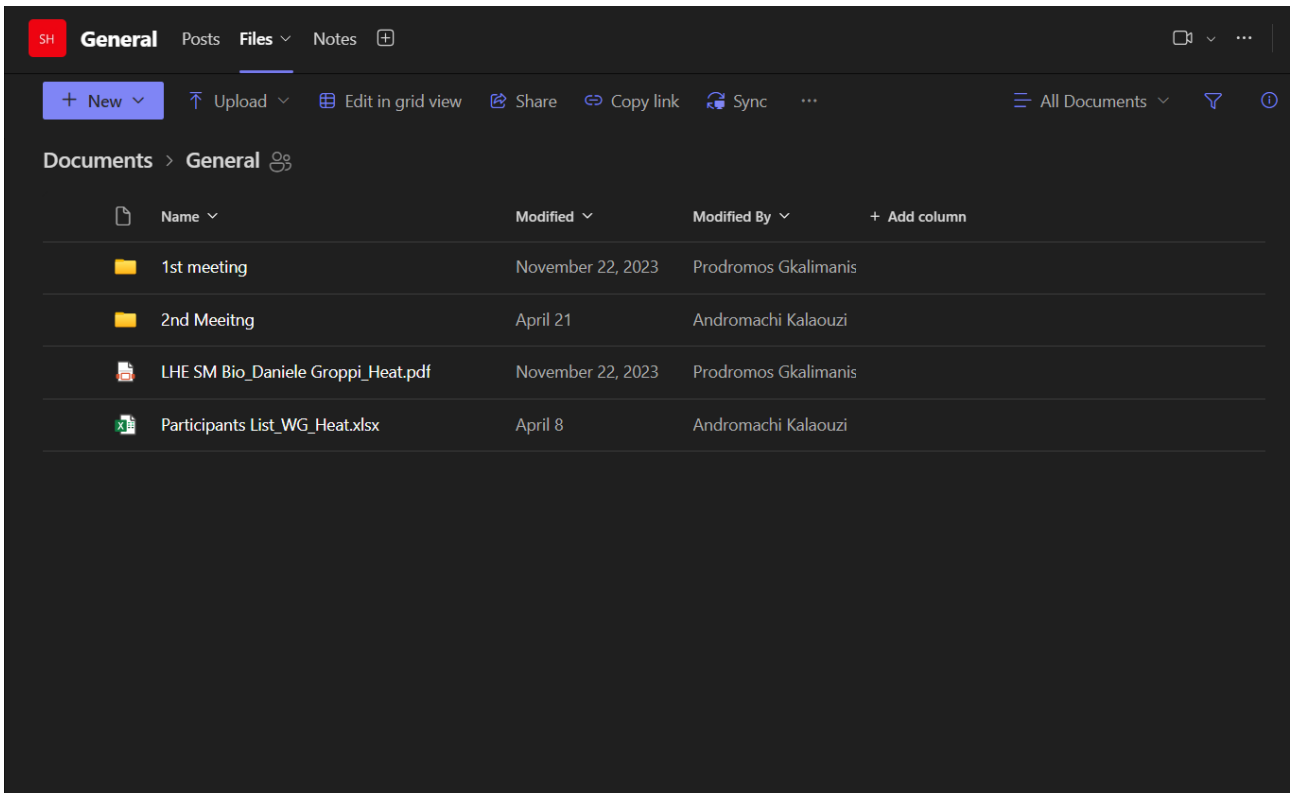


Figure 22. Heat WG Share Point file repository in MS Teams

4.4.4 *Heat chat that has been sent*

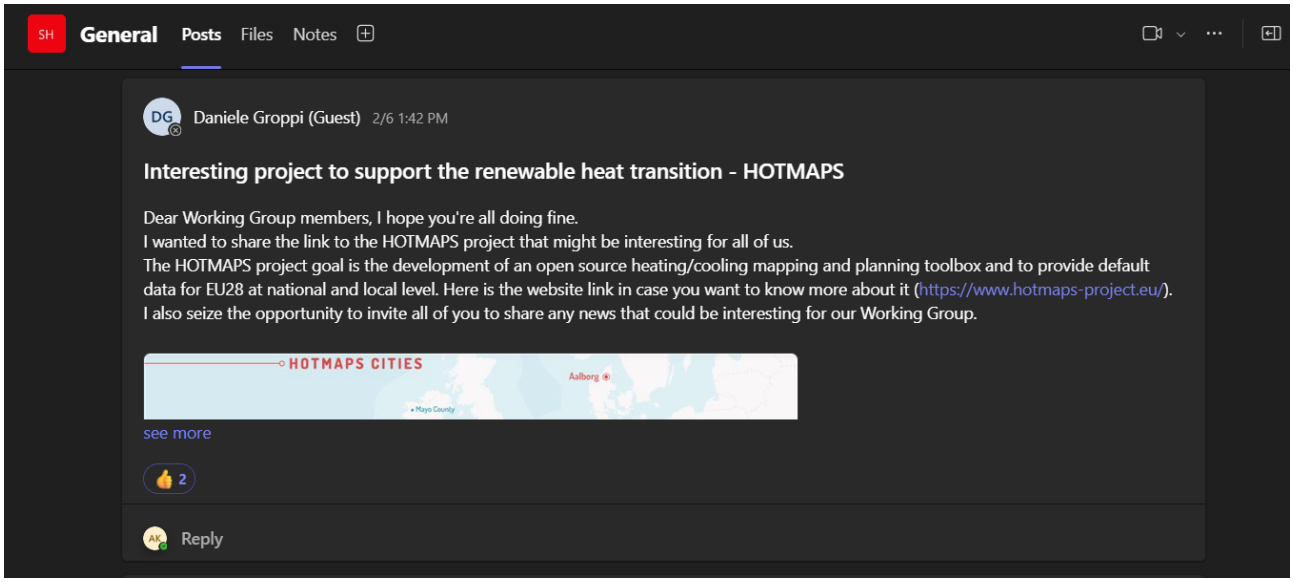


Figure 23. Heat communication between members and LHE

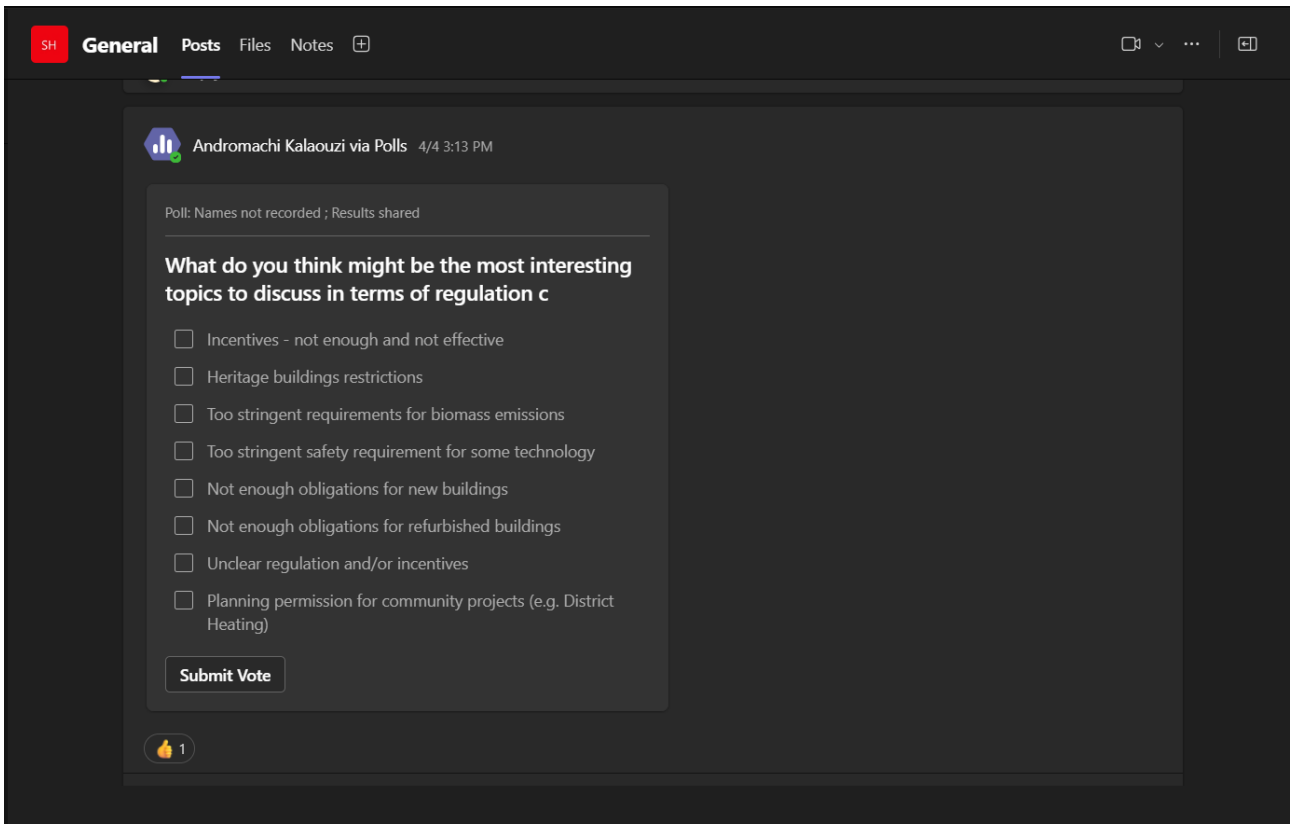
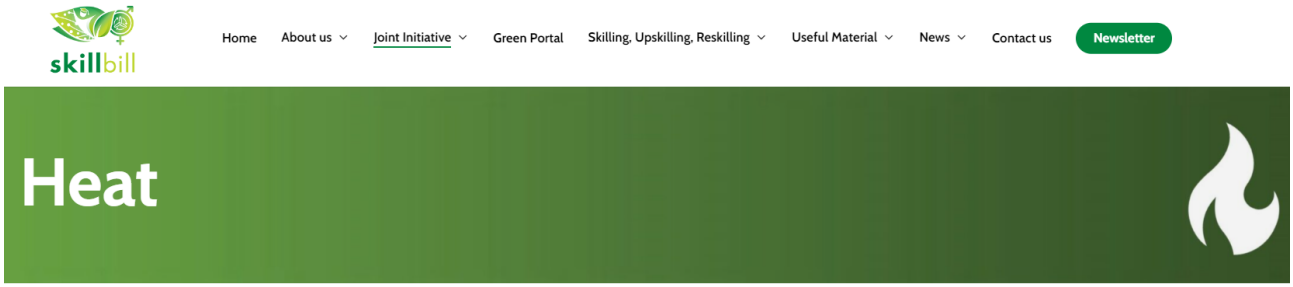


Figure 24. Heat communication between members and LHE

4.4.5 *Heat Online Presence*

The dedicated section on the official SKILLBILL webpage can be found here.



The **Heat Working Group** (WG) under the SKILLBILL joint initiative, along with the rest three working groups, is dedicated to address key developments and challenges in the decarbonization of the heat energy sector. This group focuses on providing knowledge and expertise to bridge skill gaps and labour market shortages in the field of heat. Engaging with stakeholders from academia, industry, decision-makers, and civil society, the Heat WG aims to develop concrete solutions that enhance awareness and education levels. Its interdisciplinary team works to improve skills necessary for fostering future-proof labour markets and shaping policies that bridge gender gaps. Towards this aim, **7 experts** in the field of renewable heat are mobilised.

Mission and Objectives – The **mission** of the Heat WG, along with the rest three working groups, is to drive the effective decarbonization of the heat sector and the deployment of renewable energy innovations. To this purpose, the goals of Heat WG are to get industries informed about future needs to drive renwable heat system development, provide suggestions to policy makers aiming to improve regulatory frameworks and translate technological advances into new education & training needs.

Lighthouse Expert – With an esteemed PhD from Sapienza University of Rome, Heat WG Lighhouse Expert mr. Daniele Groppi, serves as an Assistant Professor at Tuscia University, specializing in maximizing Renewable Energy Sources through Smart Energy Systems. Actively participating in EU-funded projects, Daniele drives progress in sustainable energy solutions, emphasizing energy efficiency and fostering innovative solutions for a sustainable future.

Figure 25. Heat digital presence in the SKILLBILL website

5. WG Meetings Implementation

5.1 1st Round of Working Group Meetings

Table 13. Overview of 1st Round

Approach/methodology followed	The methodology followed in this meeting comprised of five steps: **1st Step**: Identification of solutions for driving the development and adoption of renewable technologies (addressed by thematic focus of WG such as renewable electricity, sustainable mobility, renewable fuels and renewable heat). **2nd Step**: More detailed specification of the higher-level solutions. **3rd Step**: Discussion on recommendations based on the solutions from the previous steps. **4th Step**: Miro voting and/or further discussion to light up the most important recommendations. **5th Step**: Use the Miro dart board to prioritise the recommendations elaborated.
Main activities	- Tour de la table (get to know Working Group members) - Presentation of the SKILLBILL's project scope (for the 1st Round) and the performed work (for the 2nd Round) - Discussion on the topic (brainstorming and knowledge exchange) - Discussion and co-creation of recommendations - Conclusion and wrap-up of the meeting
Preparatory material	Microsoft Teams Group, Miro Board, Meeting Agenda, Participants list, LHE Bio, Presentations
Communication prior to the meeting	The meeting has been organised by Q-PLAN. The time and date of the event were decided via Doodle based on the partner's availability. The LHE expert has reviewed and updated the agenda for each meeting.

5.1.1 *Sustainable and Renewable Electricity*

An agenda was prepared to reflect the topic of the first meeting and to pave the way towards the final solutions that were addressed by the WG members. The agenda can also be found in Annex I.

The table below provides an overview of the first meeting within the Electricity WG.

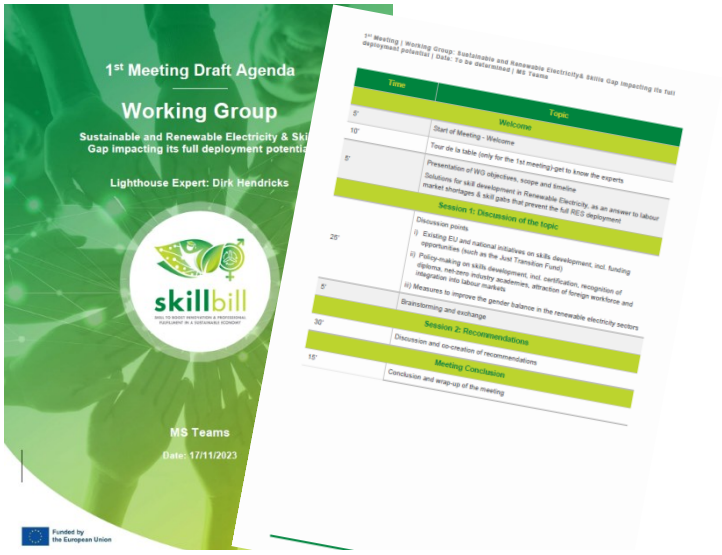


Figure 26. Agenda of 1st meeting of Electricity WG

Table 14. Overview of 1st meeting within the Electricity Working Group

Organisational Details and Achievements	Metrics and Explanation
Working Group Category	Sustainable and Renewable Electricity
Topic	Solutions for driving the development and adoption of renewable Electricity
No of Meeting	1st Meeting of Electricity Working Group
Date of Meeting	17/11/2023
Platform / Digital tools used	MS Teams, Miro
No of Participants	13 (eight males / five females) and one written contribution (male)
Duration of Meeting (hours)	2
Name of Lighthouse Expert	Dirk Hendricks
Report Authors	Q-PLAN International PC
No of recommendations created	16

Below, a few photos of the meeting are presented, while the detailed Miro Board is annexed in Annex II.

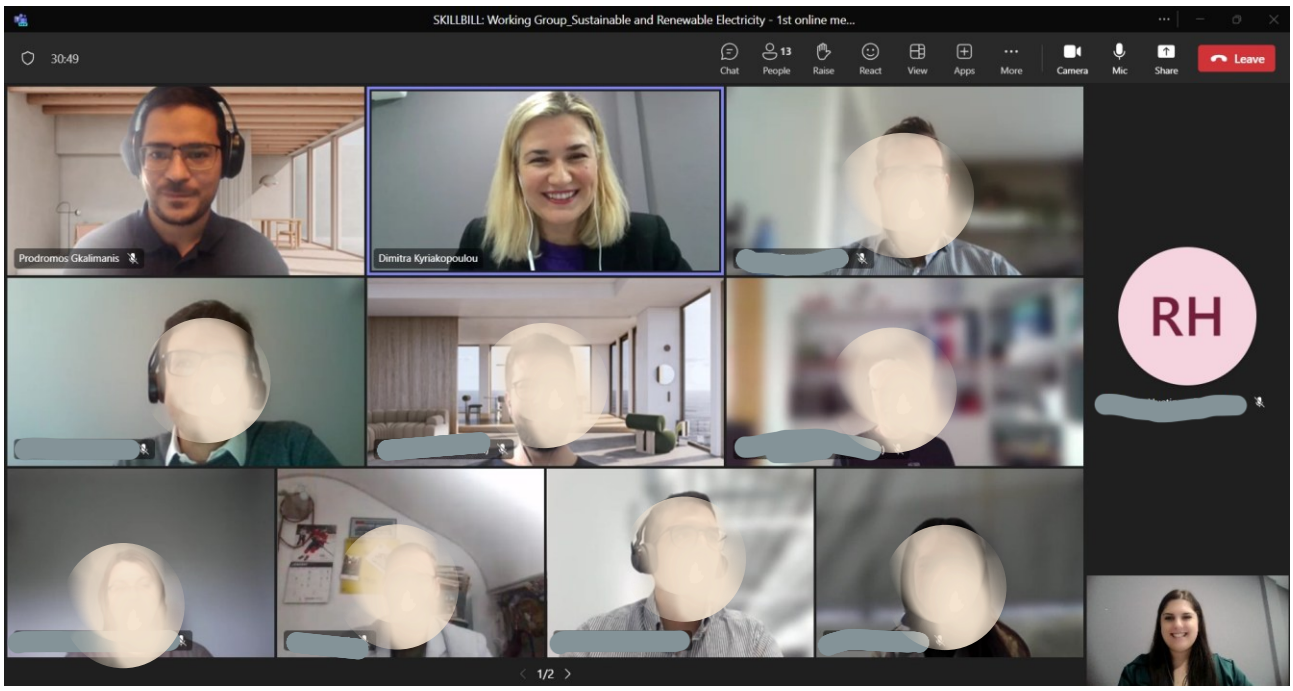


Figure 27. Electricity WG, Family Photo, 1st Meeting

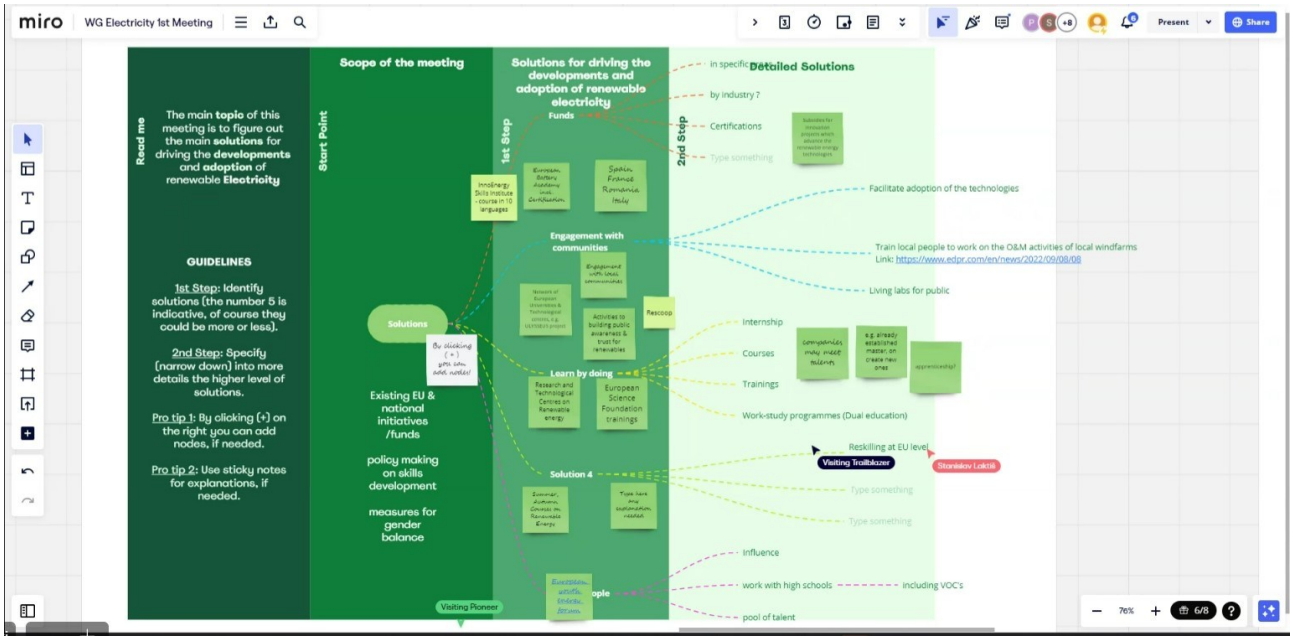


Figure 28. Discussions on solutions, Electricity WG, 1st Meeting

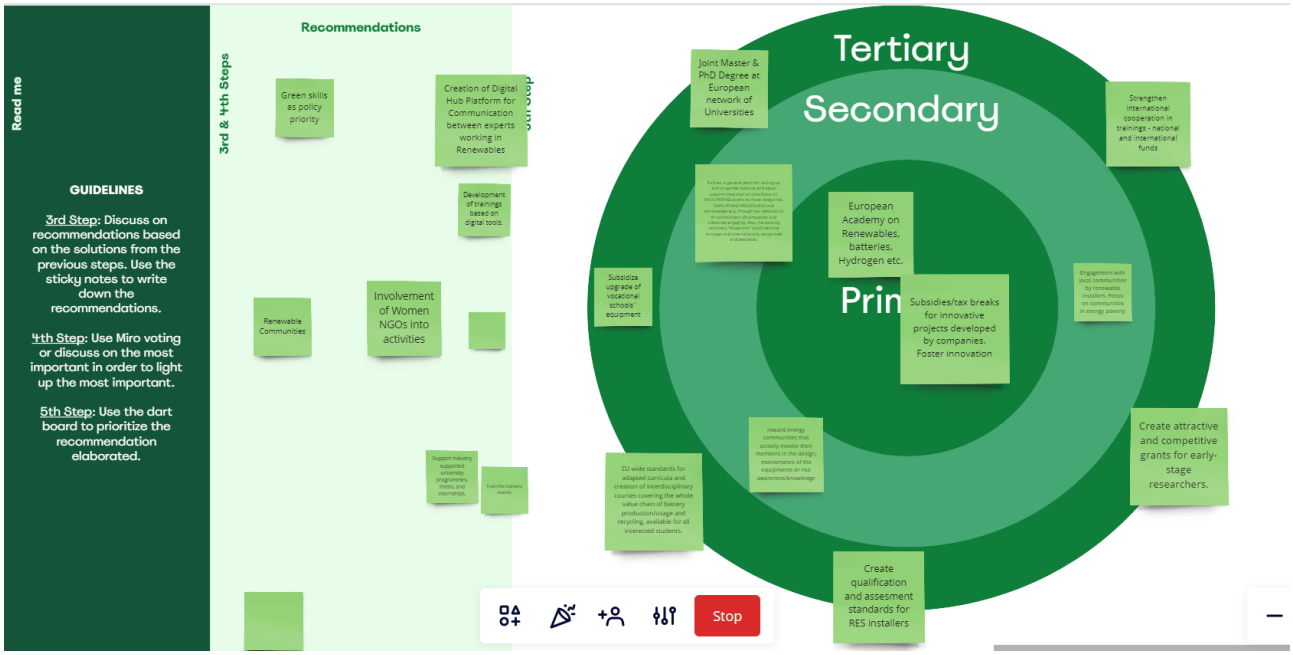


Figure 29. Prioritisation of solutions, Electricity WG, 1st Meeting

5.1.2 *Sustainable Mobility*

An agenda was prepared to reflect the topic of the first meeting and to pave the way towards the final solutions that were addressed by the WG members. The agenda is annexed in Annex I.

The table below provides an overview of the first meeting within the Mobility WG.

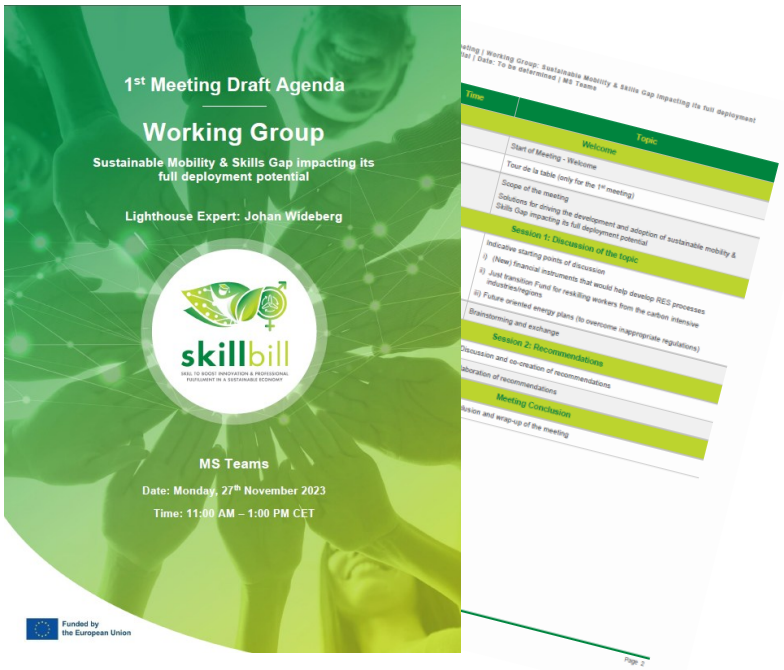


Figure 30. Agenda of 1st meeting of Mobility WG

Table 15. Overview of 1st meeting within the Mobility Working Group

Organisational Details and Achievements	Metrics and Explanation
Working Group Category	Sustainable Mobility
Topic	Solutions for driving the development and adoption of sustainable Mobility
No of Meeting	1st

Organisational Details and Achievements	Metrics and Explanation
Date of Meeting	27/11/2023
Platform / Digital tools used	MS Teams, Miro
No of Participants	13 (eight males and five females)
Duration of Meeting (hours)	2
Name of Lighthouse Expert	Johan Wideberg
Report Authors	Johan Wideberg
No of recommendations created	14

Below a few photos of the meeting are presented, while the detailed Miro Board is annexed in Annex II.

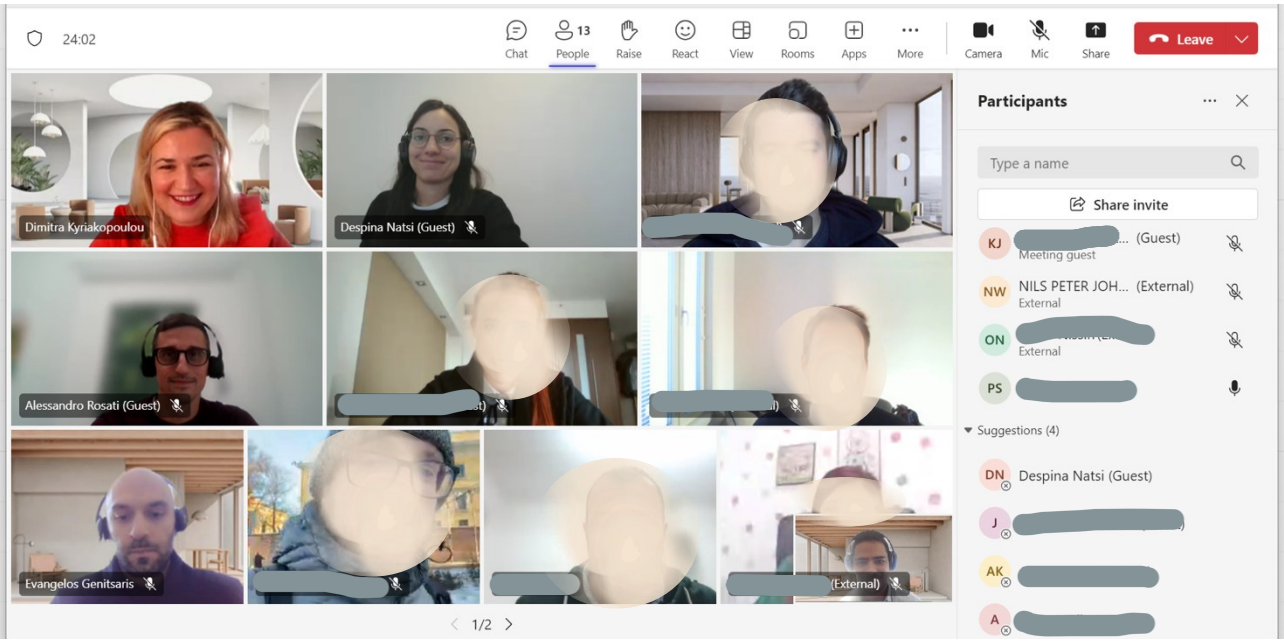


Figure 31. Mobility WG, 1st Meeting, Family Photo

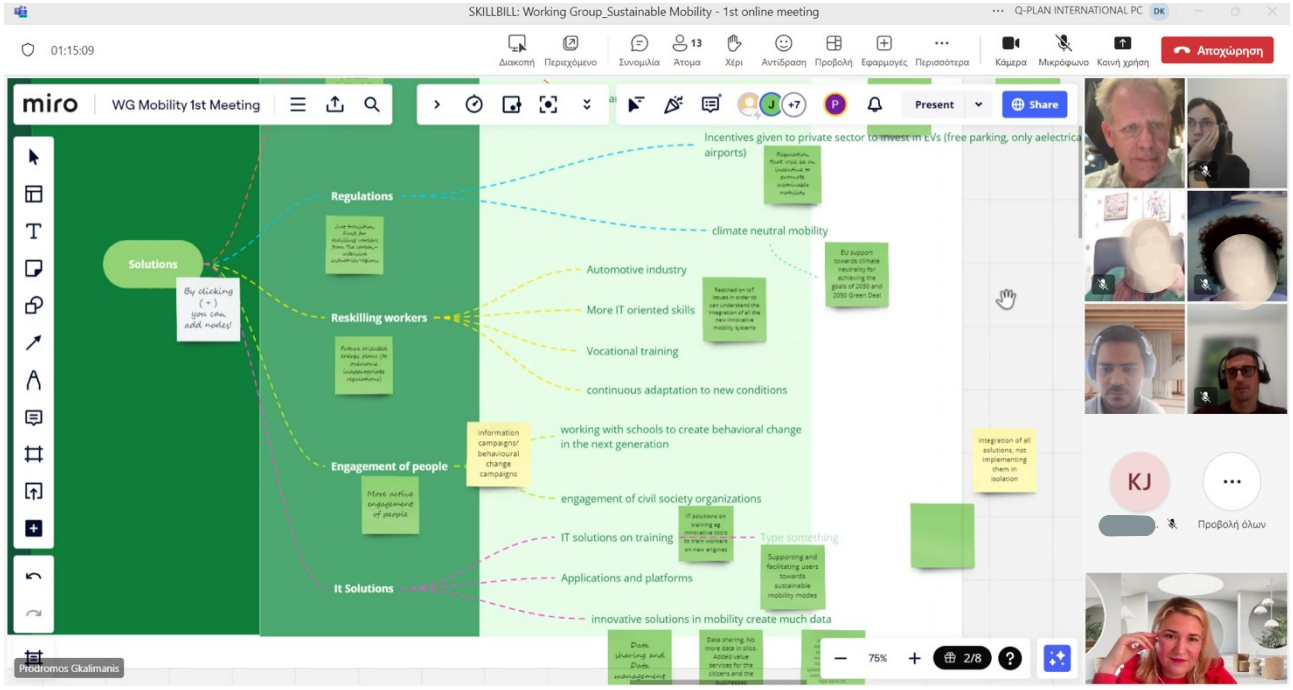


Figure 32. Mobility WG, 1st Meeting, Discussion on solutions

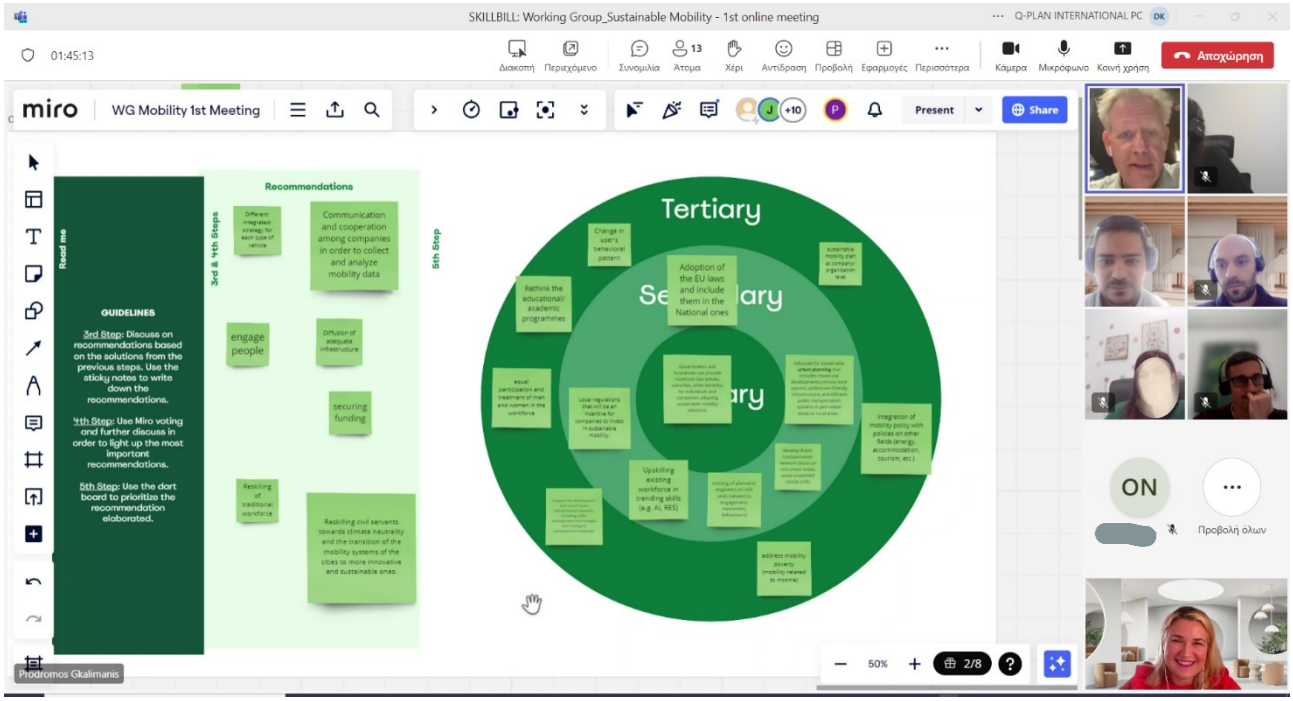


Figure 33. Prioritisation of Solution, Mobility WG, 1st Meeting

5.1.3 *Sustainable and Renewable Fuels*

An agenda was prepared to reflect the topic of the first meeting and to pave the way towards the final solutions that were addressed by the WG members. The agenda is annexed in Annex I.

The table below provides an overview of the first meeting within the Fuels WG.

Figure 34. Agenda of 1st Meeting of Fuels WG

Table 16. Overview of 1st meeting within the Fuels Working Group

Organisational Details and Achievements	Metrics and Explanation
Working Group Category	Sustainable and Renewable Fuels
Topic	Solutions for driving the development and adoption of sustainable and renewable Fuels
No of Meeting	1st
Date of Meeting	24/11/2023
Platform / Digital tools used	MS Teams, Miro
No of Participants	12 (six males and six females) and one written contribution (male)
Duration of Meeting (hours)	1h45’
Name of Lighthouse Expert	Esa Toukoniitty
Report Authors	Esa Toukoniitty
No of recommendations created	11

Below are presented a few photos of the meeting, while the detailed Miro Board is annexed in Annex II.

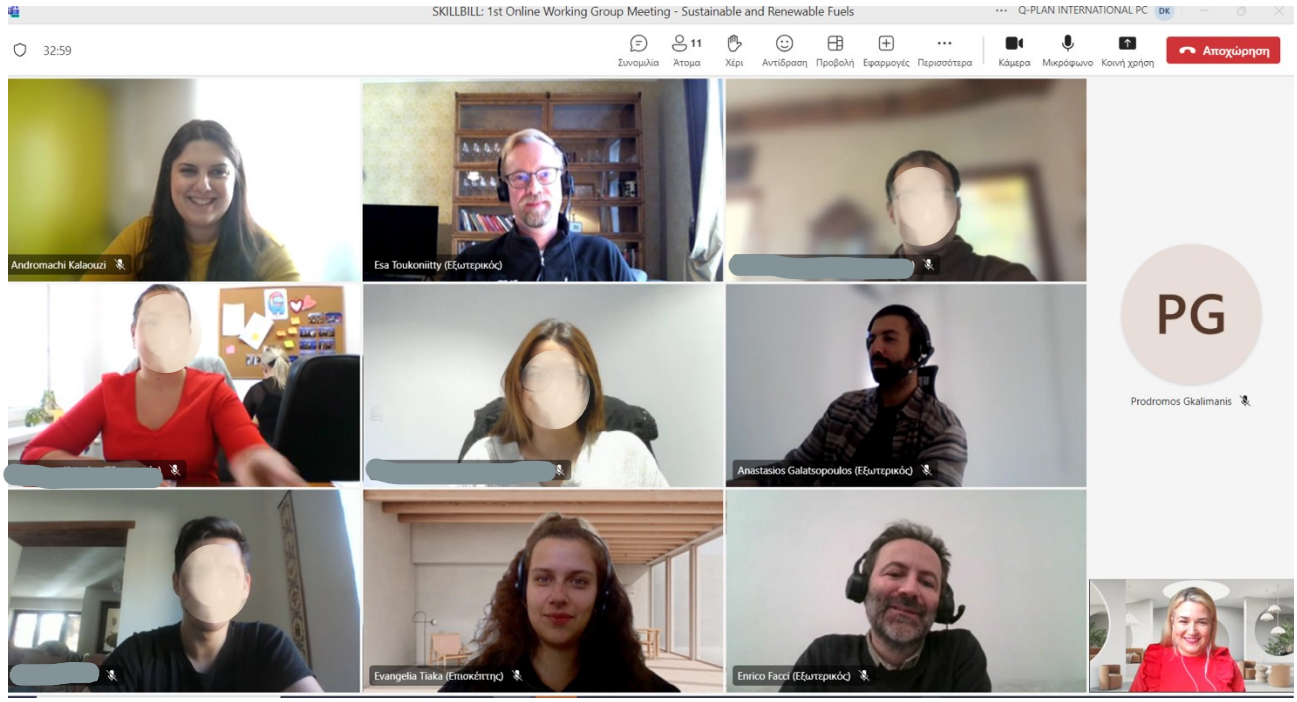


Figure 35. Family Photo of 1st meeting with the Fuels WG

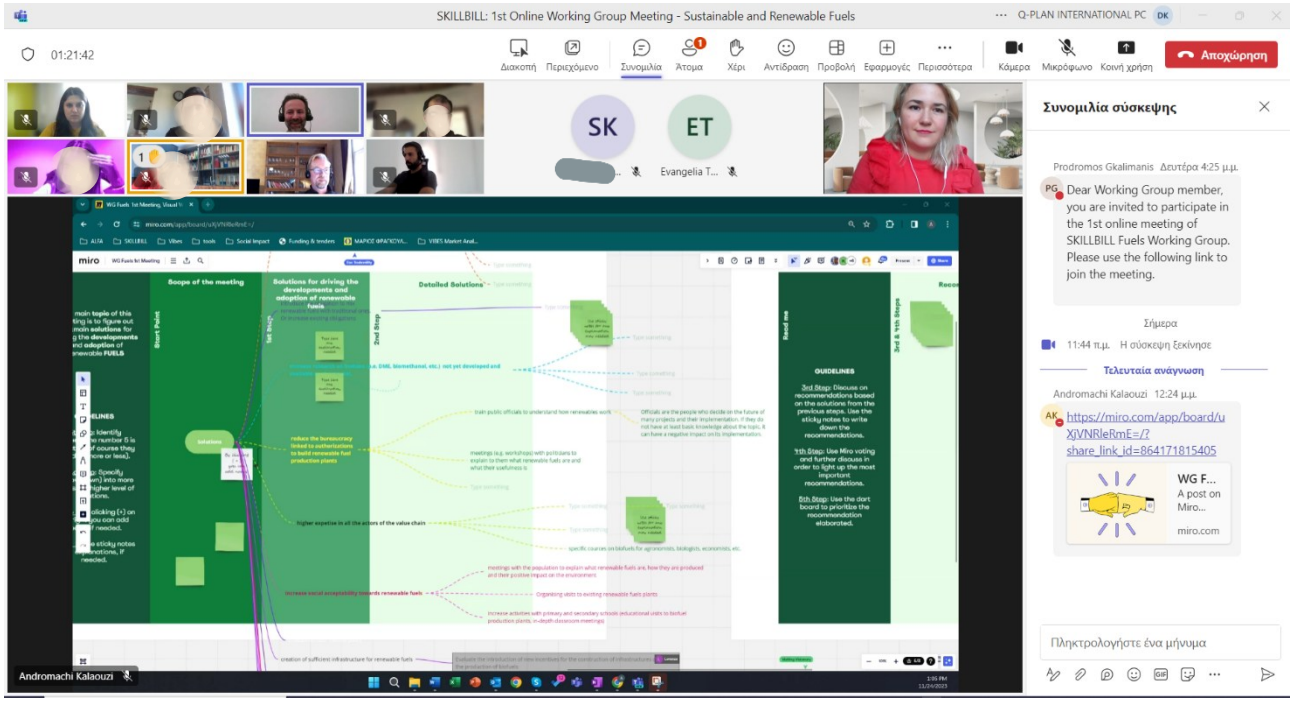


Figure 36. Discussions towards the solutions during the 1st WG meeting within Fuels WG

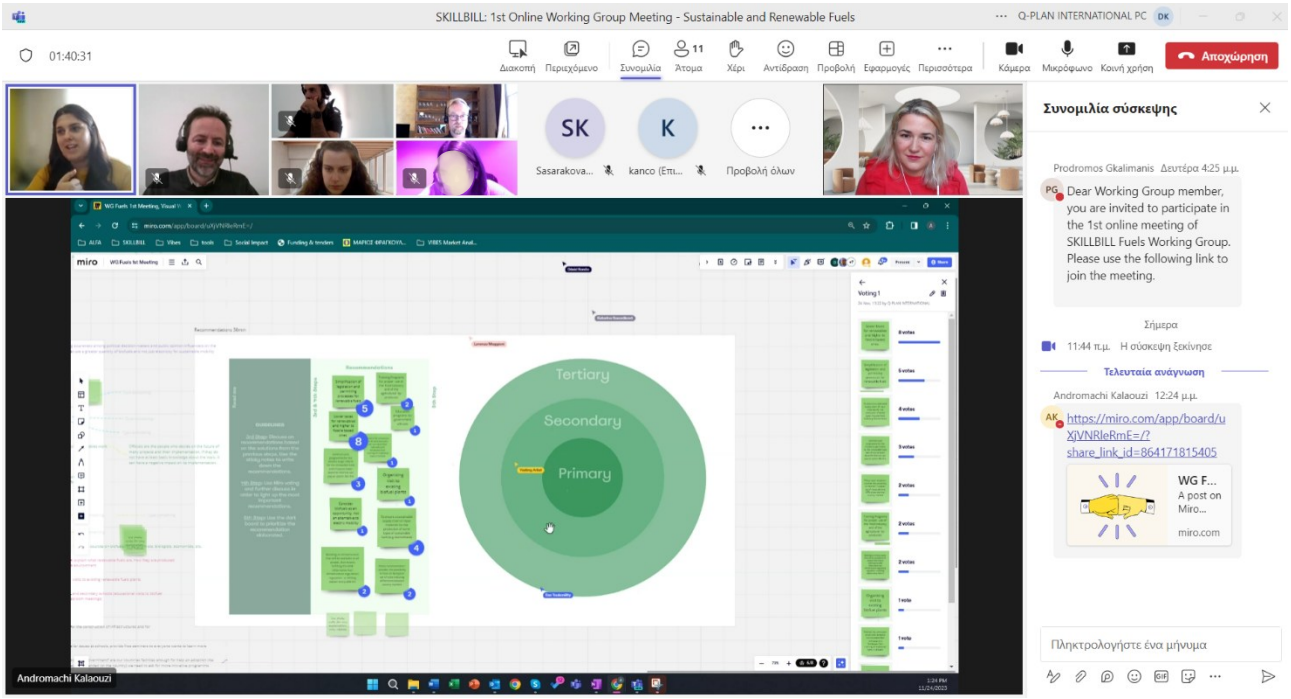


Figure 37. Prioritisation of solution in during the 1st WG meeting of Fuels WG

5.1.4 *Sustainable and Renewable Heat*

An agenda was prepared to reflect the topic of the first meeting and to pave the way towards the final solutions that were addressed by the WG members. The agenda is annexed in Annex I.

The table below provides an overview of the first meeting within the Heat WG.

Figure 38. Heat WG, 1st Meeting Agenda

Table 17. Overview of 1st meeting within the Heat Working Group

Organisational Details and Achievements	Metrics and Explanation
Working Group Category	Sustainable and Renewable Heat
Topic	Solutions for driving the development and adoption of sustainable and renewable Heat

Organisational Details and Achievements	Metrics and Explanation
No of Meeting	1st
Date of Meeting	20/11/2023
Platform / Digital tools used	MS Teams, Miro
No of Participants	12 (seven males and five females) and one written contribution (male)
Duration of Meeting (hours)	2
Name of Lighthouse Expert	Daniele Groppi
Report Authors	Daniele Groppi
No of recommendations created	10

Below are presented a few photos of the meeting, while the detailed Miro Board is annexed in Annex II.

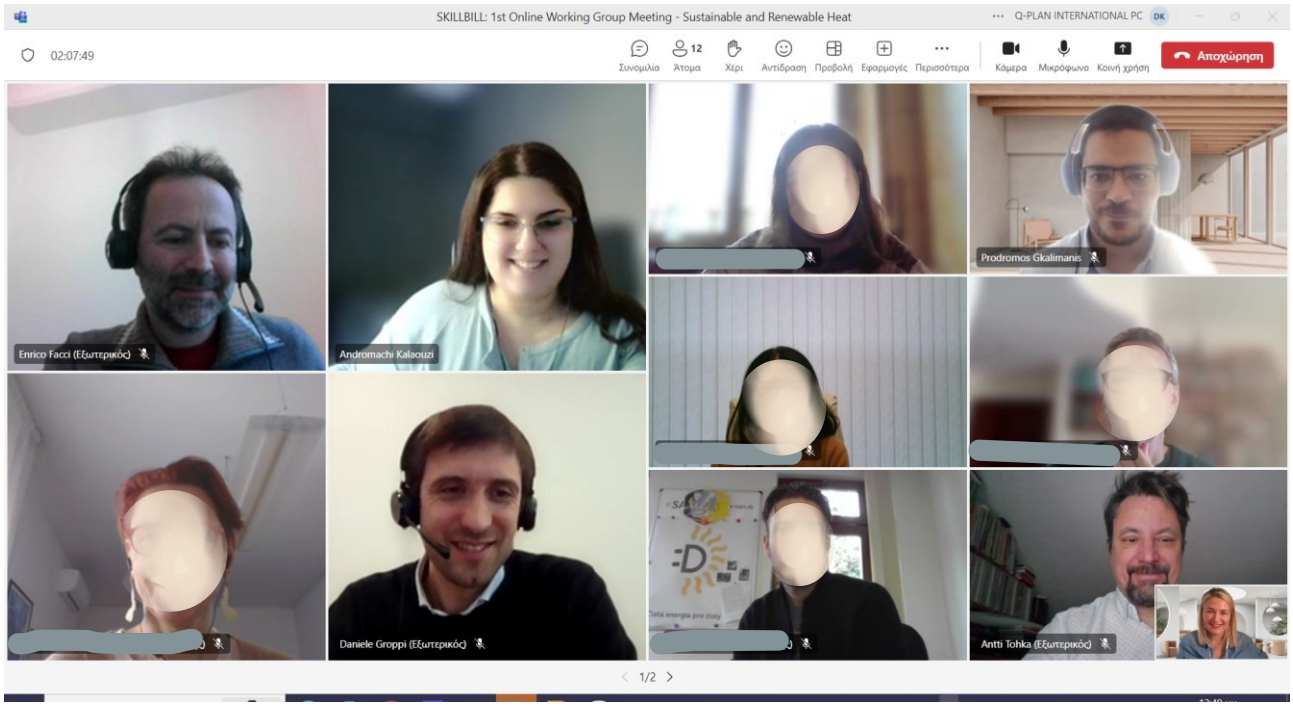


Figure 39. Family photo of Heat WG during the 1st WG meeting

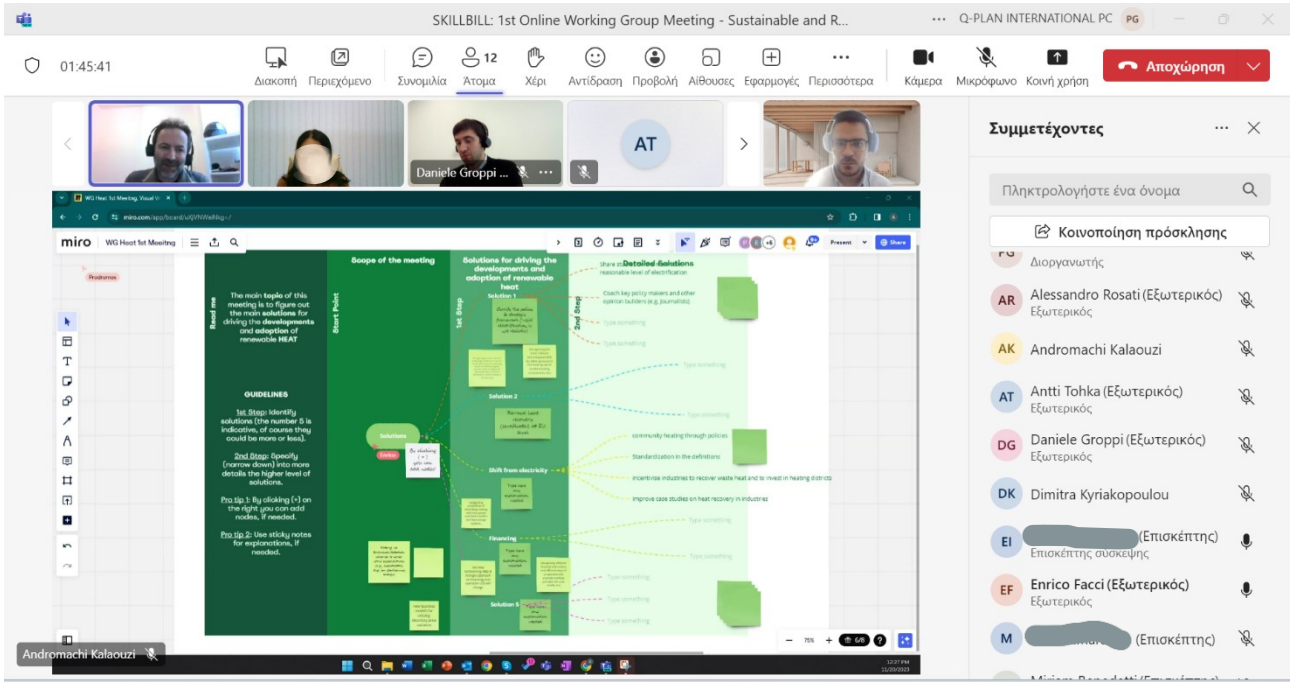


Figure 40. Heat WG, 1st Meeting, Discussions towards solutions

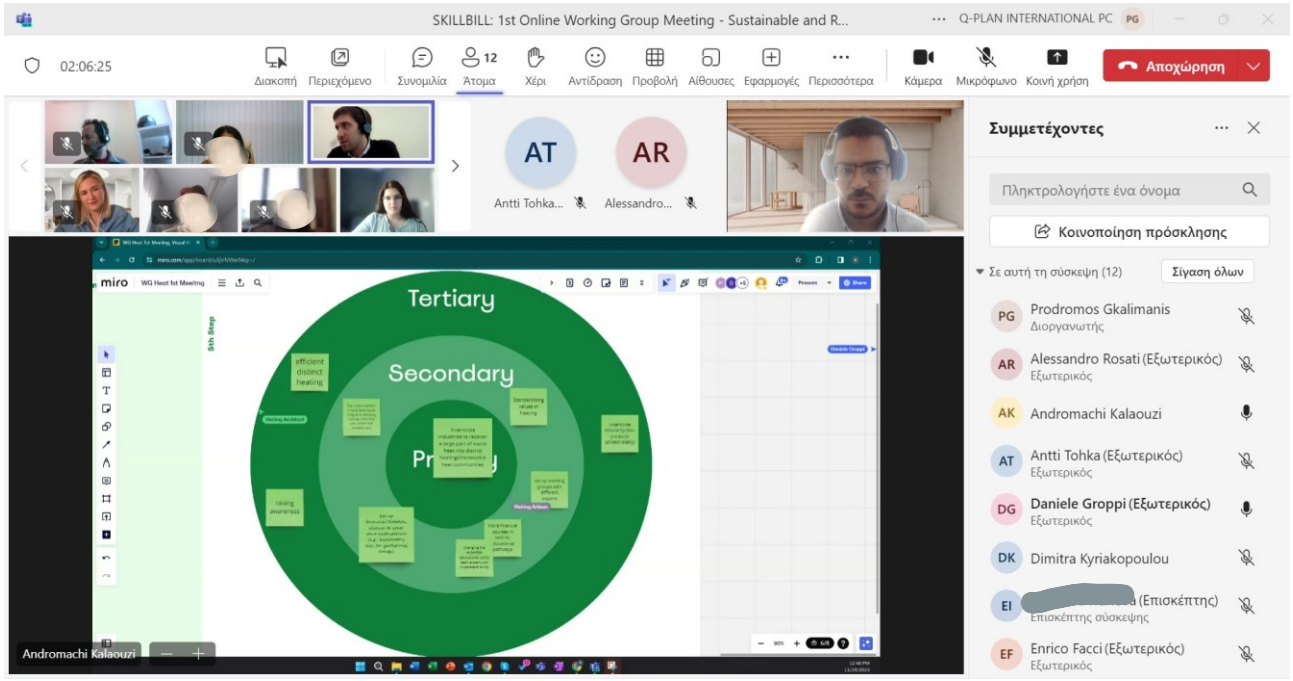


Figure 41. Prioritisation of solutions during the 1st meeting of Heat WG

5.2 2nd Round of Working Group Meetings

Table 18. Overview of 2nd Round

Approach/methodology followed	The methodology followed in this meeting comprises of five steps: **1st Step**: Identification of regulatory shifts **2nd Step**: Specification in more detail the level of regulatory shifts. **3rd Step**: Discussion on recommendations based on the regulatory shifts from the previous steps. **4th Step**: Miro voting and/or further discussion to light up the most important recommendations. **5th Step:** Use the Miro dart board to prioritise the recommendations elaborated.
Main activities	- Brief tour de la table (get to know Working Group members) - Presentation on the EU initiative and state-of-the-art in EU level by LHE - Discussion on the topic (brainstorming and knowledge exchange) - Discussion and co-creation of recommendations - Conclusion and wrap-up of the meeting
Preparatory material	Microsoft Teams Group, Miro Board, Meeting Agenda, Participants list, LHE Bio, Presentations
Communication prior to the meeting	The meeting has been organised by Q-PLAN. The time and date of the event were decided via Doodle based on the partner's availability. The LHE expert has reviewed and updated the Agenda and the Miro Boards for this meeting.

5.2.1 *Sustainable and Renewable Electricity*

An agenda was prepared to reflect the topic of the second meeting and also to pave the way towards the final solutions that were addressed by the WG members. The agenda is annexes in Annex I.

The table below provides an overview of the second meeting within the Electricity WG.

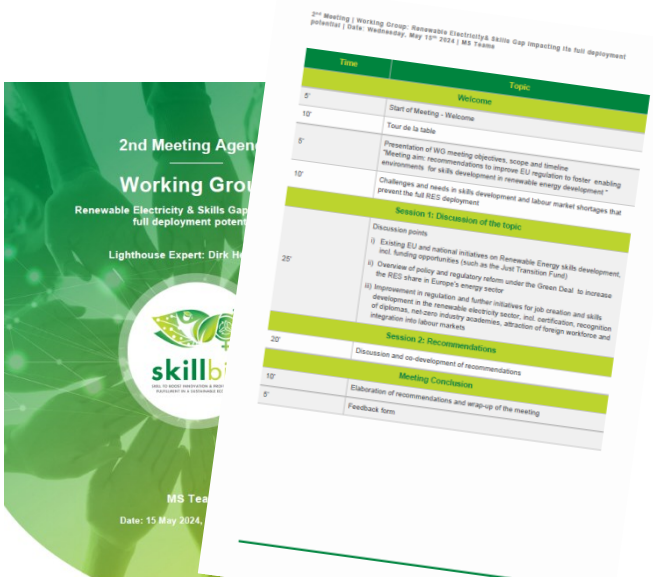


Figure 42. Agenda 2nd Meeting, Electricity WG

Table 19. Overview of second meeting within the Electricity Working Group

Organisational Details and Achievements	Metrics and Explanation
Working Group Category	Sustainable and Renewable Electricity
Topic	Directions for regulatory shifts that help share a favourable environment for sustainable electricity
No of Meeting	2nd
Date of Meeting	15/05/2024
Platform / Digital tools used	MS Teams, Miro
No of Participants	8 (four males and four females) and three written contributions (two males and one female)
Duration of Meeting (hours)	2
Name of Lighthouse Expert	Dirk Hendricks
Report Authors	Q-PLAN
No of recommendations created	18

Below a few photos of the meeting are presented, while the detailed Miro Boards are annexed in Annex II.

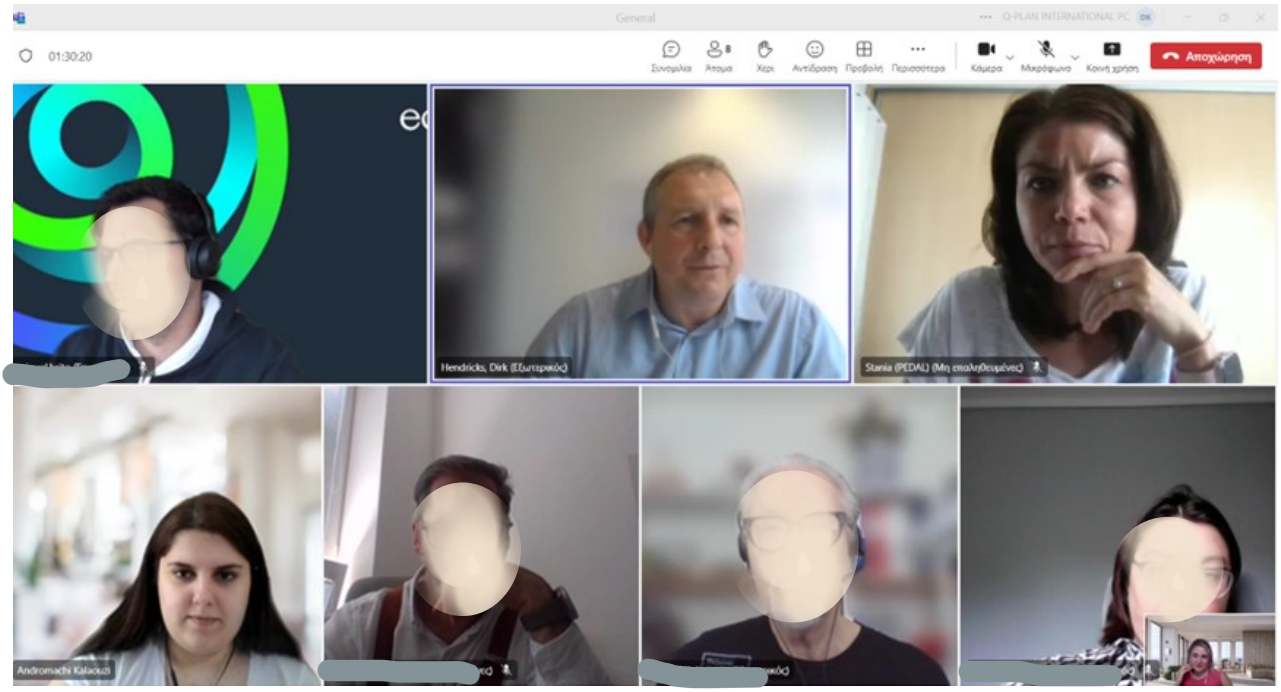


Figure 43. Overview of the 2nd Electricity WG Meeting

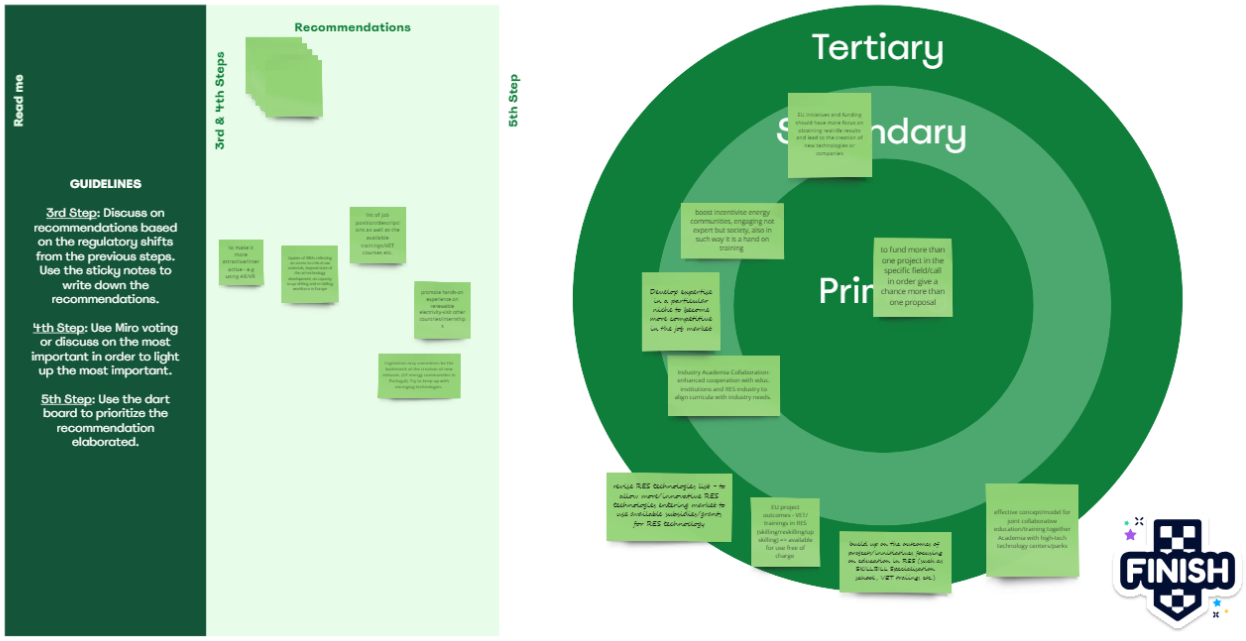


Figure 44. Prioritisation of regulatory shifts during the 2nd meeting of Electricity WG

5.2.2 *Sustainable Mobility*

An agenda was prepared to reflect the topic of the second meeting and also to pave the way towards the final solutions that were addressed by the WG members. The agenda is annexed in Annex I.

The table below provides an overview of the second meeting within the Mobility WG.

Figure 45. Agenda, 2nd Meeting, Mobility WG

Table 20. Overview of mobility WG 2nd meeting

Organisational Details and Achievements	Metrics and Explanation
Working Group Category	Sustainable Mobility
Topic	Directions for regulatory shifts that help share a favourable environment for sustainable mobility
No of Meeting	2nd
Date of Meeting	23/05/2023
Platform / Digital tools used	MS Teams, Miro
No of Participants	12 (six males and sim females)
Duration of Meeting (hours)	2
Name of Lighthouse Expert	Johan Wideberg
Report Authors	Johan Wideberg
No of recommendations created	13

Below a few photos of the meeting are presented, while the detailed Miro Boards are annexed in Annex II.

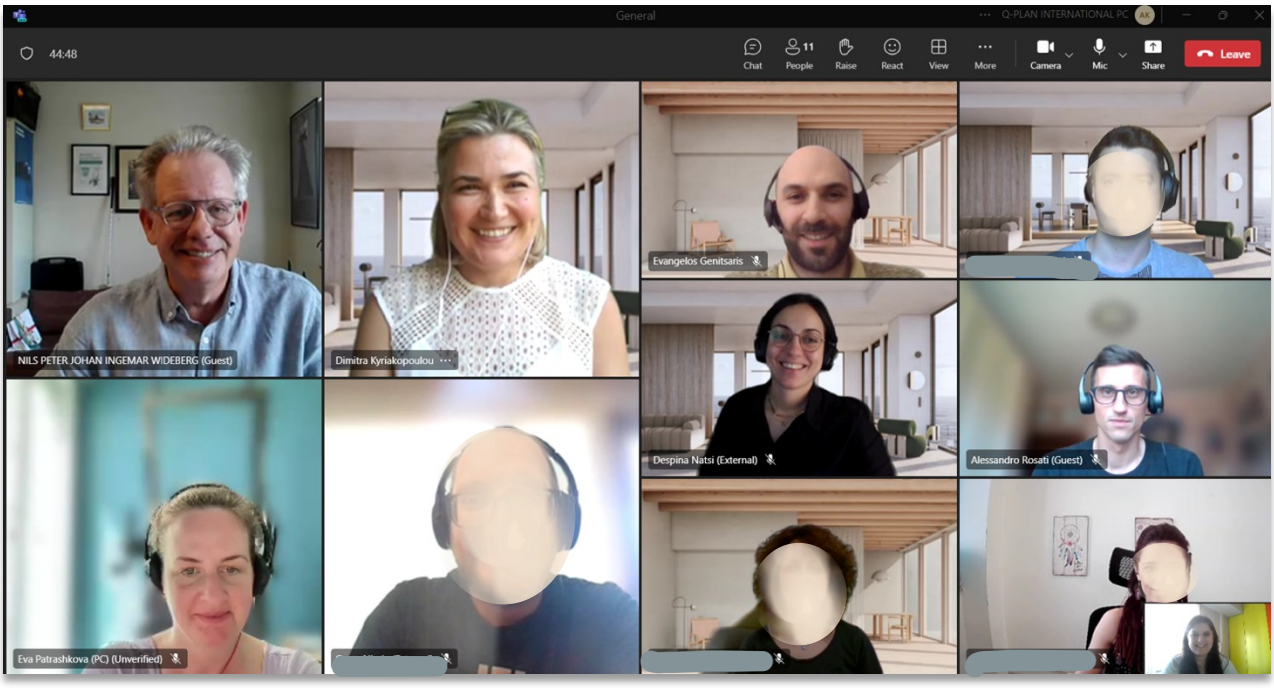


Figure 46. Family photo, 2nd meeting, Mobility WG

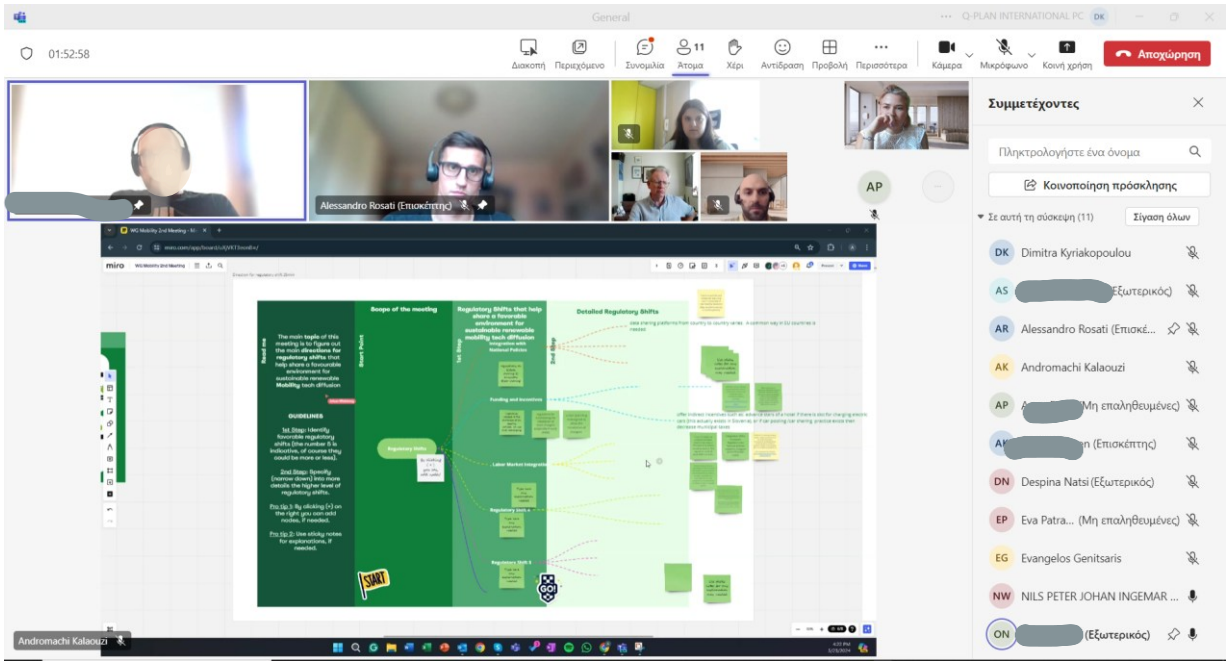


Figure 47. Discussions towards regulatory shifts, 2nd meeting, Mobility WG

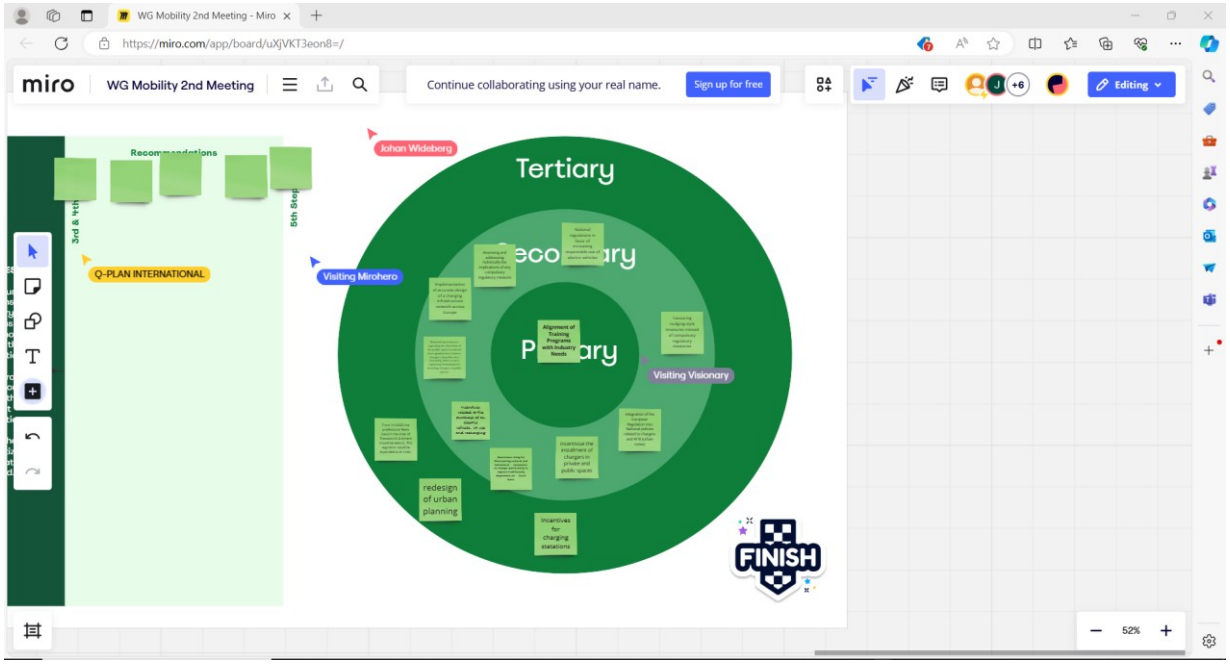


Figure 48. Prioritisation of regulatory shifts, Mobility WG, 2nd Meeting

5.2.3 *Sustainable and Renewable Fuels*

An agenda was prepared to reflect the topic of the second meeting and also to pave the way towards the final solutions that were addressed by the WG members. The agenda in annexes in Annex I.

The table below provides an overview of the second meeting within the Fuels WG.

Figure 49. Agenda, 2nd Meeting, Fuels WG

Table 21. Overview of 2nd meeting within the Fuels WG

Organisational Details and Achievements	Metrics and Explanation
Working Group Category	Sustainable and Renewable Fuels
Topic	Directions for regulatory shifts that help share a favourable environment for sustainable fuels
No of Meeting	2nd
Date of Meeting	13/05/2024
Platform / Digital tools used	MS Teams, Miro
No of Participants	12 (six males and six females)
Duration of Meeting (hours)	2
Name of Lighthouse Expert	Esa Toukoniitty
Report Authors	Esa Toukoniitty
No of recommendations created	6

Below a few photos of the meeting are presented, while the detailed Miro Boards are annexed in Annex II.

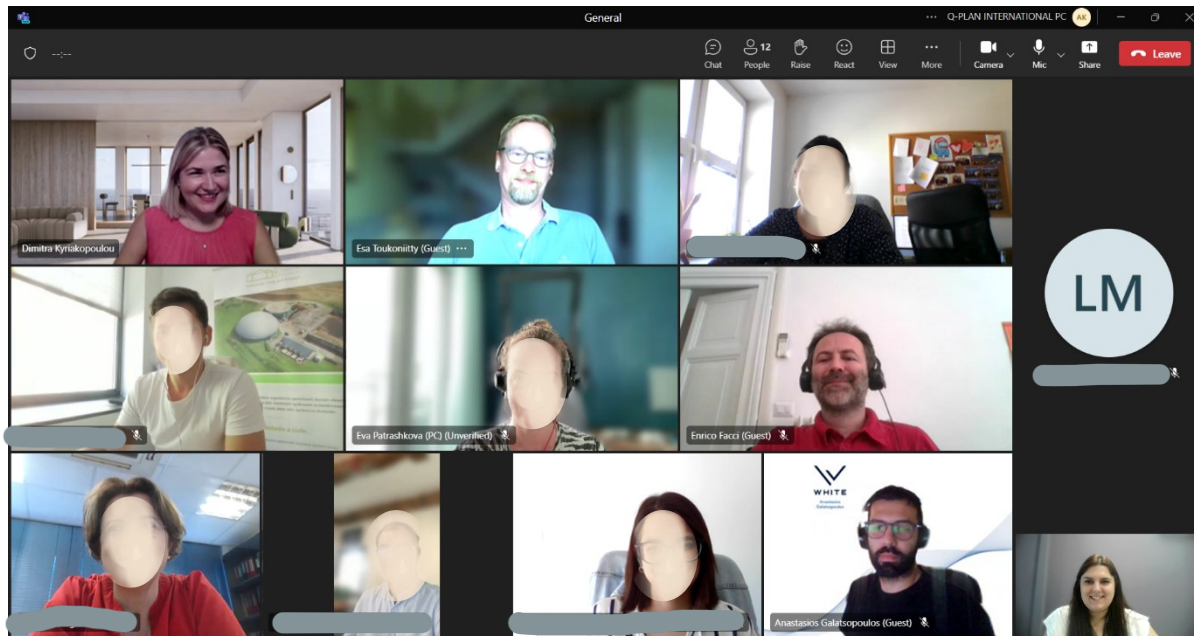


Figure 50. Family photo, 2nd meeting, Fuels WG

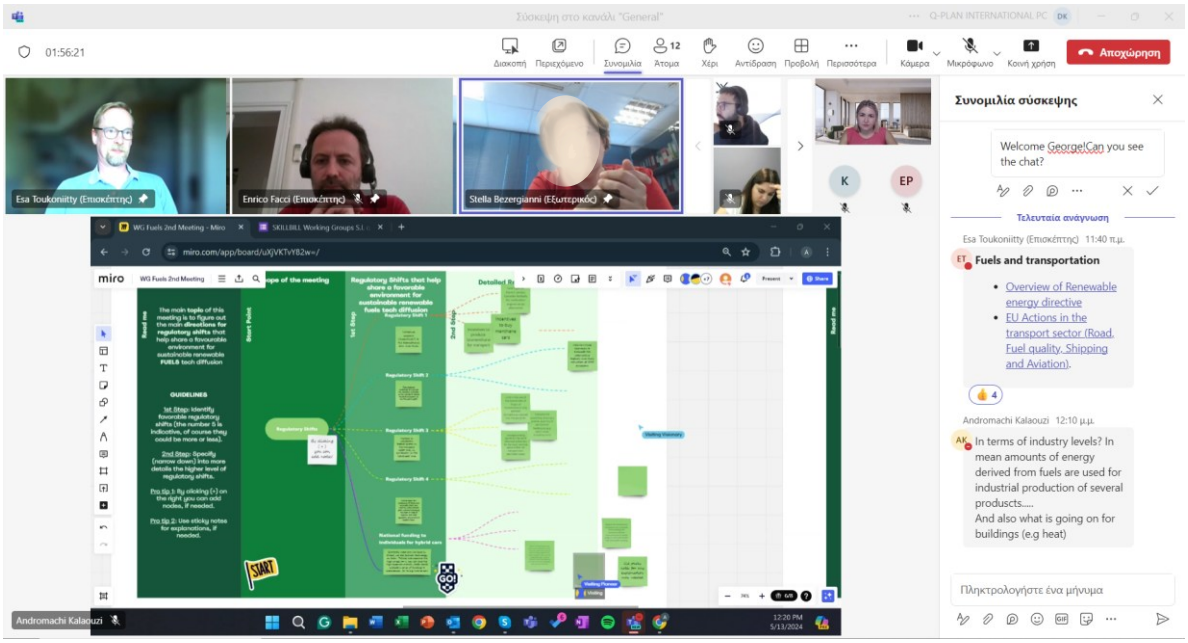


Figure 51. Discussions on regulatory shift, during the 2nd meeting of Fuels WG

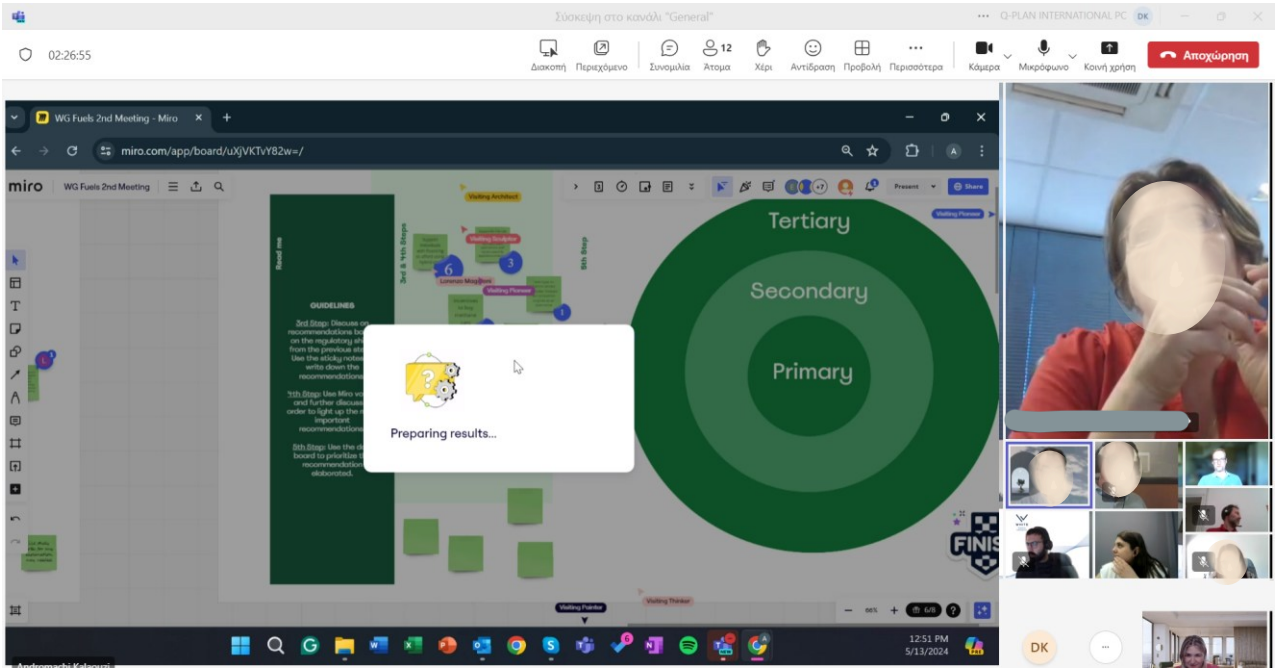


Figure 52. Voting process, for the prioritisation, during the 2nd meeting of Fuels WG

5.2.4 *Sustainable and Renewable Heat*

An agenda was prepared to reflect the topic of the second meeting and also to pave the way towards the final solutions that were addressed by the WG members. The agenda is annexed in Annex I.

The table below provides an overview of the second meeting within the Heat WG.

Figure 53. Agenda, 2nd Meeting, Heat WG

Table 22. Overview of 2nd meeting within Heat WG

Organisational Details and Achievements	Metrics and Explanation
Working Group Category	Sustainable and Renewable Heat
Topic	Directions for regulatory shifts that help share a favourable environment for sustainable heat
No of Meeting	2nd
Date of Meeting	17/05/2024

Organisational Details and Achievements	Metrics and Explanation
Platform / Digital tools used	MS Teams, Miro
No of Participants	10 (three males and seven females) and one written contribution (male)
Duration of Meeting (hours)	2
Name of Lighthouse Expert	Daniele Groppi
Report Authors	Q-PLAN
No of recommendations created	14

Below a few photos of the meeting are presented, while the detailed Miro Boards are annexed in Annex II.

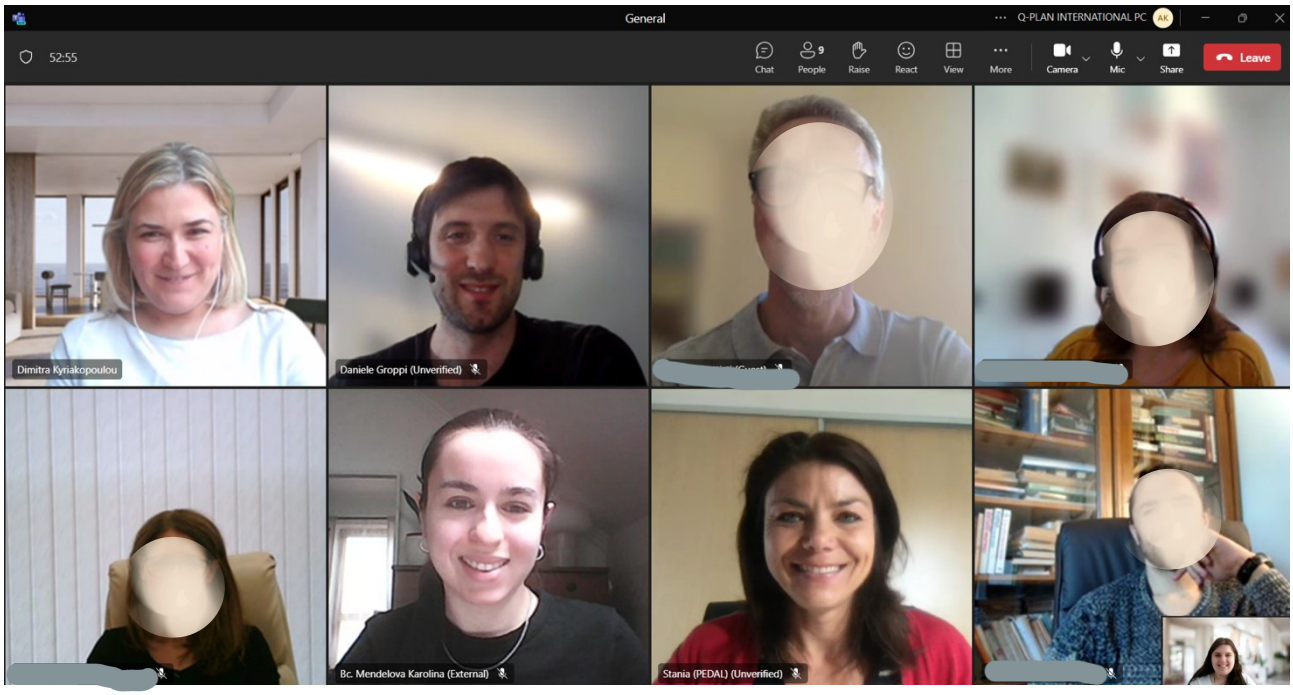


Figure 54. Family photo, 2nd meeting, Heat WG

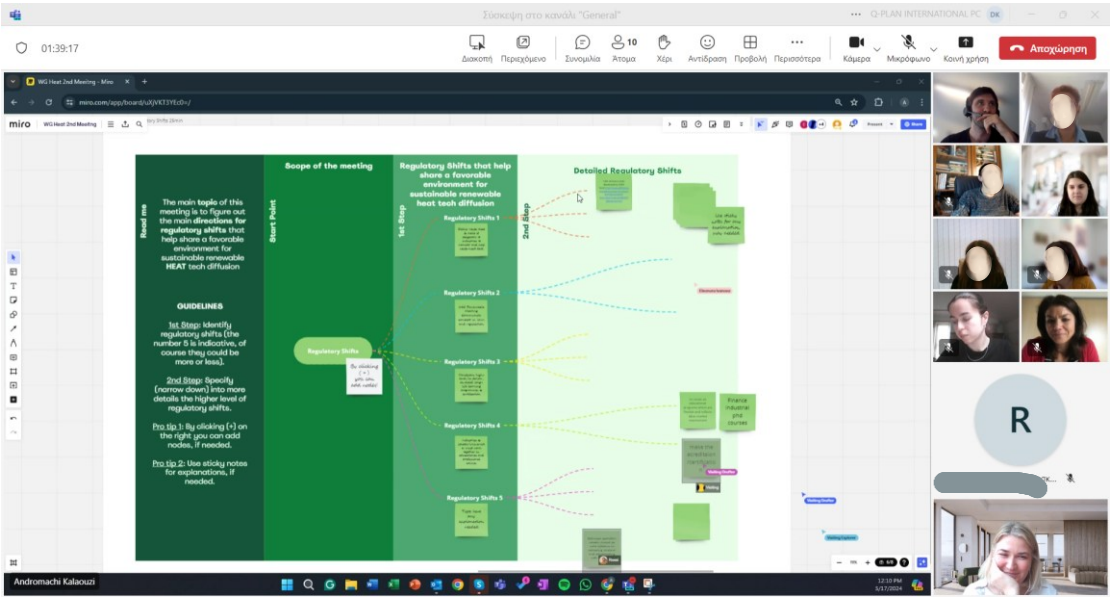


Figure 55. Discussions towards regulatory shifts during the 2nd meeting of Heat WG

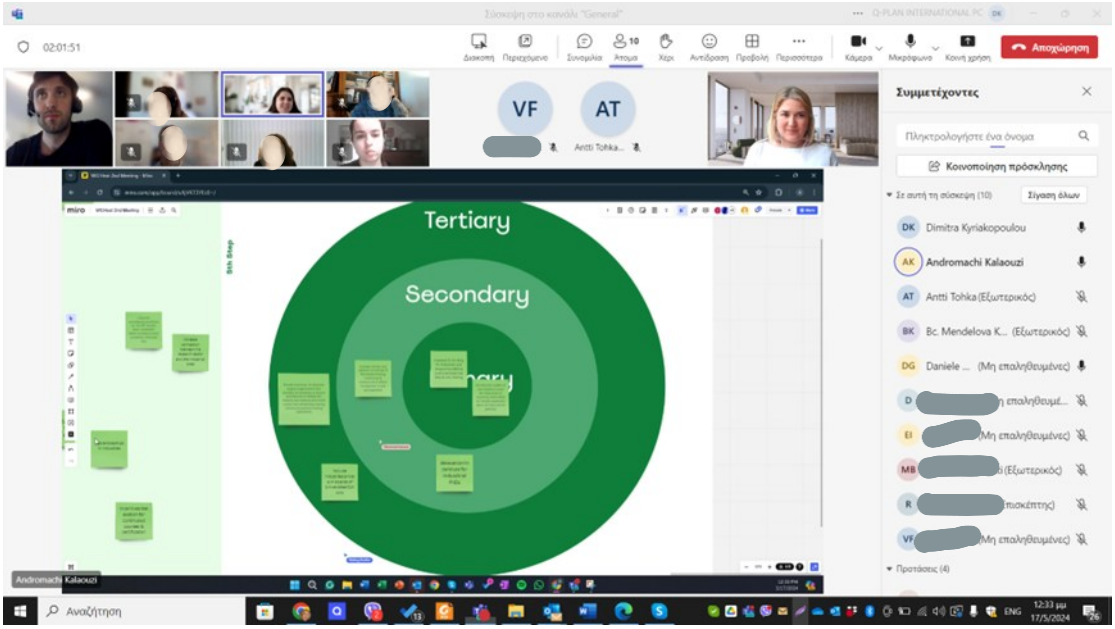


Figure 56. Prioritisation of regulatory shifts during the 2nd meeting of Heat WG

5.3 3rd Round of Working Group Meetings

Table 23. Overview of 3rd Round

Approach/methodology followed	The methodology followed in this meeting comprises of 6 steps: **1st step:** Discussion on existing educational and training programs for renewable electricity **2nd Step:** Identification of skills shortages – gaps and future skills demand based on technological advancements **3rd Step:** Development of guidelines for educational and training programs **4th Step:** Specification in more detail the level of guidelines. **5th Step:** Miro voting and/or further discussion to light up the most important guidelines. **6th Step:** Use the Miro dart board to prioritise the guidelines elaborated.
Main activities	- Discussion on the topic (brainstorming and knowledge exchange) - Discussion and development of guidelines - Conclusion and wrap-up of the meeting
Preparatory material	Microsoft Teams Group, Miro Board, Meeting Agenda, Participants list, presentations
Communication prior to the meeting	The meeting has been organised by Q-PLAN. The time and date of the event were decided via Doodle based on the partner's availability. The LHE expert has reviewed and updated the Agenda and the Miro boards for this meeting. The LHE prepared a presentation on current educational and training programs

5.3.1 *Sustainable and Renewable Electricity*

An agenda was prepared to reflect the topic of the third meeting and also to pave the way towards the final guidelines for educational and training programmes that were addressed by the WG members. The agenda is annexed in Annex I.

The table below provides an overview of the third meeting within the Electricity WG.

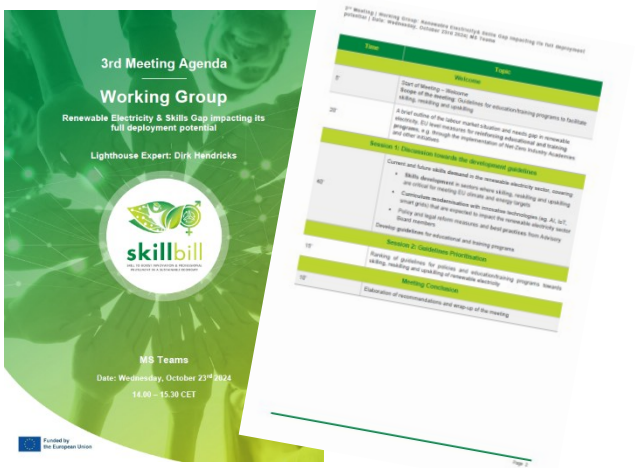


Figure 57. Agenda 3rd Meeting, Electricity WG

Table 24. Overview of 3rd meeting within the Electricity Working Group

Organisational Details and Achievements	Metrics and Explanation
Working Group Category	Sustainable and Renewable Electricity
No of Meeting	3rd Meeting of Electricity Working Group
Date of Meeting	23/10/2024
Platform / Digital tools used	MS Teams, Miro
No of Participants	9
Duration of Meeting (hours)	1.5 h
Name of Lighthouse Expert	Dirk Hendricks
Report Authors	Q-PLAN
No of guidelines developed	15

Below a few photos of the meeting are presented, while the detailed Miro Boards are annexed in Annex II.

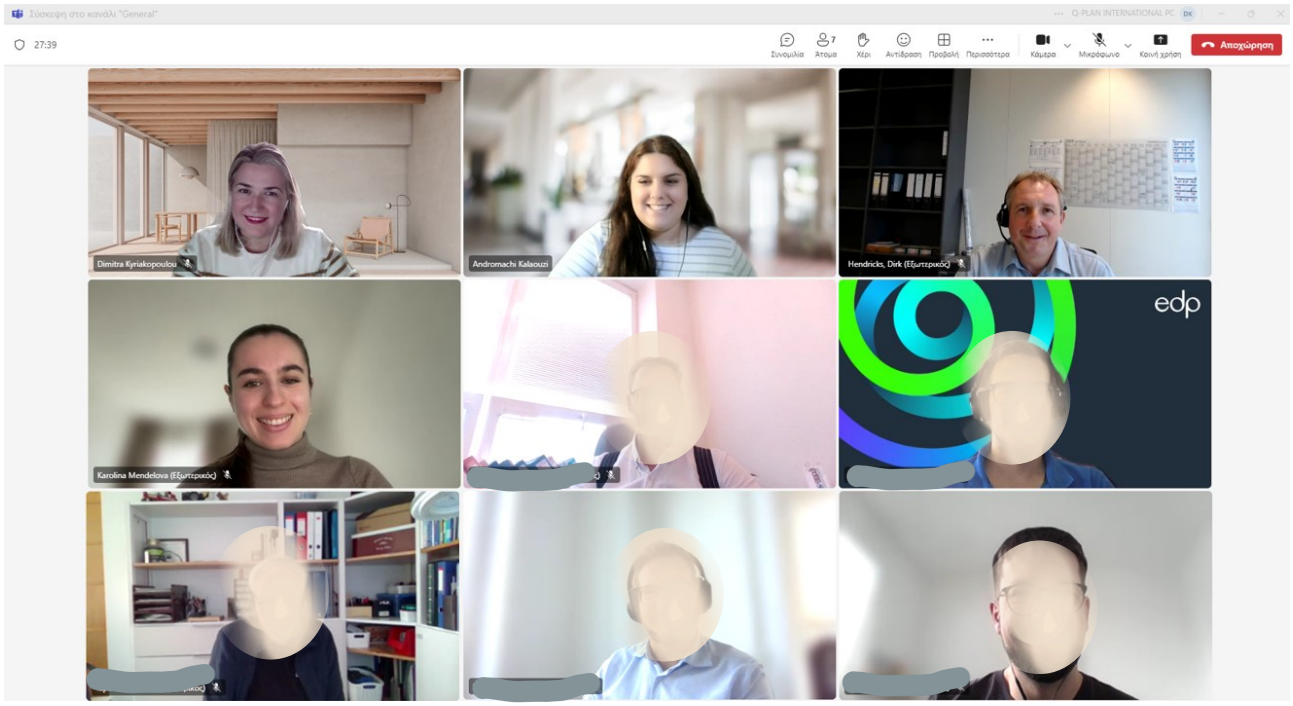


Figure 58. Overview of the 3rd Electricity WG Meeting

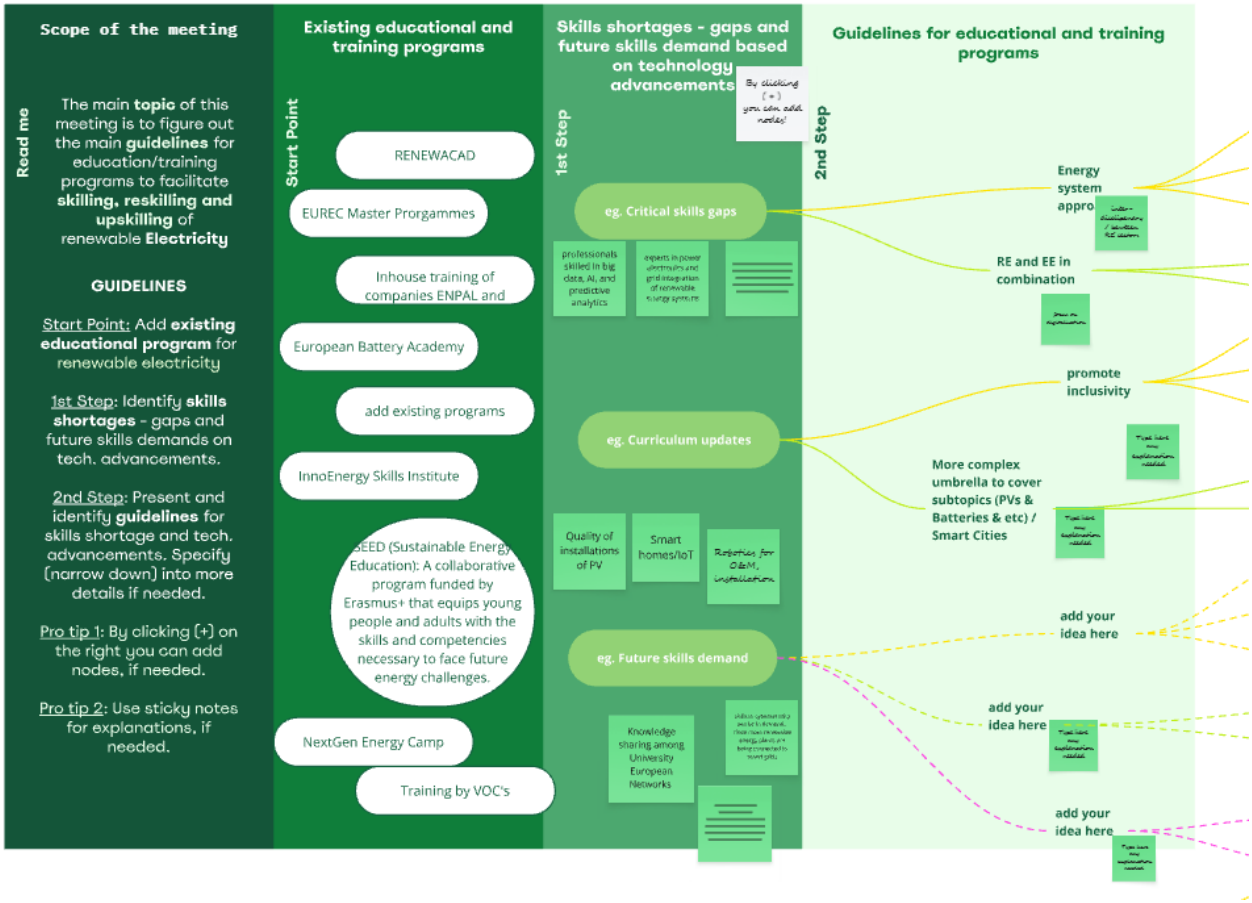


Figure 59. Discussion on guidelines for education during the 3rd Electricity WG meeting

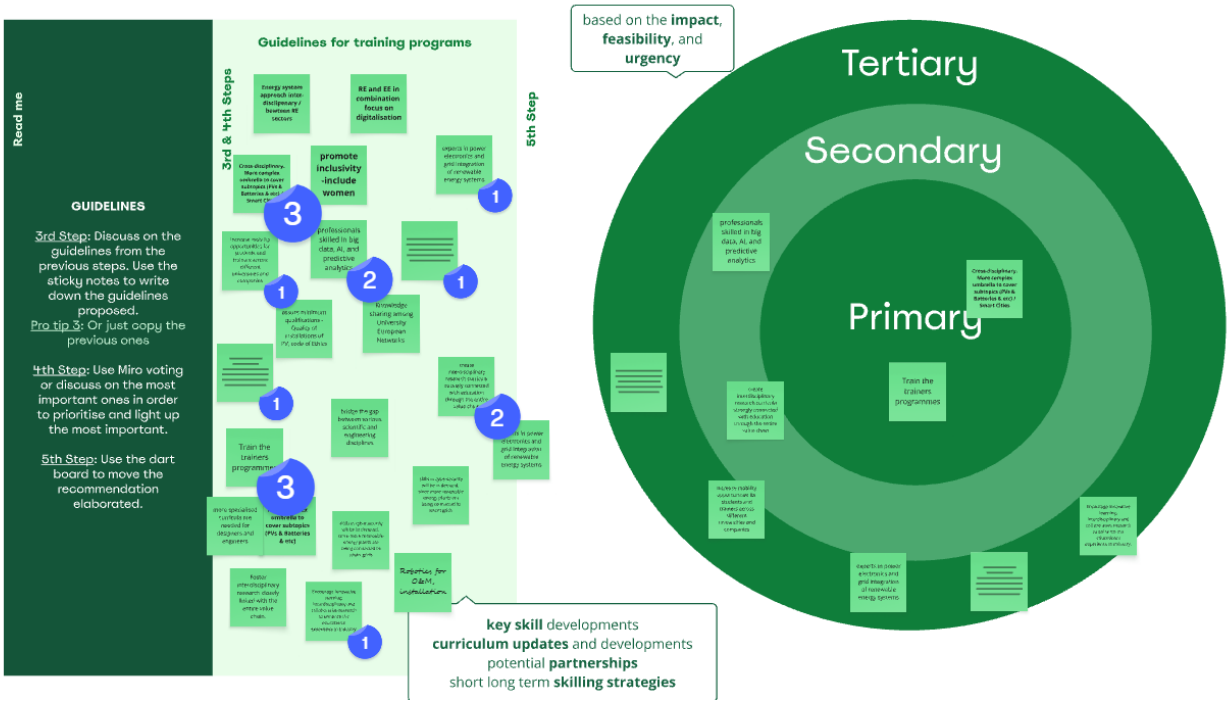


Figure 60. Prioritisation of guidelines for education during the 3rd meeting of Electricity WG

5.3.2 *Sustainable Mobility*

An agenda was prepared to reflect the topic of the third meeting and also to pave the way towards the guidelines for educational and training programmes that were addressed by the WG members. The agenda is annexed in Annex I.

The table below provides an overview of the third meeting within the Mobility WG.

Figure 61. Agenda,3rd Meeting Mobility WG

Table 25. Overview of mobility WG 3rd meeting

Organisational Details and Achievements	Metrics and Explanation
Working Group Category	Sustainable Mobility
No of Meeting	3rd
Date of Meeting	22/11/2023
Platform / Digital tools used	MS Teams, Miro
No of Participants	12
Duration of Meeting (hours)	1.5 h
Name of Lighthouse Expert	Johan Wideberg
Report Authors	Johan Wideberg
No of guidelines created	26

Below a few photos of the meeting are presented, while the detailed Miro Boards are annexed in Annex II.

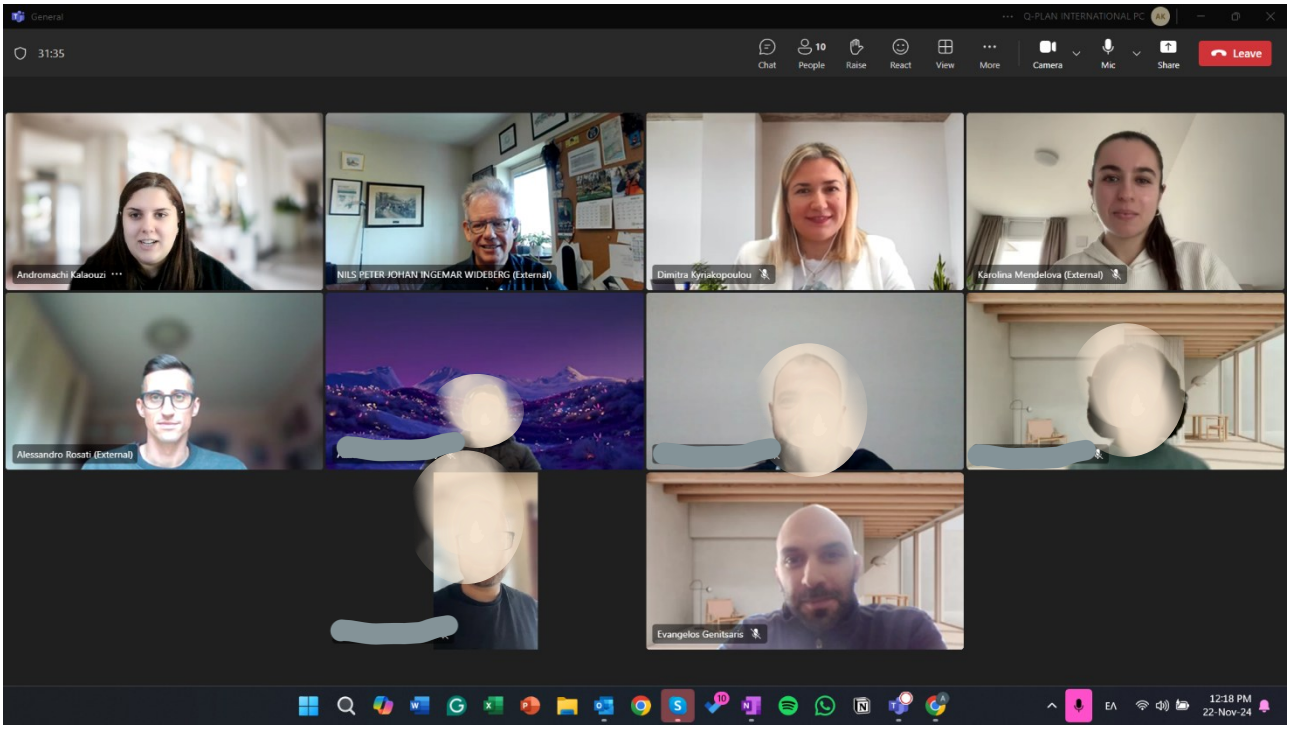


Figure 62. Family photo, 3rd meeting, Mobility WG

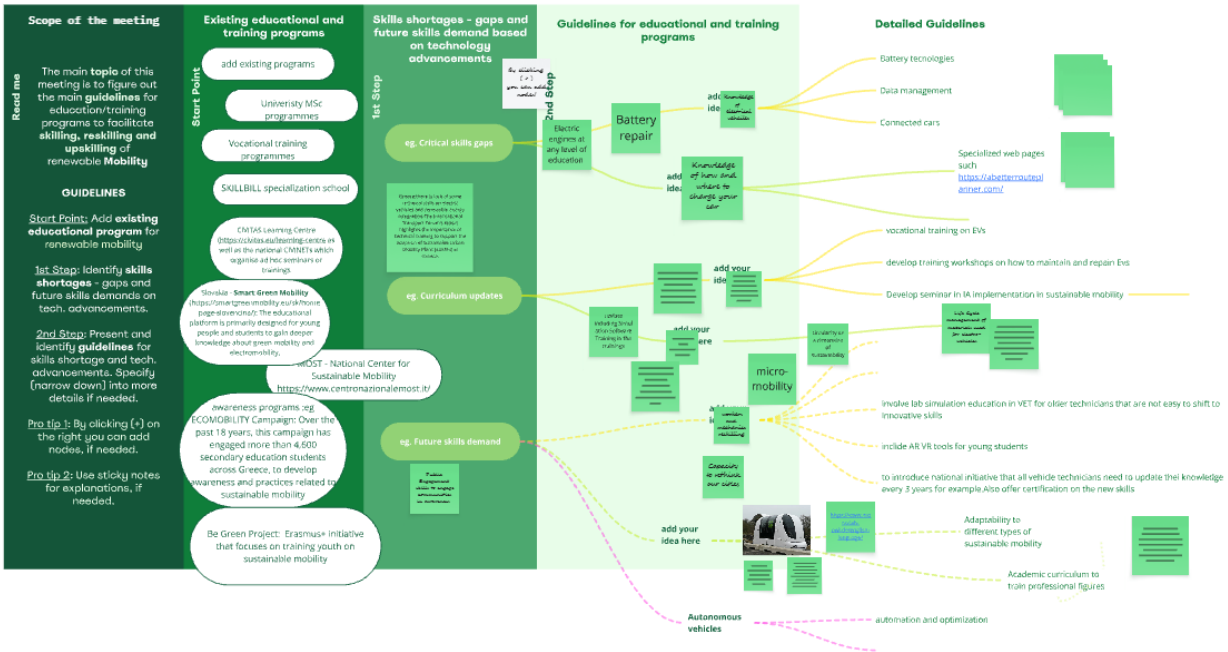


Figure 63. Discussion on guidelines for education during the 3rd Mobility WG meeting

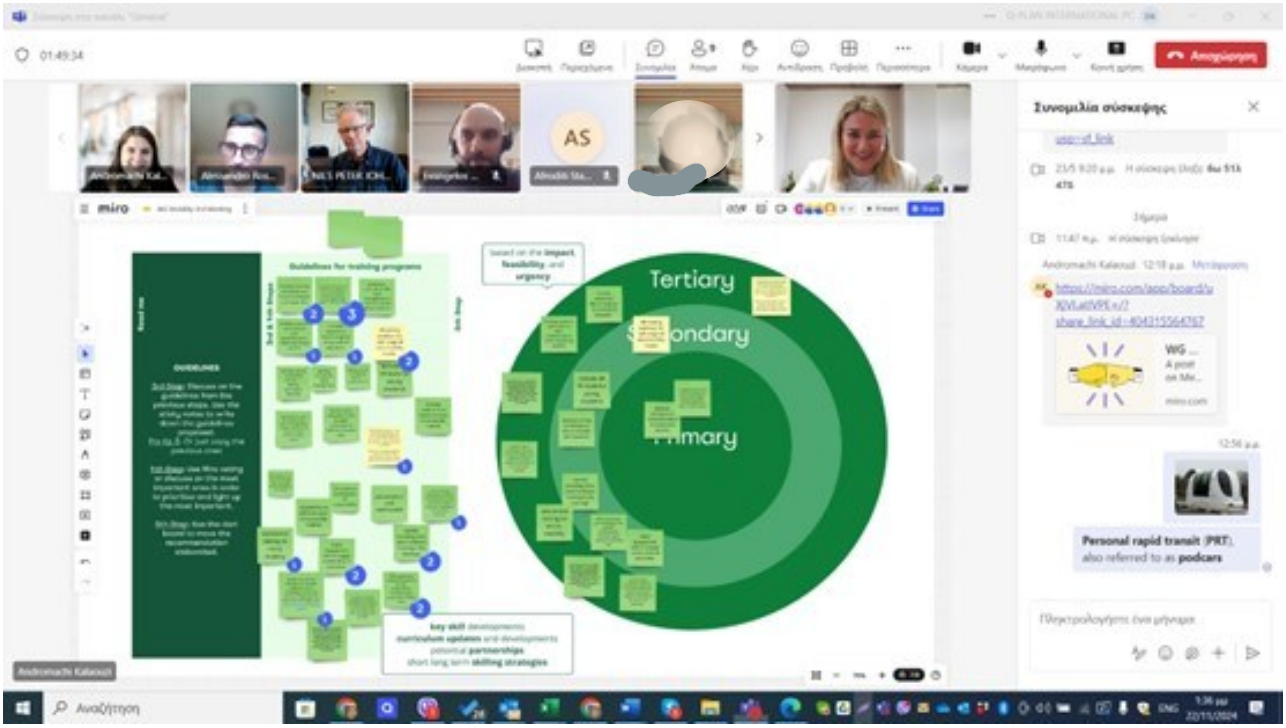


Figure 64. Prioritisation of guidelines for education shifts, Mobility WG, 3rd Meeting

5.3.3 *Sustainable and Renewable Fuels*

An agenda was prepared to reflect the topic of the third meeting and also to pave the way towards the guidelines for educational and training programmes that were addressed by the WG members. The agenda in annexes in Annex I.

The table below provides an overview of the third meeting within the Fuels WG.

Figure 65. Agenda, 3rd Meeting, Fuels WG

Table 26. Overview of 3rd meeting within the Fuels WGs

Organisational Details and Achievements	Metrics and Explanation
Working Group Category	Sustainable and Renewable Fuels
No of Meeting	3rd Meeting of Fuels Working Group
Date of Meeting	05/11/2024

Organisational Details and Achievements	Metrics and Explanation
Platform / Digital tools used	MS Teams, Miro
No of Participants	13
Duration of Meeting (hours)	1.5 h
Name of Lighthouse Expert	Esa Toukoniitty
Report Authors	Esa Toukoniitty
No of guidelines created	17

Below a few photos of the meeting are presented, while the detailed Miro Boards are annexed in Annex II.

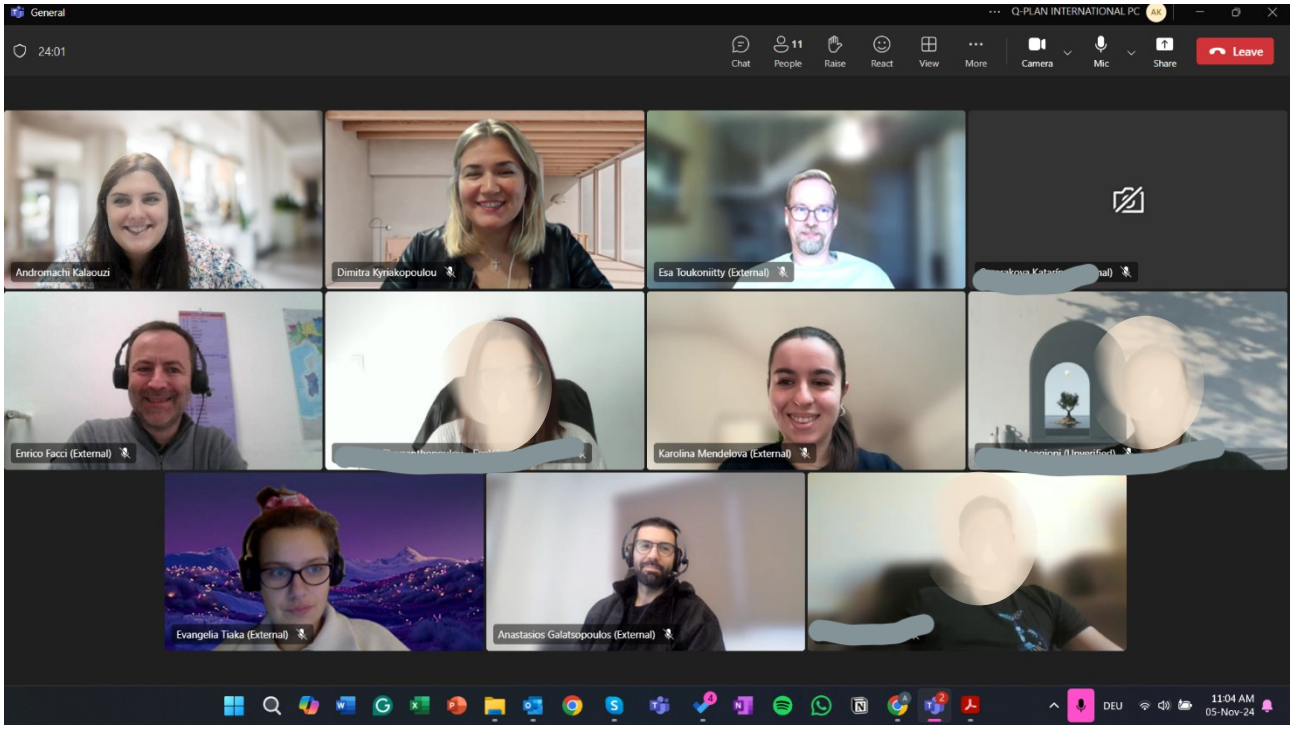


Figure 66. Family photo, 3rd meeting, Fuels WG

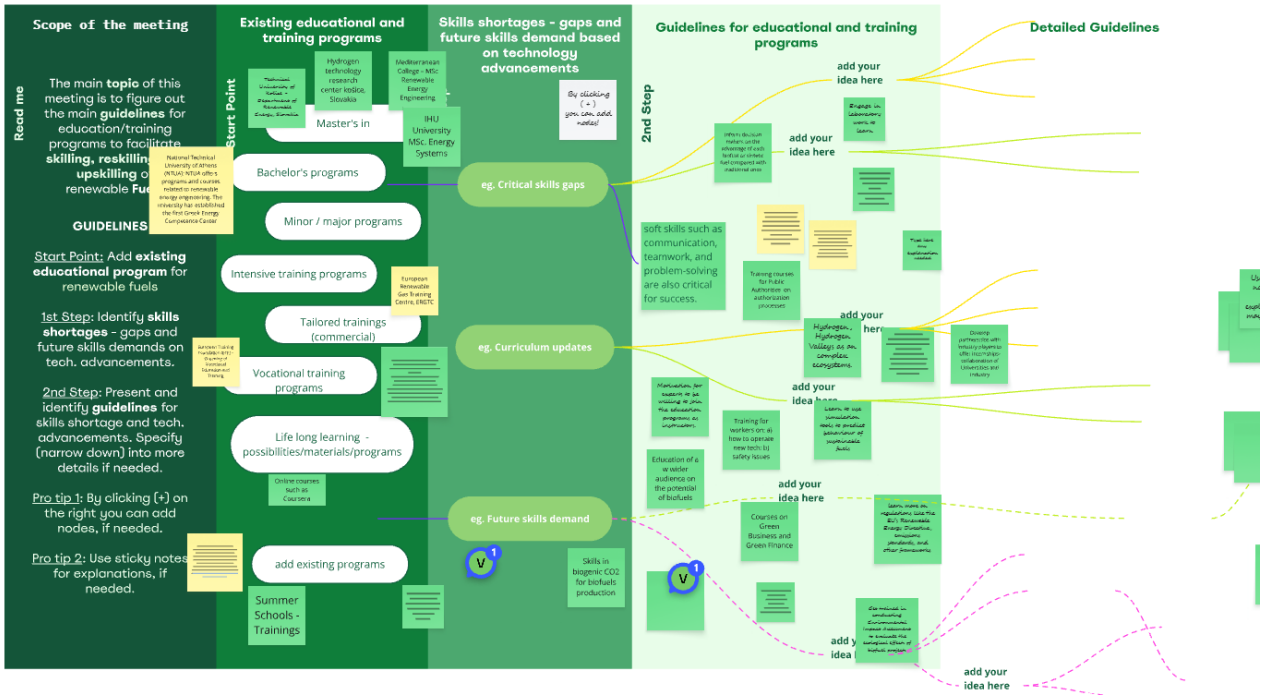


Figure 67. Discussion on guidelines for education during the 3rd Fuel WG meeting

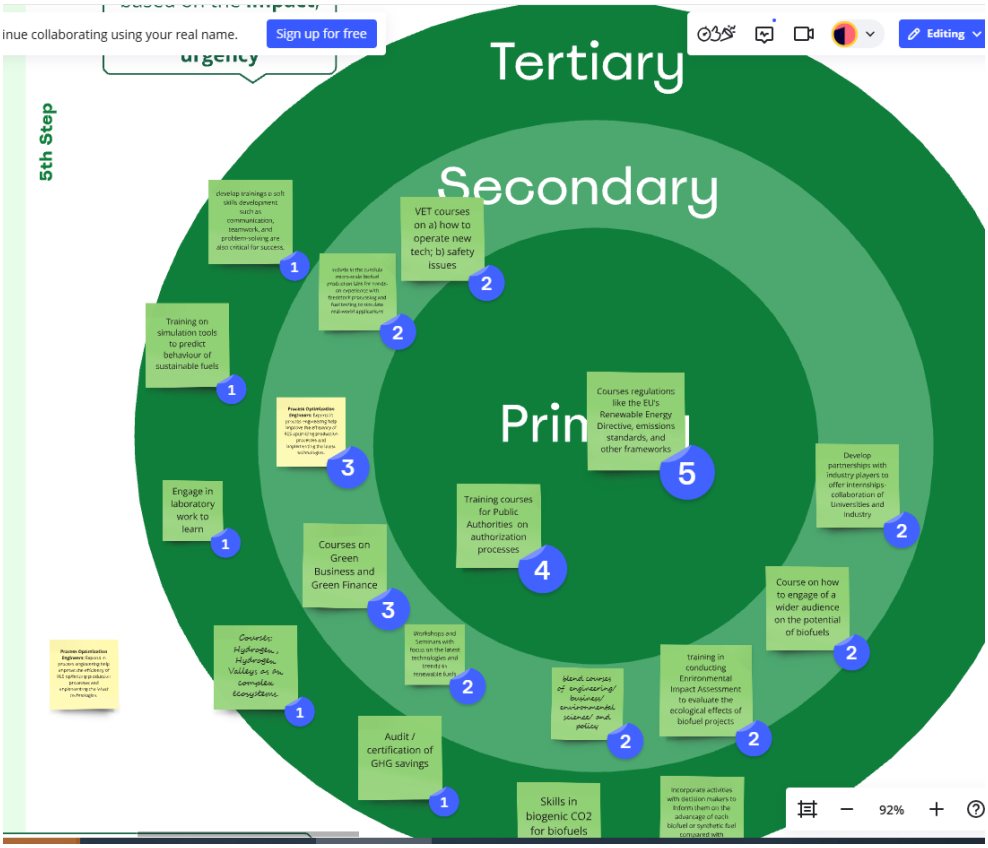


Figure 68. Prioritisation of guidelines for education during the 3rd Fuel WG

5.3.4 *Sustainable and Renewable Heat*

An agenda was prepared to reflect the topic of the third meeting and also to pave the way towards the guidelines for educational and training programmes that were addressed by the WG members. The agenda is annexed in Annex I.

The table below provides an overview of the third meeting within the Heat WG.

Figure 69. Agenda, 3rd Meeting, Heat WG

Table 27. Overview of 3rd meeting within Heat WG

Organisational Details and Achievements	Metrics and Explanation
Working Group Category	Sustainable and Renewable Heat
No of Meeting	3rd
Date of Meeting	29/10/2024
Platform / Digital tools used	MS Teams, Miro
No of Participants	10
Duration of Meeting (hours)	1.5 h
Name of Lighthouse Expert	Daniele Groppi
Report Authors	Daniele Groppi
No of guidelines created	17

Below a few photos of the meeting are presented, while the detailed Miro Boards are annexed in Annex II.

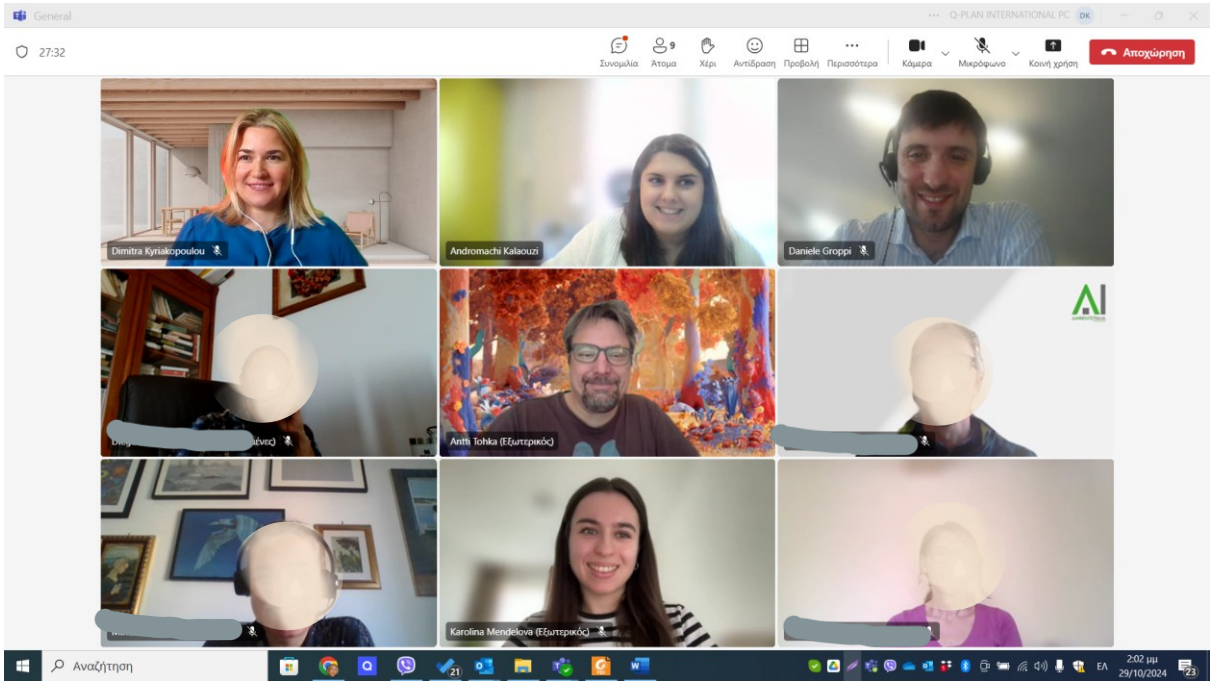


Figure 70. Family photo, 3rd meeting, Heat WG

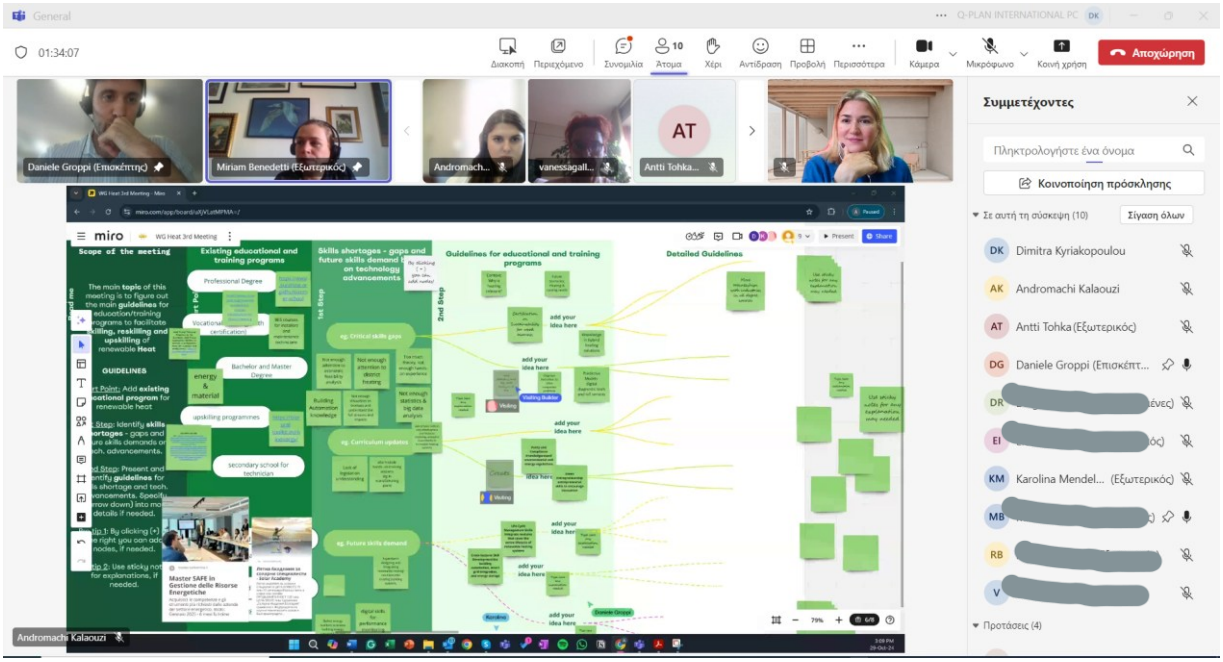


Figure 71. Discussion on guidelines for education during the 3rd Heat WG meeting

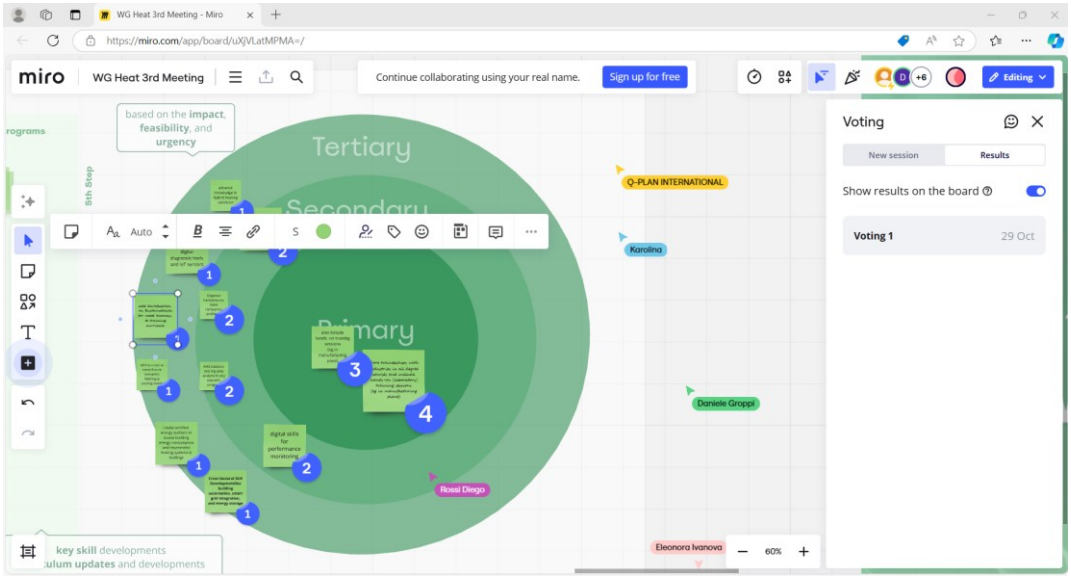


Figure 72. Prioritisation of guidelines for education during the 3rd meeting of Heat WG

5.4 4th Round of Working Group and Plenary Meeting

Table 28. Plenary Meeting Overview

Approach/methodology followed	The methodology followed in this meeting comprises of five steps: **1st step**: Presentation of insights from all previous meetings among WGs focusing on key insights **2nd Step**: Identification of skills shortages – gaps and future skills demand based on knowledge needed **3rd Step**: Prioritisation of skills based on importance and immediate action needed. Time planning for short-, medium- or long-term importance **4th Step**: Drafting of job profiles **5th Step**: Miro voting and further discussion to light up the most important ones.
Main activities	- Tour de la table, meeting each other, as this meeting gathered all the WGs together - Presentation of main insights from all the WGs - Exchanging and highlighting of emerging skills (brainstorming and knowledge exchange) - Discussion and development of job profiles (brainstorming and ideas exchange) - Conclusion and wrap-up of the meeting

Preparatory material	Microsoft Teams Group, Miro Board, Meeting Agenda, Participants list, presentation
Communication prior to the meeting	The meeting has been organised by Q-PLAN. The time and date of the event were decided via Doodle based on the partner's availability. Q-PLAN prepared a presentation on key insights and outcomes of the WGs. The collection of the insights was shared with all four LHE for additions.

5.4.1 *All WGs gathered*

An agenda was prepared to reflect the topic of the fourth and plenary meeting, and the future of renewable energy systems and the evolving skills and job profiles required to support this transition were addressed by the WG members. The agenda is annexed in Annex I.

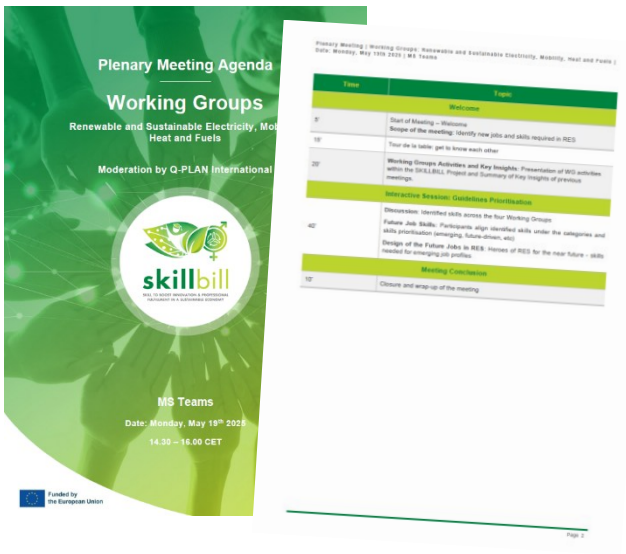


Figure 73. Agenda Plenary Meeting

The table below provides an overview of the fourth meeting (plenary meeting).

Table 29. Overview of Plenary with all WG together

Organisational Details and Achievements	Metrics and Explanation
Working Group Category	All WGs together
No of Meeting	4th Meeting (Plenary Meeting)
Date of Meeting	19/05/2025
Platform / Digital tools used	MS Teams, Miro
No of Participants	23
Duration of Meeting (hours)	1.5 h
Name of Lighthouse Expert	Not applicable | Moderated by Q-PLAN

Organisational Details and Achievements	Metrics and Explanation
Report Authors	Q-PLAN International
No of skills created	54
No of jobs profiles created	16

Below a few photos of the meeting are presented, while the detailed Miro Boards are annexed in Annex II.

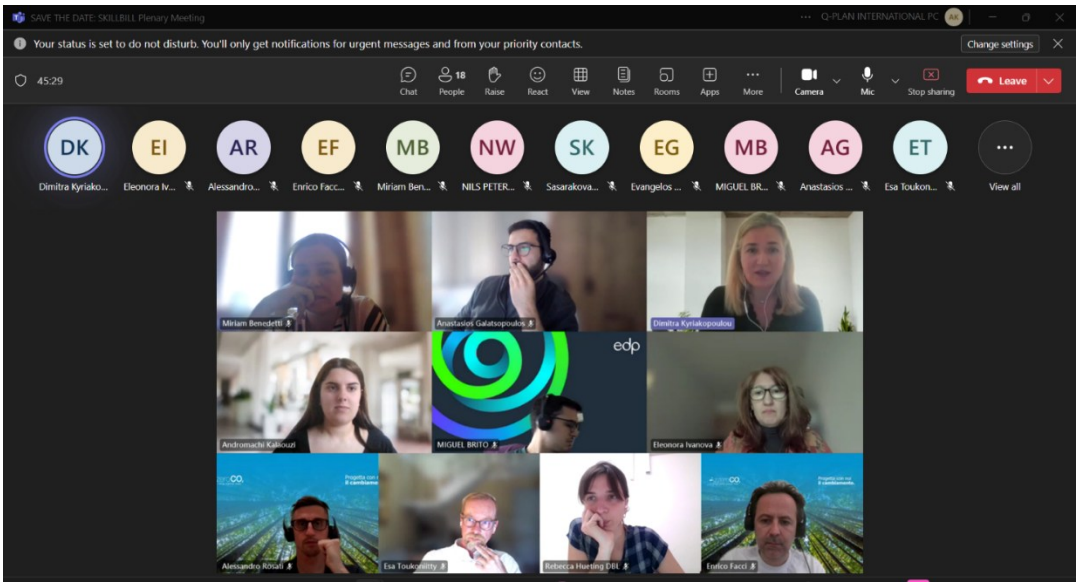


Figure 74.Overview of the Plenary Meeting

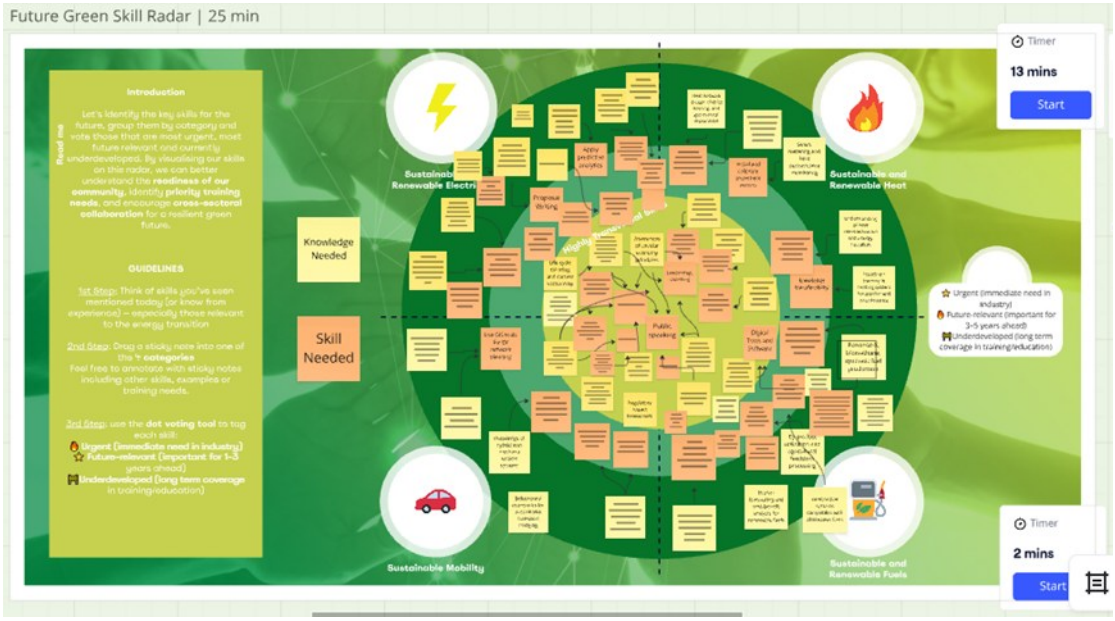


Figure 75. Discussion on skills needed during the Plenary Meeting

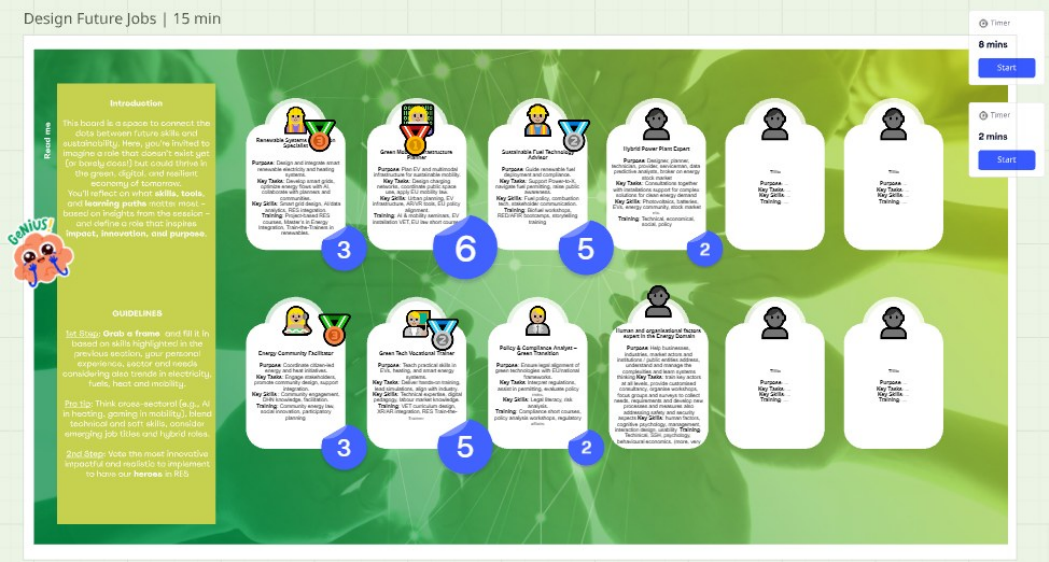


Figure 76. Job Profiles designed during the Plenary Meeting

6. Actionable Results from WGs

This section presents the outcomes that were gathered from all the activities during the four rounds of WG activities.

6.1 Sustainable and Renewable Electricity

6.1.1 *Solutions for driving the development and adoption of sustainable and renewable electricity*

Table 30. Electricity WG, 1st Meeting, Outcomes

Rank	Recommendation	Brief Description
Primary	Subsidies/tax breaks for innovative renewable energy projects	Providing subsidies and tax breaks for innovative projects is a strategy employed by governments to foster innovation. This approach aims to incentivize companies to invest in research and development of renewable energy, leading to the creation of new and advanced products, services, or processes.
Primary	Establishment of a dedicated European Academy on Renewables, Batteries, Hydrogen etc.	This specialized academy would serve as a hub for research, education, and collaboration, fostering expertise and innovation in the field of renewable energy.
Secondary	Rewarding schemes for energy communities	Energy communities that actively involve their members in the design, maintenance of the equipment or rise awareness/knowledge should be rewarded by the government.
Secondary	Local community engagement by renewable installers	Renewable installers should actively engage with local communities to foster collaboration, address concerns, and ensure the successful integration of sustainable energy projects. Particular attention should be directed towards communities experiencing energy poverty.
Secondary	Policymaking for companies committed to (i) upskilling and (ii) gender balance, and equal rights	Policies in general (both for upskilling and gender balance & equal opportunities) shall always focus on facilitating access to these categories, simplifying procedures and acknowledging (e.g. through tax

Rank	Recommendation	Brief Description
		reductions) the commitment of companies and industries engaged. Also, the existing voluntary "blueprints" could become stronger and internationally recognised and desirable.
Tertiary	Grant opportunities for early-stage researchers	Creation of attractive and competitive grant opportunities specifically designed for early-stage researchers in the field of renewable electricity.
Tertiary	Qualification and assessment standards for RES installers	Develop standardized qualification and assessment criteria for RES installers to ensure consistent and high-quality standards in the renewable electricity sector.
Tertiary	A joint Master's and Ph.D. degree program within a European network of universities	This approach allows students to seamlessly progress from a master's to a Ph.D. program, fostering interdisciplinary learning and research on renewable electricity within the context of a broader European educational network.
Tertiary	International cooperation in training using both national and international funding sources	It includes partnerships between governments, international organizations, and non-governmental entities to support training programs that have cross-border relevance and impact.
Tertiary	Subsidies for the enhancement of equipment in vocational schools	Financial support or incentives to improve and upgrade the tools, machinery, technology, and other resources used for practical training in vocational education institutions
Tertiary	EU standards and interdisciplinary courses covering the full battery value chain	EU wide standards for adapted curricula and creation of interdisciplinary courses covering the whole value chain of battery production/usage and recycling, available for all interested students.
Other	Green skill policies	Elevate green skills to a policy priority, emphasizing the importance of fostering environmentally focused

Rank	Recommendation	Brief Description
		expertise in education and workforce development.
Other	Digital Hub Platform for renewables' experts	Establish a digital hub platform to facilitate communication among experts in the field of renewables, fostering collaboration and knowledge exchange.
Other	Digital tool trainings	Provide training programs focused on digital tools, enhancing participants' skills and proficiency in using digital technologies.
Other	NGOs dedicated to promoting gender equality or Women's rights NGOs	Involve Women's rights NGOs/Organisations in initiatives related to renewable electricity, promoting gender inclusivity and leveraging diverse perspectives in the sustainable energy sector.
Other	Industrial university programmes, thesis, and internships	Promote industrial university programs by providing support for the development of theses and internships, fostering collaboration between academia and industry.

6.1.2 *Meaningful directions for regulatory shifts that can help shape a favourable environment for responsible electricity diffusion*

Table 31. Electricity WG, 2nd Meeting Outcomes

Rank	Recommendation	Brief Description
Primary	Fund multiple projects in specific fields	Funding more than one project in a specific field call to give a chance to more than one proposal. Funding agencies should consider a method to benchmark projects (which are indeed some outstanding and promising proposals that did not make it to funding) and possibly fund them from unused resources of the same programme (e.g. Horizon Europe).
Secondary	Focus on real-life results	EU initiatives and funding should prioritise obtaining real-life results and lead to the creation of new technologies or companies. However, defunding lower TRL (basic research) which is fundamental for reaching our climate goals, cannot be an option, a careful balance is needed.

Rank	Recommendation	Brief Description
Secondary	Boost and incentivize energy communities	Engage society, not just experts, in energy communities to provide hands-on training and promote active participation.
Secondary	Develop niche expertise	Encourage the development of expertise in specific niches to enhance competitiveness in the job market.
Secondary	Enhance industry-academia collaboration	Promote cooperation between educational institutions and the renewable energy sector to align curricula with industry needs.
Tertiary	Revise RES technologies list	Update the list of Renewable Energy Sources (RES) technologies to include more innovative options eligible for subsidies and grants. A meaningful timeframe would be an annual update.
Tertiary	EU project outcomes for free training, without jargon language	Make outcomes of EU projects related to VET and training in RES (skilling/reskilling/upskilling) available for free use, with less jargon boosting findability.
Other (in correlation to the above-mentioned)	Notice Schools and universities for free of charge repositories	Training packages and tools free of charge/open access are mapped and collected on online repositories, but a note to Schools and Universities is needed (e.g. EU results platform, hundreds of knowledge platforms etc..). Simplification of findability through a simple web search, minimise time consumption in searching with navigation, identification of resources, prioritising and selection of the most appropriate ones.
Tertiary	Build on education-focused initiatives	Leverage the outcomes of projects/initiatives that focus on RES education, such as specialisation schools and VET training programs.
Other (but in correlation to the above-mentioned)	More research groups for early career researchers	Universities and research institutions should establish more research groups for early-career (tenure track positions) researchers with diverse research directions to prepare for the future increasing demand for a skilled workforce.
Tertiary	Collaborative education/training models	Develop effective models for joint collaborative education and training that involve academia, high-tech technology centres or parks and private companies/sector players. The link between training and business is key.
Other	Make learning interactive with AR/VR	Enhance the attractiveness and interactivity of learning materials by using Augmented Reality (AR) and Virtual Reality (VR). An addition of AI (Artificial Intelligence) tool would be interesting too, in view of training on the use of AI

Rank	Recommendation	Brief Description
		applied to RES issues (Operation and Maintenance, project design, etc…).
Other	Keep updating SRIAs (Strategic Research and Innovation Agenda) for critical raw materials and workforce skills, as this is happening within SET	Reflect on access to critical raw materials, state-of-the-art technology development, and capacity for upskilling and reskilling the European workforce in the Strategic Research and Innovation Agendas (SRIAs).
Other	Job descriptions and training lists	Provide a comprehensive list of job positions/descriptions as well as available training and VET courses related to the field.
Other	Promote hands-on renewable electricity experience	Encourage practical experiences, such as visiting other countries or internships, to gain hands-on knowledge of renewable electricity.
Other	Address legislative bottlenecks	Identify and mitigate legislative obstacles that hinder the creation of new initiatives, with a focus on emerging technologies.
Other	Address fiscal bottlenecks	The workforce in the RES sector, or at least the most innovative technologies and/or start-ups, should be tax exempted to boost the hiring demand and speeding up the market uptake of new technologies.
Other	Increase awareness of results promotion and “hunting”	EU policies, National Governments and Energy Regulators shall work and better coordinate with regional and local institutions, to ensure the right information gets automatically / quickly / effectively to the right groups, instead of simply "ensuring access" - resulting in Educational bodies and Training providers spending time and becoming frustrated in looking for resources, finally deciding to purchase products, deliver lower quality contents or simply renounce. Policies could promote dedicated programs for public and private educational bodies aimed at increasing awareness on how the EU research works, not only in research teams/groups, but to the whole workforce in the educational/training sector. - basic and broad, to all target groups. Also, could suggest strategies and provide support to educational/training institutions in hiring/training professionals as EU research results "hunters", to activate quick matchmaking across the subjects addressed in study/training portfolios, the needs of the job market and research and the most recent and

Rank	Recommendation	Brief Description
		relevant resources available - specific to region, context, etc.

6.1.3 *Guidelines for education/training programmes to facilitate skilling, reskilling, upskilling*

Table 32. Electricity WG, 3rd Meeting Outcomes

Rank	Guidelines	Brief Description
Primary	Train the Trainers Programmes	Develop a network of trainers equipped with up-to-date knowledge of renewable energy systems, new technologies, and pedagogy. These trainers will disseminate expertise to workforce participants, ensuring that training cascades across sectors efficiently.
Primary	Cross-disciplinary Collaboration between subtopics such as PV & batteries, Smart cities etc.	Develop curricula that integrate subtopics like photovoltaics (PV), wind, energy storage, and smart city technologies. Encourage knowledge sharing and project-based learning to address interconnected challenges in renewable electricity systems.
Secondary	Professionals skilled in big data, AI, and predictive analytics	Facilitate knowledge-sharing among experts in fields such as Smart Grids, Artificial Intelligence, predictive analytics, and renewable energy. This approach fosters a deeper integration of diverse expertise to address emerging challenges and accelerate innovation in renewable electricity systems.
Secondary	Creation of Interdisciplinary Research Centres	Establish innovation hubs where experts from engineering, IT, and energy fields collaborate. These centres will focus on addressing challenges across the renewable energy value chain, from design and production to grid integration and lifecycle management.
Tertiary	Specialised Technical Vocational Education for O&M	Develop and expand vocational programs tailored to renewable electricity technologies, targeting technicians, operators, and installers. The curriculum should include hands-on training in installation, maintenance, and troubleshooting for renewable energy systems.
Tertiary	Mobility opportunities for students and trainers across different universities and companies	Create exchange programs to expose students and trainers to diverse methodologies, technologies, and practices. Foster

Rank	Guidelines	Brief Description
		collaboration and standardise training quality across institutions and businesses.
Tertiary	Experts in Power Electronics and Grid Integration	Train specialists to ensure the efficient integration of renewable energy systems into the grid. Focus on power electronics, energy storage, and system optimisation to ensure stable and resilient electricity networks that can accommodate variable renewable energy sources.
Tertiary	Professionals who can assess the environmental impacts of renewable energy projects while ensuring compliance with sustainability goals	Train professionals to conduct environmental impact assessments, monitor compliance, and implement sustainability strategies for renewable electricity projects. Emphasise lifecycle thinking and resource efficiency.
Tertiary	Encouragement innovatively learning, interdisciplinary and collaborative research to enhance the educational experience in industry.	Support project-based learning, research partnerships with industry, and the integration of cutting-edge tools and methodologies in training programs to prepare students for real-world challenges in renewable electricity.
Other	Increase Visibility of Gender-Inclusive Roles	Promote gender equality in renewable electricity careers through targeted outreach, role modelling, and inclusive policies. Raise awareness and create opportunities for women and underrepresented groups to participate in technical and leadership roles within the sector. However, big steps have been done in EU last years, mostly in large organisations, as this topic is covered by ESG policies.
Other	Energy system approach interdisciplinary between RE sectors	Advocate for an integrated energy systems approach that combines wind, solar, and other renewable energy sectors to maximise synergy, grid resilience, and operational efficiency.
Other	RE and EE in combination focus on digitalisation	Develop training programs that address the intersection of renewable energy (RE) and energy efficiency (EE) with a focus on digital tools such as IoT, AI, and data analytics to enhance energy systems' efficiency and adaptability.
Other	Knowledge sharing among University European Networks	Promote collaboration among European universities through shared curricula, joint degrees, and online learning platforms, enhancing the exchange of knowledge, best

Rank	Guidelines	Brief Description
		practices, and innovation in renewable electricity education.
Other	Assurance of minimum qualifications - Quality of installations of PV, code of Ethics	Standardise qualifications for PV system installers, ensuring high-quality installations and adherence to ethical guidelines. This could be applied also to the wider RES sector This approach builds trust in renewable technologies and minimises operational risks.
Other	Bridging the gap between various scientific and engineering disciplines	Facilitate interdisciplinary learning by connecting disciplines like materials science, electrical engineering, and environmental studies to foster innovation and a holistic understanding of renewable energy challenges. In complex projects, such as offshore wind, need new job profiles, such as maritime experts, biologists etc.
Other	Skills in cybersecurity will be in demand since more renewable energy plants are being connected to smart grids	Train professionals in cybersecurity to safeguard renewable energy systems from potential threats. Emphasise the importance of protecting smart grids, energy storage systems, and data from cyber-attacks.

6.2 Sustainable Mobility

6.2.1 *Solutions for driving the development and adoption of sustainable mobility*

Table 33. Mobility WG, 1st Meeting, Outcomes

Rank	Recommendation	Brief Description
Primary	Incentives for individuals and companies adopting sustainable mobility solutions	Governments and businesses can provide incentives (tax breaks, subsidies, other benefits) for individuals and companies adopting sustainable mobility solutions.
Secondary	Adoption of the EU laws and their incorporation of national laws	This process increases legal certainty, facilitates cross-border cooperation, and fulfils Member States' obligations under EU Laws Primary and Secondary.
Secondary	Advocate for sustainable urban planning	Advocate for sustainable urban planning that includes mixed-use

Rank	Recommendation	Brief Description
		developments, remote work options, pedestrian-friendly infrastructure, and efficient public transportation systems in peri-urban areas or rural areas
Secondary	Develop a public transportation network (focus on non-urban areas, avoid unwanted training of planners/ modal shift)	Development of an integrated and efficient system of buses, trains, subways, or other modes of transportation to provide convenient and accessible transportation options for the public.
Secondary	Engineers on soft skills (related to engagement, awareness, behaviours)	Facilitate community engagement, promote awareness of eco-friendly transportation options, and enhance behaviour change.
Secondary	Upskilling existing workforce in trending skills (e.g. AI, RES)	-
Secondary	National regulations that will be an incentive for companies to invest in sustainable mobility	Incentivising sustainable mobility investment includes tax incentives, subsidies, emission standards, infrastructure support, and green certification programs to encourage companies to adopt eco-friendly transportation practices.
Tertiary	Change in user's behavioural pattern	A shift in transportation choices and habits, with individuals opting for eco-friendly modes such as public transportation, walking, cycling, or using electric vehicles.
Tertiary	Sustainable mobility plan at the company/organisation level	Implementation of strategies to minimise environmental impact, enhance sustainable employee commuting options, and optimise transportation practices to promote eco-friendly and efficient mobility.
Tertiary	Integration of mobility policies with policies in other fields (energy, accommodation, tourism, etc.)	Establishment of a comprehensive, sustainable framework that addresses environmental, economic, and social considerations between various sectors.

Rank	Recommendation	Brief Description
Tertiary	Address mobility poverty (mobility related to income)	Implementation of initiatives and policies to ensure affordable and accessible transportation options for all individuals.
Tertiary	Development and use of smart transportation systems	Support the development and use of smart transportation systems, including traffic management technologies and intelligent transportation networks
Tertiary	Equal participation and treatment of men and women in the workforce	Individuals of all genders have the same opportunities, rights, and access to resources in the mobility sector.
Tertiary	Rethink the educational/academic programmes	A comprehensive review and adjustment of curricula, teaching methods, and learning objectives to align with the sustainable mobility objectives.
Other	Different Integrated strategy for each type of vehicle	Address the specific characteristics, needs, and environmental impacts associated with various vehicles used for transportation (e.g. cars, buses, and trucks).
Other	Communication and cooperation among companies to collect and analyse mobility data	-
Other	People engagement	Active involvement and awareness among individuals within a community or organisation, encouraging them to adopt eco-friendly transportation choices, such as public transit, cycling, or carpooling.
Other	Diffusion of Adequate infrastructure	The widespread adoption and implementation of appropriate and sufficient transportation infrastructures.
Other	Securing funding	Financial support for projects, initiatives, or organisations that promote sustainable mobility practices.

Rank	Recommendation	Brief Description
Other	Reskilling of the traditional workforce	Providing additional training and new skills to adapt employees in renewable energy technologies.
Other	Reskilling civil servants	Reskilling civil servants towards climate neutrality and towards the transition of the city mobility systems to more innovative and sustainable ones

6.2.2 *Meaningful directions for regulatory shifts that can help shape a favourable environment for responsible mobility diffusion*

Table 34. Mobility WG, 2nd Meeting Outcomes

Rank	Recommendation	Brief Description
Primary	Alignment of Training Programs with Industry Needs	Aligning training programs with industry needs in renewable energy and sustainable mobility ensures the workforce is skilled in relevant, cutting-edge technologies.
Secondary	• National regulations in favour of increasing responsible use of electric vehicles. • Favouring nudging-style measures instead of compulsory regulatory measures. • Integration of the European Regulation into National policies related to chargers and AFIR (urban notes). • Incentivise the instalment of chargers in private and public spaces. • Awareness raising for Overcoming cultural and behavioural resistance to change, particularly in regions traditionally dependent on fossil fuels. • Incentives related to the purchase of an electric vehicle, its use and recharging • National law in Greece on the allocation of public space to different users (pedestrians, lockers, chargers, cyclists, etc.) There is currently no legal framework for the installation of chargers in public spaces.	National regulations promote responsible electric vehicle use through incentives, European regulation integration, and nudging measures. They encourage charger installation, raise awareness to overcome resistance, and offer benefits for purchasing and using electric vehicles. In Greece, there is a focus on developing a regulatory framework for public space allocation, and a comprehensive charging infrastructure network is being designed across Europe.

Rank	Recommendation	Brief Description
	• Implementation of accurate design of a charging infrastructure network across Europe. • Assessment and holistic view of the impact of each mandatory regulatory measure.	
Tertiary	• Starting from 1/1/2026 the professional fleets (taxis) in the cities of Thessaloniki & Athens should be electrically powered. This measure could be expanded in all cities. • Redesign of urban planning. • Incentives for charging stations.	Starting January 1, 2026, professional taxi fleets in Thessaloniki and Athens must be electrically powered, with potential expansion to other cities. Redesigning urban planning and incentives for installing charging stations are considered important topics.

6.2.3 *Guidelines for education/training programmes to facilitate skilling, reskilling, upskilling*

Table 35. Mobility WG, 3rd Meeting Outcomes

Rank	Guidelines	Brief Description
Primary	Develop Seminar in AI Implementation in Sustainable Mobility	Focus on integrating AI to enhance efficiency, automation, and data-driven decision-making in mobility systems.
Primary	Engage Key Stakeholders	Collaborate with industry and academia to design courses that promote electro-mobility and meet market demands
Secondary	Include AR/VR Tools for Young Students	Use immersive technologies to engage students in learning sustainable mobility skills and fostering interest early on.
Secondary	Develop Training Workshops on EV Maintenance	Practical workshops aimed at equipping individuals with skills for repairing and maintaining electric vehicles.
Secondary	Update Training with Simulation Software	Incorporate simulation tools for hands-on training in complex mobility systems and scenarios.
Tertiary	Offer Workshops and Certifications for Transitioning Professionals	Support workforce transitions to sustainable mobility roles with targeted training and certification programs.

Rank	Guidelines	Brief Description
Tertiary	Public Engagement Skills for Awareness Campaigns	Develop skills to engage communities effectively in promoting sustainable mobility practices and technologies.
Tertiary	Develop Academic Curriculum to Train Professionals in Rethinking City Systems	Design comprehensive academic programs to equip professionals with the skills to innovate urban mobility systems.
Tertiary	Raise Awareness on Electric Engines at All Education Levels	Incorporate electric engine technologies into education systems to build foundational knowledge and awareness.
Tertiary	Personal Rapid Transit (PRT) and Traffic Optimisation Skills	Train professionals in automation and traffic optimization for PRT systems, focusing on their role in urban transportation ecosystems.

6.3 Sustainable and Renewable Fuels

6.3.1 *Solutions for driving the development and adoption of sustainable and renewable fuels*

Table 36. Fuels WG, 1st Meeting Outcomes

Rank	Recommendation	Brief Description
Primary	Lower taxes for renewables so that to fossil-based alternatives become less attractive alternatives	Production cost of renewable fuels is often higher compared to fossil fuels. Therefore, lower taxed would make renewable fuels more attractive to customers.
Secondary	Simplification of legislation and authorisation procedures for renewable fuels To ensure a sustainable supply chain of input materials to produce some types of sustainable fuels (e.g. biomethane)	Easier adaptation of new RES technologies.
Tertiary	Seminars, programmes and site visits for the citizens to get informed on renewable fuels and production	General awareness raising would help the public to have a more positive attitude toward renewable fuels.
Tertiary	Training programs for proper use of the food industry and of the agricultural by-products.	More information and knowledge about alternative feedstocks.

Rank	Recommendation	Brief Description
Tertiary	Policy recommendations to reduce the heterogeneity of European RES markets	Consider the possibility of having a European set of rules reducing differences between country markets.
Other	Repetition of good practices from around the world in the local and regional level	Examples that have a viable result and are already working in parts of Europe can be transferred to regions that have abundant agriculture residues, consider it, and handle it as waste.
Other	Training of SMEs and entrepreneurs on new methodologies and techniques that can utilise agriculture residues to produce energy and offer it to local consumers	Guidelines for establishing viable small plants that can transform residues to thermal–electric energy. Information & training about availability of funds (EU, National and private banking sector).

6.3.2 *Meaningful directions for regulatory shifts that can help shape a favourable environment for responsible fuel diffusion*

Table 37. Fuels WG, 2nd Meeting Outcomes

Rank	Recommendation	Brief Description
Primary	Support individuals with financing to afford to use hybrid cars.	New hybrid vehicles are extremely expensive which hinders transition towards cleaner road transport. To make the transition to sustainable transportation faster financial support is needed making new technologies more affordable to the public.
Secondary	Support for the role of combustion engines in future synthetic fuels applications and hard-to-electrify applications/sectors	Synthetic fuels (Power to X processes) are under intensive research and development. Commercialisation of these technologies would result in a revived interest in combustion engines (gasoline and diesel) as these synthetic fuels are climate-neutral and lack many drawbacks and limitations of electric vehicles. However, currently, most car manufacturers have plans to suspend or end the development and manufacturing of combustion engine cars, fact that is not sustainable nor far-sighted in the light of current synthetic fuel and P2X technology developments.

Rank	Recommendation	Brief Description
Secondary	Incentives to buy methane cars	Biomethane and natural gas vehicles have existing infrastructure and technology. Currently, car manufacturers are not developing gas-powered cars and new models are not manufactured. Biomethane and gas vehicles are well-developed sustainable fuel-based technology that would help cut CO_2 emissions. Therefore, a regulatory shift that supports gas vehicle development and manufacturing would be needed.
Tertiary	Less hype on Electric Vehicles (EV); Consider biofuels for combustion engines as an alternative	Currently, most efforts are put into the development of electric vehicles and infrastructure. This trend is not considering new sustainable biofuels; technologies and processes being developed. Therefore, it would be advisable to direct R&D funding and incentives to a broader range of technologies and solutions in addition to Electric vehicles.
Tertiary	Suggestion to expand the use of catch crops ("secondary" crops) to produce biofuels	Catch crops, which are grown between main crops, could be utilised in production of biomass for biofuel applications.
Tertiary	Public awareness campaigns about the need of these changes	To drive the adoption of sustainable fuels technologies, it is crucial to enhance public understanding of their benefits and necessity. Public awareness campaigns can inform individuals on the environmental and economic advantages of hybrid cars, synthetic fuels, methane vehicles, and biofuels. These campaigns can highlight how transition to these technologies can reduce greenhouse gas emissions, improve air quality, and decrease reliance on fossil fuels.

6.3.3 *Guidelines for education/training programmes to facilitate skilling, reskilling, upskilling*

Table 38. Fuels WG, 3rd Meeting Outcomes

Rank	Guidelines	Brief Description
Primary	EU's Renewable Energy Directive and other sustainable and renewable fuel related regulations should be included in educational programs	Courses regulations like the EU's Renewable Energy Directive, emissions standards, and other frameworks are in the core of green transition and basic principle and information

Rank	Guidelines	Brief Description
		should be included in educations programs.
Secondary	Training courses for public authorities about sustainable and renewable fuels, technologies and product properties.	Training courses for Public Authorities are recommended for keeping then up to date on key technologies and new developments and products entering the market.
Secondary	Green Business and Green Finance contents to engineering and technology education	Courses on Green Business and Green Finance are recommended for technology and engineering education programmes to promote green transition understanding.
Tertiary	New fuels, technology, operation, maintenance and safety related contents to relevant VET training programs	New fuel related technologies require skilled professionals for e.g. operation and maintenance. VET training programs should include these new technologies in educational programs to meet these future needs.
Tertiary	Contents and activities to engage a wider audience on renewable and sustainable fuels	Workshops and Seminars with focus on the latest technologies and trends in renewable fuels are recommended.

6.4 Sustainable and Renewable Heat

6.4.1 *Solutions for driving the development and adoption of sustainable and Renewable heat*

Table 39. Heat WG, 1st Meeting Outcomes

Rank	Recommendation	Brief Description
Primary	Incentivise industries to recover a large part of waste heat into district heating networks or	Renewable Energy Communities (REC) are a hot topic and are envisioned to have a big role in the energy transition onwards. Nevertheless, more attention should be focused on renewable heat as well within the energy community, this concept could lead to the technology of district heating network (DHN). In this framework, the exploitation of industry waste heat could have a big impact on the development of the costly infrastructure

Rank	Recommendation	Brief Description
	renewable heat communities	needed for DHN and incentives would lead the way towards this direction. This recommendation has been identified has a primary priority.
Secondary	Standardising processes in heating	All WG members agreed on the fact that a legal standardisation of heat processes and all related energy fluxes (e.g. waste heat, heat loss) should be the first step towards a well-thought transition.
Secondary	Set up financial/granting schemes to cover some expenditures (e.g., exploratory digs for geothermal energy)	Some of the technologies and investment in RES heat necessitate of preliminary analysis and/or high initial investment while some other (for instance in industry) are not clearly market ready. Thus, an appealing, clear and long-term incentive scheme would be key to enable investment that might have a longer payback period. Public Authorities (P.A.) should negotiate with credit institutions to get low charge loans to companies that invests in renewable energies. P.A. should use funds to finance grant investments only for credit institutions that provide low charge loans. The result will be a reduction of 3 - 4 % of the investment cost for all renewable investment, without incentivize it.
Secondary	Pay more attention in local-level sector integration (heating, cooling, electricity use, waste heat streams, etc)	The energy transition is not only about the power sector. The heating sector is the largest single energy consumer so the energy transition must aim at integrating all energy sector and exploiting the synergies that such sector coupling could offer. In doing so, local energy sources must always be favoured.
Secondary	Set up Working Groups with different experts	As the transition proceed, challenges become harder to overcome and as such teams with diverse expertise and knowledge are required to find solutions. This fact must also be taken into consideration when discussing future solutions at the policy level.
Secondary	Changing the pathways expertise educational paths (tech expert with investment skills)	As team groups become more and more competent to solve multifaceted challenges, education must also adapt to prepare updated students, and future professionals, so that they gain a wider knowledge and perspective introducing economic courses within technical pathways as well as soft skills that will be extremely important in teamwork.
Tertiary	Raising awareness	More awareness on RES heat and the importance of heat demand and supply within the energy transition topic must be raised. Preferably, this should be done through modern media and opinion leadership to make use of the multiplier effect and reach a wider audience. This recommendation has been

Rank	Recommendation	Brief Description
		identified as a tertiary priority; this is also because indirectly all other recommendations would lead to raising higher awareness as a secondary effect.
Tertiary	Reduce authorisation time	Companies need to be fast on answering to the elastic and unforeseeable demand. Authorization processes that take months are simply incompatible with the normal operation of a company. The more authorization time is reduced, the more the companies will be able to take advantage of price rise of fossil fuel to plan and amortize the investment.
Other	Clarify the use of agricultural and urban by-products.	By-products, like urban pruning, can be used as biofuels for renewable heating but the European Directive for Waste Management has led to uncertainties and pruning are not used for heat production just because of legal uncertainty. The result is that by-products from garden management are treated as waste (high costs for Public Authorities (P.A.) and farmers still use to burn pruning in open fires (high emission and source of wildfires).
Other	Tax fossil fuels	Investment analysis is made of costs and revenues (avoided costs in this case). Even though taxing does not lead to political consensus, is a highly effective and free measure. It is also possible to exempt lower incomes to ensure energy security.

6.4.2 *Meaningful directions for regulatory shifts that can help shape a favourable environment for responsible heat diffusion*

Table 40. Heat WG, 2nd Meeting Outcomes

Rank	Recommendation	Brief Description
Primary	Increase EU Funding	Enhance EU funding for industry and academia collaboration and incentivise data sharing. In view of more sensible, data-driven, and most importantly, effective spending of the funds so they are not spent on measures that are not as important, or that the funds are forfeit due to not spending them.
Primary	Increase the number of case studies on waste heat exploitation	Highlight the importance and potential of waste heat recovery through more case studies. Pilot projects are also necessary to show practical effects of utilising waste heat, to bridge the theoretical sphere with practical - many companies/actors who may benefit from waste heat exploitation need to see an already successful project to boost credibility. As such, a funded pilot project

Rank	Recommendation	Brief Description
		may work miracles in the further development of this sector.
Secondary	Increase interest and attention to the concept of Renewable Heating Community	Stimulate the official introduction of the Renewable Heating Community in law and regulations.
Secondary	Detaxation/incentives for industrial PhDs	Provide tax incentives for companies supporting industrial PhD programs.
Other (but in correlation with the above-mentioned)	Incentives for skilled workers	Many actors/companies working in the heating sector need skilled workers with specific knowledge, which can be achieved during the secondary degree with effective curriculum and equipment. Hence, a recommendation aimed at education in general and with a greater focus on vocational education, so the incentive is not boxed into the university level.
Tertiary	Include industries/private sector in boards of Universities/Schools	Ensure that industries and private sector entities have representation in educational boards.
Tertiary	Provide incentives for business support organisations	Support organisations to mediate between industry and academia. Invest in training centres.
Other	Mobility programme for workers	Programmes facilitating the movement of workers between different regions or countries to gain experience and skills.
Other	Apprenticeships in industries	Structured training programs where individuals learn on the job while working in a specific industry. Setting up the so-called dual academies, where secondary level students directly cooperate with chosen technical companies is also a viable tool, for example, such an academy is active in Slovakia and is slowly expanding to RES technologies as well (and is already active in heat pumps): https://dualnaakademia.sk/).
Other	Accessible accreditation/certification for VET courses	Simplifying the accreditation process for Vocational Education and Training (VET) courses to make it less time-consuming and less stringent.
Other	Increase connection between research and industrial sectors	Initiatives to foster collaboration between academic research institutions and industrial companies for innovation.

Rank	Recommendation	Brief Description
Other	Incentives/taxation for continuous courses & certification	Financial incentives or tax benefits for individuals and organisations investing in ongoing education and certification.
Other	Support for train-the-trainers' programs	Train-the-trainers' programs that are necessary to train more workers with the so-called green skills (although this measure may be included in some of the already present recommendations, it is important to be lighted up).
Other	Update of the existing distinct heat infrastructure	Modernisation of existing infrastructure used for district and centralised heating, since it can be used for the decarbonisation.

6.4.3 *Guidelines for education/training programmes to facilitate skilling, reskilling, upskilling*

Table 41. Heat WG, 3rd Meeting Outcomes

Rank	Guidelines	Brief Description
Primary	More traineeships with industries in all degree courses and include hands-on (laboratory) training sessions (e.g. in a manufacturing plant)	Increase the practical skills and knowledge of students by increasing the connection between academia and industries through traineeships and by increasing laboratory activities
Primary	Policy and Compliance Knowledge and understanding of environmental and energy regulations	Get familiar with reading and interpreting laws and directives, and going through several sources
Primary	Organise hackathons to solve companies' problems	Increase the connection and collaboration between academia and industries. Hackathon where students must solve real problems that industries are facing can be an interesting and effective activity
Secondary	Add statistics and big data analysis to any scientific program	Students do not possess the needed knowledge and understanding of statistical methods and data analysis that are necessary due to the huge

Rank	Guidelines	Brief Description
		importance of data in today's world
Secondary	digital skills for performance monitoring	Digital skills should be dealt with in most courses, specifically for the monitoring of performance that is essential to heating systems and technologies
Secondary	Advanced knowledge in hybrid heating solutions	Hybrid solutions are often the best solution. Courses should always deal with hybrid solutions to prepare students to adopt them in the future
Secondary	Predictive Models, digital diagnostic tools and IoT sensors	Digitalisation is of utmost importance. All courses on renewable energies should also consider predictive models (essential for optimal control of technologies), digital diagnostic tools and IoT sensors (essential for monitoring and planning)
Secondary	Add Certification on Sustainability for wood biomass, to training curricula	Biomass is a topic that is not discussed and studied enough so it was suggested to add such a topic in all courses about renewable heat/energy and/or add a certification process to work in the field
Tertiary	Add to a course some Future scenarios: Heating & cooling needs	Students must understand the future scenarios and needs
Tertiary	Create certified energy auditors to assess building energy consumption and recommend heating systems in buildings	Energy auditors are essential for increasing the energy efficiency of buildings and industries. Specific certificated programmes should exist for this professional figure
Tertiary	Cross-Sectoral Skill Development like building automation, smart grid integration, and energy storage	Cross-sectoral skills should always be included in renewable heat/energy courses

Rank	Guidelines	Brief Description
Tertiary	Create curricula on Green Entrepreneurship and entrepreneurial skills to encourage innovation	Entrepreneurial and economic skills should be developed for all professional figures and not only for economists
Tertiary	advanced expertise in designing and integrating renewable heating solutions into existing building systems	The specific skill of design and integration should be further developed in all courses/programmes
Tertiary	Life-Cycle Management Skills Integrate modules that cover the entire lifecycle of renewable heating systems	All courses should consider Life Cycle Analysis as it is of utmost importance to understand the impact/footprint of technologies and solutions
Tertiary	Regular updates to the learning materials	In some countries, students still utilize learning materials that are several years old and might not be in line with the current needs anymore. For example, they may not cover new technologies or innovations that have replaced the practice included in the still used learning materials.
Tertiary	Utilisation of online tools and existing databases	While hands-on approach during traineeships is the utmost priority, we need to recognise that such an approach may not always be available or available daily. Utilising visual tools (e.g., pre-recorded videos and lectures showcasing step-by-step instructions) would be ideal for filling in the in-between lectures or self-taught sessions.

6.5 Emerging skills identified during the plenary meeting

During the plenary meeting, WG manager presented aggregated insights from the three previous rounds. Using these insights as a starting point, participants added relevant skills to the board - either specific to each sector represented by the Working Groups (electricity, mobility, heat and fuels) or transversal across all sectors. Following this, a discussion took place, after which participants were invited to vote on the skills based on three categories:

- Immediate need in industry
- Future relevance (important in 3–5 years)
- Underdeveloped (requiring long-term development in training and education)

The table below presents the identified skills, categorised by sector and transversal relevance, as an outcome of the Joint Plenary WG meeting. **The most voted skills in each category are highlighted in bold green in the last last comunmin the table below.**

Table 42. Emerging Skills

WG	Skill	Rate Votes Urgent (immediate need in industry), Future Relevant (Important for 3-5 years), Underdeveloped (Long Term Coverage in training/education)
Renewable Electricity	Understanding newer or large-scale storage systems	Urgent 3 | Future Relevant 1 | Underdeveloped 1
	Design integrated systems combining PV, battery storage, and hydrogen	Urgent 4 | **Future Relevant 5** | Underdeveloped 2
	CHP (biogas) plant performance monitoring and troubleshooting	Urgent | Future Relevant | Underdeveloped
	AI skills: use of AI to forecast solar generation	Urgent 1 | Future Relevant 3 | Underdeveloped 2
	Proposal Writing	Urgent 1 | Future Relevant 1 | Underdeveloped 1
	Cybersecurity skills (to prevent damage on grids)	Urgent 2 | Future Relevant 2 | Underdeveloped 1
	Apply predictive analytics	Urgent 2 | Future Relevant 3 | Underdeveloped 2
	Digital skills for various grid applications tools	Urgent 2 | Future Relevant 1 | Underdeveloped 1
	Model smart grid scenarios using specialized software (e.g. DIgSILENT, OpenDSS)	Urgent 1 | Future Relevant 2 | Underdeveloped 1

WG	Skill	Rate Votes Urgent (immediate need in industry), Future Relevant (Important for 3-5 years), Underdeveloped (Long Term Coverage in training/education)
	Application of impact assessment and LCA across different technologies	Urgent | Future Relevant | Underdeveloped
	Plant performance monitoring and troubleshooting: Ability to interpret real-time operational data, identify inefficiencies, and apply corrective measures to maximize uptime and energy yield	Urgent | Future Relevant | Underdeveloped
	Maintenance planning and fault diagnostics of CHP units: Hands-on competence in managing engines, generators, and heat recovery systems to ensure long-term plant reliability.	Urgent | Future Relevant | Underdeveloped
Renewable Heat	Design and retrofit district heating systems using renewable sources	Urgent 3 | **Future Relevant 4** | Underdeveloped 1
	Install and calibrate smart heat meters	Urgent 2 | Future Relevant 1 | Underdeveloped 2
	Calculate economic feasibility of geothermal and heat reuse investments	**Urgent 3** | Future Relevant 1 | Underdeveloped 2
	Knowledge transferability	Urgent 1 | Future Relevant 2 | Underdeveloped 5
	District heating and cooling hybrid specialists	Urgent | Future Relevant | Underdeveloped
	Organizing stakeholders, legal knowledge regarding contracts for network aimed to make forest management economically effective.	Urgent | Future Relevant | Underdeveloped
	Certification and traceability management with innovative software and data analysis	Urgent | Future Relevant | Underdeveloped
Renewable Fuels	Operate small-scale Power-to-X and biomethane production systems	Urgent 1 | Future Relevant 2 | **Underdeveloped 8**
	Digital Tools and Software	Urgent 4 | Future Relevant 3 | Underdeveloped 4

WG	Skill	Rate Votes Urgent (immediate need in industry), Future Relevant (Important for 3-5 years), Underdeveloped (Long Term Coverage in training/education)
	Assess combustion system compatibility with alternative fuels	Urgent 2 | Future Relevant 3 | Underdeveloped 1
	Practical ability to manage the procurement, quality, and logistics of sustainable feedstocks, including manure, agro-industrial by-products, and dedicated crops dedicated to biomethane production	Urgent | Future Relevant | Underdeveloped
	Develop feedstock optimization models for fuel generation	Urgent 1 | Future Relevant 2 | Underdeveloped 5
	Analyse and interpret renewable fuel market trends	Urgent 2 | Future Relevant 4 | Underdeveloped 1
	Knowing how to balance innovation with equity and justice	Urgent 2 | Future Relevant 3 | Underdeveloped 2
	Design storytelling campaigns around new fuel technologies	**Urgent 5** | Future Relevant 3 | Underdeveloped 2
	Techno-economic assessment of biomethane projects: Ability to carry out feasibility studies, assess CAPEX/OPEX, and evaluate ROI for grid injection or bioLNG production.	Urgent | Future Relevant | Underdeveloped
	Supply chain coordination and feedstock logistics: Practical ability to manage the procurement, quality, and logistics of sustainable feedstocks, including manure, agro-industrial by-products, and dedicated crops.	Urgent | Future Relevant | Underdeveloped
	Biochar manufacturing specialist	Urgent | Future Relevant | Underdeveloped
	Large scale hydrogen manufacturing/ electrolysis specialist	Urgent | Future Relevant | Underdeveloped
	End-to-End Design and Operation of Green Hydrogen/Ammonia Energy Systems Professionals in the renewable electricity sector must master the entire lifecycle —	Urgent | Future Relevant | Underdeveloped

WG	Skill	Rate Votes Urgent (immediate need in industry), Future Relevant (Important for 3-5 years), Underdeveloped (Long Term Coverage in training/education)
	from green production to power generation and grid integration.	
	Compliance with RED II, AFIR, UNI 11567:2024, and accurate GHG-reduction reporting	Urgent | Future Relevant | Underdeveloped
	Design and operational know-how for anaerobic digestion and upgrading systems	Urgent | Future Relevant | Underdeveloped
	Techno-economic evaluation (CAPEX/OPEX/ROI) for biomethane investments	Urgent | Future Relevant | Underdeveloped
	Certification, traceability, and management of Guarantees of Origin (GO)	Urgent | Future Relevant | Underdeveloped
	Strategies for digestate valorisation within a circular bioeconomy framework	Urgent | Future Relevant | Underdeveloped
Sustainable Mobility	Deliver seminars on AI-enabled mobility systems	Urgent 3 | Future Relevant 2 | Underdeveloped 3
	Create immersive AR/VR modules for e-mobility learning	Urgent 3 | Future Relevant 3 | Underdeveloped 2
	Perform diagnostics and maintenance on hybrid/methane vehicles	Urgent 2 | Future Relevant 3 | Underdeveloped 3
	Use GIS tools for EV network planning	**Urgent 5** | Future Relevant 2 | Underdeveloped 1
	Urban Micro-Mobility Systems Integration: Skillset includes the design, testing, and deployment of light quadricycles within smart city frameworks—especially integrating vehicle-to-infrastructure (V2I) communication, shared use models, and battery-swapping systems.	Urgent | Future Relevant | Underdeveloped
Transversal Skills	Energy Systems Data Analytics	Urgent 4 | Future Relevant 1 | Underdeveloped 2
	Storytelling	Urgent 3 | Future Relevant 3 | Underdeveloped 2

WG	Skill	Rate Votes Urgent (immediate need in industry), Future Relevant (Important for 3-5 years), Underdeveloped (Long Term Coverage in training/education)
	Public Speaking	Urgent 1 | **Future Relevant 5** | Underdeveloped 2
	Management	**Urgent 5** | Future Relevant 3 | Underdeveloped 1
	Human and organisational factors to address complex socio-technical barriers	Urgent | Future Relevant | Underdeveloped
	Translate sustainability policies into project implementation steps	Urgent 4 | Future Relevant 1 | Underdeveloped 1
	Communication	Urgent 3 | Future Relevant 2 | Underdeveloped 2
	Perform life-cycle analysis and carbon footprint assessments	Urgent 2 | Future Relevant 2 | Underdeveloped 1
	Leadership/Coaching	**Urgent 6** | Future Relevant 1 | Underdeveloped 1
	Analyse and interpret large energy data sets Use data analytics tools	Urgent 1 | Future Relevant 1 | Underdeveloped 2
	Train and deploy AI/ML models for energy demand forecasting	Urgent 1 | Future Relevant 3 | Underdeveloped 4
	Simulate energy/mobility scenarios using software	Urgent 2 | **Future Relevant 8** | Underdeveloped 2

6.6 Job Profiles designed during the plenary meeting

Building on discussions from previous meetings and the skills outlined above, several job profiles were identified. To prioritise these roles, participants engaged in a voting process to determine the most important and promising emerging profiles. The table below presents the developed job profiles along with their prioritisation. Ranked first was the Green Mobility Infrastructure Planner, followed by the Sustainable Fuel Technology Advisor and the Green Tech Vocational Trainer in second place. In third place were the Energy Community Facilitator and the Renewable Systems Integration Specialist.

Table 43. SKILLBILL Job Profiles

Title	Renewable Systems Integration Specialist	Green Mobility Infrastructure Planner	Sustainable Fuel Technology Advisor	Hybrid Power Plant Expert	Energy Community Facilitator	Green Tech Vocational Trainer	Policy & Compliance Analyst – Green Transition	Human and organisational factors expert in the Energy Domain
Purpose	Design and integrate smart renewable electricity and heating systems.	Plan EV and multimodal infrastructure for sustainable mobility.	Guide renewable fuel deployment and compliance.	Designer, planner, technician, provider, serviceman, data predictive analysts, broker on energy stock market	Coordinate citizen-led energy and heat initiatives.	Teach practical skills in EVs, heating, and smart energy systems.	Ensure legal alignment of green technologies with EU/national frameworks.	Help businesses, industries, market actors and institutions / public entities address, understand and manage the complexities and learn systems thinking
Key tasks	Develop smart grids, optimize energy flows with AI, collaborate with planners and communities.	Design charging networks, coordinate public space use, apply EU mobility law.	Support Power-to-X, navigate fuel permitting, raise public awareness.	Consultations together with installations support for complex solutions for clean energy demand	Engage stakeholders, promote community design, support integration.	Deliver hands-on training, lead simulations, align with industry.	Interpret regulations, assist in permitting, evaluate policy risks.	Train key actors at all levels, provide customised consultancy, organise workshops, focus groups and surveys to collect needs, requirements and develop new processes and measures also addressing safety and security aspects
Key Skills	Smart grid design, AI/data analytics, RES integration.	Urban planning, EV infrastructure, AR/VR tools, EU policy alignment.	Fuel policy, combustion tech, stakeholder communication.	Photovoltaics, batteries, EVs, energy community, stock market etc.	Community engagement, DHN knowledge, facilitation.	Technical expertise, digital pedagogy, labour market knowledge.	Legal literacy, risk analysis.	Human factors, cognitive psychology, management, interaction design, usability
Training	Project-based RES courses, Master's in Energy Integration, Train-the-Trainers in renewables	AI & mobility seminars, EV installation VET, EU law short courses	Biofuel workshops, RED/AFIR bootcamps, storytelling training	Technical, economic, social, policy	Community energy law, social innovation, participatory planning	VET curriculum design, XR/AR integration, RES Train-the-Trainer	Compliance short courses, policy analysis workshops, regulatory affairs	Technical, SSH, psychology

Title	Large-scale hybrid system specialist	RES land use specialist	Waste heat pump design specialist	RES consultant for positive energy districts	Urban Micro-Mobility Solutions Designer	Green Molecule Energy Systems Engineer	Logistic manager in the solid biofuels supply chain	Biomethane and Circular Bioeconomy Consultant
Purpose	Design of wind power, storage system/battery system and PV system integration units between wind power plants and the national grid	How to use land areas in a sustainable way for wind and solar parks. Land leasing contracts.	Design of waste heat pumps (for wastewater treatment plants, data centres, food industry, hydrogen industry, etc).	A consultant who gets local parties together to create local energy districts.	Design and implement efficient, sustainable transport options for urban areas using light electric vehicles.	Develop and manage hydrogen/ammonia energy systems for clean electricity production and secure grid integration.	Make the biofuel supply chain more sustainable and reduce costs for SMEs and reduce the impact and traffic in rural areas.	Support project feasibility, regulatory compliance, and circular synergies
Key tasks	Design systems that are based on weather forecast and electricity market day-ahead prices can optimise storage for 15 min timelines (especially for in day markets)	Design large-scale wind/solar power plant areas in a sustainable way.	Design of heat pumps based on different heat sources	Help to plan local energy systems, facilitate co-operation.	Develop EV quadricycle concepts, plan infrastructure integration, align designs with EU regulations, and enhance user experience.	Design production plants, optimize conversion efficiency, manage grid connectivity, ensure policy and emissions compliance.	Manage large network of biofuels producers to reduce impact related to transport and logistic	Feedstock logistics, digestate management, policy navigation (e.g. CIC, GO), sustainability assessments
Key Skills	Data analysis, RES integration, AI use.	Technical, land leasing and sustainability skills	Basic knowledge of large waste heat sources. Capability to design heat pumps.	Understanding of hyper local energy systems	Lightweight EV design, urban planning, user-centred design (UX), regulatory knowledge (L-category vehicles), digital prototyping.	Electrolyser and fuel system design, power plant integration, grid simulation, emissions control, EU hydrogen policy literacy.	Management and logistic, Data analysis, programming	Digesters/upgrading techs, EU regulation, GHG accounting, supply-chain optimisation
Training	Specialisation for large-scale hybrid systems	Sustainability course (case studies), wind farm planning course, and law course on land leasing.	Heat pump course specializing for large-scale sources.	Basic RES education	Degrees in transport design or urban mobility, VET in e-mobility systems, workshops on EU type-approval, and digital UX tools.	Masters in energy systems or chemical engineering, hands-on lab work with electrolysis/fuel cells, REPower EU policy modules.	Computer science and biology	Engineering backgrounds plus short courses in biomethane legislation, LCA, and circular economy

6.7 Summary and Comparative Analysis of Actionable Results

6.7.1 Summary per Working Groups' recommendations

Table 44. Summary of Working Groups' Recommendations

Electricity	Mobility	Fuels	Heat
Policy & Market Enablers • **Design targeted incentives** such as subsidies and tax breaks for innovative renewable projects to accelerate R&D. • **Reward energy communities** for active participation, awareness-raising, and equipment maintenance. • **Engage local stakeholders** with renewable installers, especially in energy-poor areas, to build trust and support. • **Support policy for inclusive upskilling** and gender balance, with incentives for committed companies. • **Promote the European Renewable Academy** to serve as a centre of excellence in renewables, hydrogen, and batteries.	**Policy, Planning & Infrastructure** • **Incentivise sustainable mobility**: Tax breaks, subsidies, and usage incentives for electric vehicles (EVs) and related infrastructure. • **Adopt and integrate EU laws**: Embed EU regulations like AFIR into national policies to streamline implementation (e.g. charger installation, public space allocation). • **Develop national frameworks**: Address legal gaps in countries like Greece for multi-use public space (pedestrians, EV chargers, cyclists, lockers). • **Support sustainable urban & rural planning**: Promote mixed-use zones, remote work, and efficient public transport systems, particularly in non-urban areas. • **Design accurate charging infrastructure networks**: Plan comprehensive EV charging strategies at the national and EU levels.	**Policy & Market Activation** • **Reduce taxes for renewable fuels** to minimise the cost gap with fossil alternatives and stimulate market adoption. • **Simplify legislation and permitting** for renewable fuel production to speed up deployment. • **Address market heterogeneity** by harmonising EU-wide regulations for renewable fuels. • **Incentivise alternative vehicle types** (e.g. hybrids, methane cars) to diversify clean transport options beyond EVs. • **Support combustion engine compatibility** with synthetic fuels for sectors difficult to electrify (e.g. heavy-duty transport).	**Strategic Priorities & Systemic Integration** • **Incentivise waste heat recovery** into District Heating Networks (DHNs) and Renewable Heat Communities (RHCs), especially from industrial sources. • **Promote standardisation of heat-related values** (e.g. waste heat, heat loss) is a critical first step toward effective energy planning. • **Promote local sector integration** (heating, cooling, electricity, waste heat) with an emphasis on synergies and local energy sources. • **Support recognition of Renewable Heating Communities** in national and EU frameworks to increase visibility and support.
Regulatory & Funding Innovation • **Support flexible funding models** with multiple promising projects per call, using unallocated funds. • **Balance between high TRL and basic research**: Innovation funding must deliver results without undermining fundamental R&D. • **Design stronger project benchmarking mechanisms** to retain and reconsider strong unfunded proposals.	**Behavioural & Cultural Change** • **Utilise favour nudging over mandates by** using behavioural economics to encourage sustainable transport habits rather than imposing strict regulations. • **Raise public awareness** addressing cultural resistance to EVs and other sustainable options, particularly in fossil fuel-dependent regions.	**Infrastructure & Supply Chain Readiness** • **Support sustainable supply chains** for inputs like biomethane, including the use of **catch crops** and food/agricultural by-products. • **Broaden R&D focus** beyond EVs to include synthetic fuels, Power-to-X, and biomethane to future-proof the energy transition. • **Support public financing** for individuals adopting clean mobility technologies, especially hybrids and gas vehicles.	**Financing & Policy Levers** • **Engage credit institutions** as public authorities should negotiate for low-interest loans, linking grant eligibility to credit conditions. • **Increase EU funding** to support pilot projects, data-driven planning, and academia-industry collaboration. • **Support more case studies and pilots** to show the value of waste heat recovery and District Heat Networks to industries and local governments.

Electricity	Mobility	Fuels	Heat
Skills & Education Priorities • **Support Train-the-Trainers programs** to ensure knowledge transfer and broad workforce readiness. • **Integrate cross-disciplinary curricula,** incl. PV, batteries, smart cities, etc., through project-based learning. • **Highlight the need for Big Data, AI & analytics** as professionals in smart grids and predictive systems are critical for grid integration. • **Strengthen interdisciplinary research centres** to link academia, IT, and engineering for end-to-end energy solutions.	**Innovation & Engagement** • **Introduce AI in mobility by** developing seminars on applying artificial intelligence for efficiency and automation in mobility systems. • **Use AR/VR for young learners**: Foster early interest in sustainable mobility careers through immersive technology. • **Strengthen stakeholder collaboration, e**ngaging academia, industry, and policymakers to co-develop relevant, future-proof curricula.	**Awareness & Public Engagement** • **Organise public campaigns and site visits** to raise awareness and build trust around renewable fuels. • Promote **realistic narratives** beyond EVs, emphasising the role of biofuels, methane, and synthetic options in the green transition. • Highlight the **climate neutrality and versatility** of new fuels to counter resistance and stimulate public interest.	**Skills & Workforce Development** • **Promote incentives for skilled workers and industrial PhDs** to meet the growing demand for heat-sector expertise. • **Design hands-on VET training & industry traineeships** across degree levels to align education with real-world heating sector needs. • **Boost digital skills** for performance monitoring in heating systems and smart infrastructure management. • **Integrate statistics and data analysis** into energy-related study programs to support evidence-based decision-making.
Community & Workforce Engagement • **Support and incentivise grassroots energy communities** to drive local adoption and skill-building. • **Strengthen industry-academia collaboration** to ensure education aligns with future workforce needs. • **Foster niche expertise** to improve competitiveness and innovation in the green energy labour market.	**Education, Training & Workforce Skills** • **Align training with industry needs**: Ensure education programs reflect current and future demands in sustainable mobility and e-mobility. • **Train engineers** in soft skills such as engagement and behaviour change to support mobility transitions. • **Upskill in EV maintenance**: Offer hands-on workshops in electric vehicle diagnostics, repair, and service. • Integrate **advanced simulation** software for training in smart transport systems	**Education & Training Priorities** • **Include EU fuel policies** (e.g. Renewable Energy Directive) in energy-related education curricula. • **Train public authorities** on fuel technologies, applications, and product properties. • **Upgrade VET programs** to include new fuel tech, maintenance, and safety. • **Integrate green finance and business** into engineering education to align skills with emerging market needs. • Offer **training on by-product utilisation** to enhance feedstock knowledge across the agriculture and food sectors.	**Innovation & Collaboration** • **Create cross-disciplinary working groups** to tackle complex heating transition challenges. • **Organise hackathons** linking students and industries for real-world problem solving. • **Enhance understanding of energy/environmental policy compliance** through targeted training in legal and regulatory interpretation.

6.7.2 Categorisation of Recommendations

The table below offers an aggregated and categorised version of the actionable outcomes of the WG meetings.

Table 45. Aggregated and categorised results from the WGs

Category	Recommendation	Brief Description
Political/Regulatory	Subsidies/tax breaks for innovative renewable energy projects	Provide subsidies and tax breaks by governments to foster innovation in renewable energy, encouraging investment in R&D.
	National laws in favour of renewable energy projects	Promote the responsible use of energy from renewable sources through incentives and the integration of European regulations into national policies.
	Tax fossil energy derivatives	Implement taxes on fossil energy derivatives to make renewable alternatives more competitive and encourage a shift towards sustainable energy.
	Simplification of legislation and permission processes	Simplify the legislative and permission processes for renewable energy projects to encourage faster adoption and implementation.
	Integrate nudging-style measures instead of compulsory measures	Emphasise a more flexible, voluntary approach to behaviour change that encourages individuals and businesses to adopt sustainable practices through positive reinforcement, rather than imposing strict mandates and penalties.
	Standardisation of prices in RES	Simplify market entry for new players, enhance transparency, and drive competition, ultimately supporting the widespread adoption and integration of RES.
	Integrate EU Legislation into Education	Ensure that training programs and curricula include content on the EU's Renewable Energy Directive, emissions standards, and sustainable fuel regulations to align education with policy needs.

Category	Recommendation	Brief Description
	Training for Public Authorities	Provide upskilling opportunities for public authorities on sustainable and renewable fuels, ensuring they are informed on emerging technologies and can effectively implement and monitor regulations.
Educational/Academia	Establishment of a dedicated European Academy on Renewables	Create a specialised academy for research, education, and collaboration in renewable energy fields. Foster interdisciplinary learning and research by establishing joint degree programs across European universities in RES.
	Alignment of training programs with industry needs	Ensure that training programs in renewable energy align with industry needs to prepare a skilled workforce. Promote collaboration between academia and industry through industrial programs, theses, internships and hands-on training, laboratory sessions, and industry traineeships in all degree programs
	Including the industry and private sector in educational boards	Ensure that curricula are aligned with current market needs and technological advancements, fostering a closer link between academic training and real-world industry requirements.
	Hands-on training on renewable energy experience with interactive learning and innovative methods	Provide practical, experiential learning opportunities that enhance participants' understanding and skills. By utilising advanced techniques such as simulations, virtual reality, and real-world applications, this approach effectively bridges the gap between theoretical knowledge and practical application in the renewable energy sector.
	Reskilling the traditional workforce	Include skills such as technical expertise combined with business skills, or adapting to emerging industry demands. This approach ensures that workers and students are equipped with a diverse skill set that integrates technical knowledge with strategic financial planning, enhancing their ability to contribute to and thrive in rapidly changing fields.

Category	Recommendation	Brief Description
	Enhance Digital and Data Skills	Incorporate statistics, big data, and digital monitoring tools into education, including simulation software and AI-based approaches for sustainable systems.
	Interdisciplinary and Cross-Topic Curricula	Design curricula that integrate renewable energy subtopics (e.g., PV, wind, storage, smart cities) and promote project-based, cross-disciplinary learning.
	Train the Trainers Programmes	Develop a network of educators trained in modern renewable energy systems, pedagogy, and technologies to cascade knowledge across sectors and regions.
Financial	Incentives for individuals and companies adopting RES	Include tax breaks, subsidies, and other financial benefits that reduce the cost of adopting renewable energy technologies, thereby encouraging wider implementation and supporting the growth of a green economy.
	Fund multiple projects in specific fields	Fund several promising projects within a specific field to increase innovation and success rates, even using unused resources from programs like Horizon Europe.
	Grants and subsidies for equipment enhancement in vocational schools	Offer financial incentives to improve resources in vocational training institutions.
	Grants and subsidies for continuous education and certifications on RES	Financial support aims at fostering lifelong learning and professional development in the field. By reducing the cost of further education and certification, these incentives help individuals and organisations stay updated with the latest advancements and best practices, thereby enhancing expertise and ensuring a skilled workforce in the renewable energy sector.

Category	Recommendation	Brief Description
	Incentives for industrial PhDs	Provide tax incentives for companies that support industrial PhD programs to encourage advanced research and innovation.
	Green Business & Finance in Tech Education	Integrate green business models and green finance topics into engineering and technology programs to prepare students for the economic dimensions of the green transition.
	Promote Innovation Hubs	Support the creation of interdisciplinary research centres focused on the renewable energy value chain, encouraging collaboration and innovation with potential funding support mechanisms.
Social	Engagement of society	Encourage the active participation of local communities in renewable energy projects, providing hands-on training and involvement in project development.
	Promote hands-on renewable energy experience via mobility programmes	Facilitate practical experiences such as internships, seminars and field visits to enhance understanding and skills in renewable energy environments, and thus change users' behavioural patterns.
	Raise public awareness of renewable energy derivatives	Conduct public awareness campaigns to inform and educate citizens about the benefits and necessity of adopting renewable energy.
	Address energy poverty	Implement policies to ensure affordable and accessible energy options for all individuals, considering income disparities.
	Engagement of women in RES	Involve women in various roles within the sector. This includes promoting gender diversity, supporting Women's rights NGOs/Organisations, and creating opportunities for women to participate in RES projects and

Category	Recommendation	Brief Description
		leadership positions. This leverages diverse perspectives and skills, enriching the overall innovation and effectiveness of the renewable energy sector.
	Digital hub platform for renewables experts	Establish a digital platform to facilitate communication and knowledge exchange among experts in the field of renewable energy.
	Use of AR/VR for Youth Engagement	Integrate immersive technologies (e.g., AR/VR) to engage younger audiences in sustainable mobility and energy education early on

Common Themes and Areas of Consensus

- **Financial Incentives**: Many recommendations across categories emphasise the importance of subsidies, tax breaks, grants, and financial schemes to incentivise investment in renewable electricity, sustainable mobility, fuels and heat, and support mechanisms to facilitate the transition to renewable energy sources.
- **Education and Training**: There is a strong emphasis on enhancing educational programs, fostering industry-academia collaboration, and promoting skills development in green technologies.
- **Community Engagement**: Recommendations highlight the role of community involvement and awareness in driving the adoption of sustainable practices in the energy, mobility, and heating sectors.
- **Regulatory Support**: Calls for harmonisation of national regulations with EU directives, the standardisation of values and regulations, and the removal of bottlenecks in legislation.
- **Integration and Collaboration:** There is widespread agreement on the need for integrating policies across different sectors (energy, mobility, heat) and fostering collaboration between stakeholders (industry, academia, communities).

Differing Viewpoints

- **Emphasis on Specific Technologies**: Some recommendations focus heavily on specific technologies (e.g. electric vehicles, waste heat recovery) while others advocate for a broader approach that includes various technological solutions.

Potential Impact of Implementing Recommendations

The proposed activities and recommendations have the potential to make a significant impact on the renewable energy sector in Europe. Key anticipated impacts include:

Table 46. Potential Impact through the SKILLBILL WG

Potential Impact	Description
Economic Growth	Financial incentives and support mechanisms are expected to **stimulate investments** in the renewable energy sector, driving economic growth and **job creation**. The focus on SMEs and entrepreneurial training will further enhance innovation and competitiveness.
Environmental Benefits	By promoting the adoption of renewable energy technologies, these activities will contribute to significant **reductions in carbon emissions** and **improvements in air quality**. The emphasis on community engagement and behavioural change will **foster sustainable practices** at the basic level.
Social Equity	Enhanced educational and training programs will ensure that the workforce is equipped with the **necessary skills to thrive** in the renewable energy sector. This includes targeted efforts to **engage women and underrepresented groups**, promoting social equity and diversity within the industry.
Policy Development	The development of **green skill policies and nudging-style** measures will create a supportive regulatory environment that **encourages sustainable practices**. Rewarding schemes for energy communities will empower local initiatives, fostering a **sense of ownership** and participation in the energy transition.
Technological Advancements	By **aligning** educational and training **programs with technological advancements**, the renewable energy sector will be better equipped to adopt and implement cutting-edge technologies. This will enhance the efficiency and effectiveness of renewable energy systems, contributing to the overall sustainability goals of Europe.

6.7.3 Emerging Skills Summary

The table below offers an aggregated and categorised version of the most emerging skills derived from the WG meetings

Table 47. SKILLBILL emerging skills

	Electricity	Heat	Fuels	Mobility	Transversal
Urgent | Immediate need in industry		Calculate the economic feasibility of geothermal and heat reuse investments	Design storytelling campaigns around new fuel technologies	Use GIS tools for EV network planning	Management Leadership/Coaching
Future Relevant | important in 3–5 years	Design integrated systems combining PV, battery storage, and hydrogen	Design and retrofit district heating systems using renewable sources			Public Speaking Simulate energy/mobility scenarios using software
Underdeveloped | requiring long-term development in training and education			Operate small-scale Power-to-X and biomethane production systems		

6.7.4 Job Profiles

The figure below offers an overview of the most important job profiles derived from the WG meetings

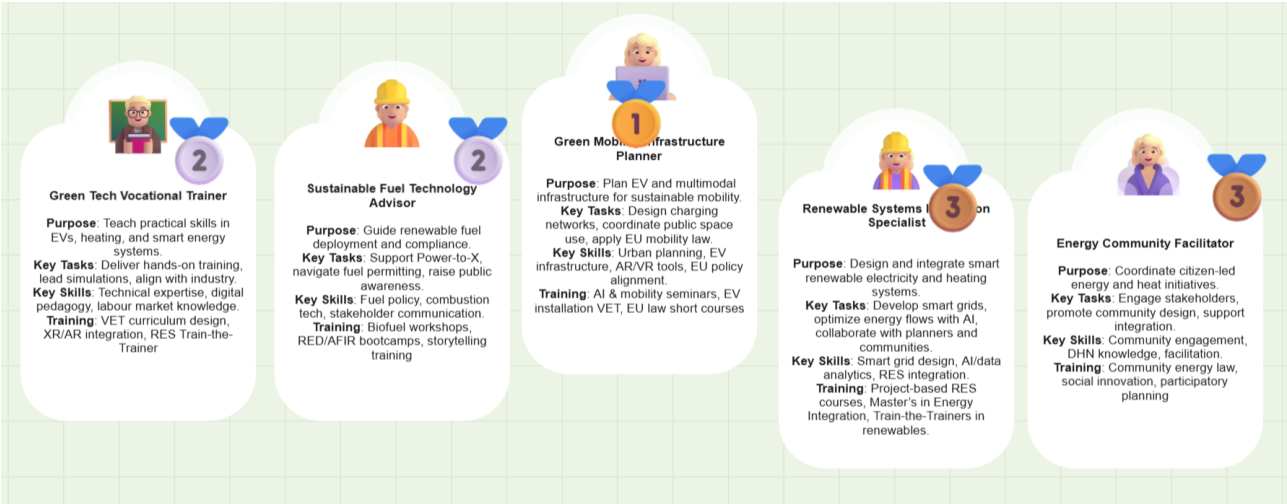


Figure 77. SKILLBILL Job Profiles

7. Monitoring Framework

7.1 SKILLBILL Performance Monitoring Framework within Working Groups

The monitoring framework within the SKILLBILL project is designed to systematically **track and evaluate the activities and performance** of the WGs established under the SJI. This framework aims to ensure that the efforts of the WGs add significant value to the project's objectives, particularly in advancing sustainable and renewable energy solutions. By defining and employing **specific indicators**, the framework assesses the effectiveness and impact of the WGs in various critical areas.

The framework comprises several **key performance indicators**, including the establishment and selection of experts, preparation of WG meetings, participation levels, thematic focus, recommendations produced, and follow-up reporting. The performance is monitored through clearly defined **objectives, indicators, and metrics** to provide a concise overview of the WGs' contributions and outcomes.

The following table summarises the main indicators used in this monitoring framework. It includes the objectives, the specific indicators, brief descriptions of these indicators, and the corresponding metrics used to evaluate the performance of the WGs within the SKILLBILL project.

Table 48. Summary of indicators within the monitoring framework

Objective	Indicator	Brief Description of Indicator	Metrics
Establishment and Selection of Experts	Expert Participation	Selection of WG members based on specific criteria including expertise, representativeness, gender balance, and geographic coverage	Number of experts, diversity of expertise, gender balance, regions represented
	Promotion Activities	Efforts to promote WGs and attract participants, including videos and starter kits	Number of promotional videos, number of starter kits circulated
Preparation of WG Meetings	Scheduling and Agenda Development	Coordination of meeting dates and agendas, timely dissemination of information	Timeliness of invitations and agenda circulation, feedback incorporation into the agendas
Participation Levels and Meeting Frequency	Meeting Attendance	Attendance of WG members in scheduled meetings	Number of participants per meeting, meeting frequency

Objective	Indicator	Brief Description of Indicator	Metrics
Thematic Focus and Recommendations Produced	Number of Recommendations	Recommendations produced by WGs addressing various aspects related to renewable energies and EU Green Deal objectives	Total number of recommendations, recommendations per WG
Follow-up and WG Reports	Documentation and Reporting	Distribution of meeting reports and relevant documentation to participants	Timeliness of report distribution, frequency of follow-up reports

7.2 Report on the SKILLBILL Working Groups Performance

WGs establishment and selection of experts

The **presentation and promotion** of the four SKILLBILL WGs - on (i) Sustainable and Renewable Electricity, (ii) Sustainable Mobility, (iii) Sustainable and Renewable Fuels and (iv) Sustainable and Renewable Heat – was done under the SJI, **co-designed** with the input of the 32 expert stakeholders who attended the Co-Creation Workshop on June 14th, 2023. Ahead of the first round of WG meetings that took place in November 2023, a **starter kit** was circulated among potentially interested and suitable WG member candidates, in order to invite and **obtain formal confirmation** to participate, inform on **terms of reference**, rights and obligations, and to have WG members sign a **consent form** regarding personal data processing etc. Also, **four short videos** were disseminated over the SKILLBILL social media channels, to promote the WGs among expert stakeholders.

The WG members have been selected under **specific selection criteria**, which include expertise on education and/or RES, relevance to the topics addressed by the WGs, representativeness of targeted stakeholder groups, gender balance etc. The expertise present in the **WGs consists of** researchers and academics from universities, institutes and other educational entities, as well as energy industry representatives (incl. from associations), project developers and consultants, and professionals in data and innovative technologies. They are either **external experts** or from among **SKILLBILL partners**, identified as **key players** in the field or interested professionals in renewable energy development. In parallel, four LHEs have been invited by SKILLBILL partners, to act as moderators and facilitate the technical and political discussions.

Evaluation

The **WG establishment** was done according to the grant agreement's provisions, following a thorough and **structured approach**, resulting in the expected participation level of experts (see Participation Level below for more information). The **expertise** present in the WGs, both in person of the Lighthouse Experts and the WG members, is **relevant to the scope and purpose**, **with knowledgeable stakeholders** representing related industries, academia and research institutes, project management, consultancies etc. In the composition of the WGs, the **gender balance** (~ 40% female participation) as well as the **geographical coverage** has been respected, ranging from the Mediterranean regions to Central Eastern Europe to the Nordic countries.

Preparation of WG Meetings

The WGs preparation included the **scheduling of dates** that **suited most WG members** (via Doodle), the development of WG **agendas** in coordination with the LHEs, the **timely circulation** of invitations, **contact details** and the final agendas, as well as **chat functions** and **Miro Boards** for all four WGs meeting rounds.

Evaluation

The **dissemination** of useful information was done **sufficiently in advance**, allowing for WG members to adapt their schedule and ensure participation (incl. by their involvement in setting the meeting dates). Furthermore, the **agendas** were prepared, under the leadership of Q-PLAN, in a **transparent and inclusive** manner, providing the opportunity to LHEs to **submit feedback**.

Participation Levels and Meeting Frequency

According to the grant agreement, every WG was supposed to count with the participation of 6 to 8 members, from within and outside the SKILLBILL consortium. Supported by the thorough and **structured establishment** and **timely preparation and information**, the following **participation levels** have been reached:

Table 49. Participation Levels

	WG	Meeting Date	Number of Participants
1st Round of WG Meetings	Electricity	17 Nov 23	13
	Fuels	24 Nov 23	12
	Heat	20 Nov 24	12
	Mobility	27 Nov 23	13
2nd Round of WG Meetings	Electricity	15 May 24	8
	Fuels	13 May 24	12
	Heat	17 May 24	10
	Mobility	23 May 24	11
3rd Round of WG Meetings	Electricity	23 Oct 24	9
	Fuels	05 Nov 24	13
	Heat	29 Oct 24	10
	Mobility	22 Nov 24	12
4th round Plenary Meeting	All WG together	19 May 25	23

The meetings have been held **every 6 months**, starting in November 2023, with the second round of meetings held in course of May 2024, and the third round in October and November 2024. The final plenary session was held in May 2025. All meetings have been held **according to schedule** and SKILLBILL's work plan.

Evaluation

The **participation** levels have been **higher than initially targeted**, with more than ten participants in every WG meeting (except two). This outperformance is a **successful consequence** of the efforts undertaken with regards to stakeholder **engagement and involvement, dissemination** and adequate **communication formats**. Also, the **meeting frequency** as provided in the grant agreement **has been respected**.

Thematic focus and recommendations produced

The WGs have put **thematic focus** in the first round of meetings held in November 2023 on solutions for the development and deployment of renewable energies in the heating, mobility, electricity and fuels sectors, while the second round (May 2024) focused on regulatory improvement and further initiatives that are required to meet the EU's Green Deal objectives and foster the job creation and skills development in the renewables sector. The third WG meeting series, held in October and November, put emphasis on developing guidelines for education/training programs that facilitate skilling, reskilling and upskilling. To this end, the WGs have produced a total of **177 recommendations** during the flow of the first three rounds of WG meetings. The final round of WG Meeting was held in June 2025 and concluded in the identification of 54 emerging skills and 16 emerging job profiles in the RES sector. These recommendations address decision-makers and other stakeholder groups, with the objective to **improve framework conditions** and **establish favourable environments** for renewable heat and fuels, sustainable mobility and green electricity, as well as the skills required.

Evaluation

The objective of producing **20 recommendations** per WG **has been exceeded**. In total, the 4 WGs have produced **177 recommendations**, with the final plenary meeting having identified **54 skills** and **16 job profiles** that are required in Europe's transition to net-zero. This substantive outcome demonstrates the **active involvement and contribution** made by the WG members, during the meetings as well as in form of **additional written input** that has been provided by WG members who were not able to participate in the meetings.

The recommendations address a **wide range of regulatory, financial, administrative, social and technical aspects, in terms of legal barriers and drivers, access** and availability of funding, awareness-raising, cooperation among industry and academia, skilling, reskilling and upskilling, gender balance, citizen and stakeholder engagement, urban and spatial planning, solutions for remote areas etc. Thereby, the WGs provide a **broad and holistic perspective** of the many **elements** and work streams that **authorities, industry, academia and civil society** as a whole need to consider, when implementing sustainable solutions in heat, mobility, fuels and renewable electricity.

The **outcome** produced has **contributed** to shaping the **SKILLBILL final event** held in Brussels on 26th June 2025, as well as the agenda design and content of the **2nd MML "A skilled workforce for Europe's transition to net-zero"**, which took place on 25th June 2025 in Brussels. The WG recommendations also fed into the final MML workshop report.

Follow-up and WG reports

After the WG meetings, participants have received **all relevant documentation**, incl. agenda, snapshots of the Miro Board, photos, as well as a detailed meeting report. The meeting report contains participants list, topics of discussion, outcomes and recommendations, as well as key insights from the discussions.

Evaluation

The follow-up has been conducted **on a regular basis**, providing relevant information (mostly in the form of the WG reports) to **all WG members**, **within one month** after the meetings were held. This is helpful for the **continuous engagement** of the WG members, demonstrated by the fact that most experts did attend all four meeting rounds held. The WG reports contain **concise and useful summaries** of the discussion conducted and make the outcomes (meaning the recommendations) accessible to the SKILLBILL target groups.

Remuneration

According to prior agreement, WG members outside the partner organisation were entitled to receive **financial compensation** for their efforts, in form 1,000 € for full involvement to the Working Groups work (either participating in meetings or contributing with recommendations in written)

Evaluation

*The agreements have been respected, with the compensation **distributed to eligible** WG members.*

8. Actionable Results from MML

8.1 1st Mobilisation and Mutual Learning Workshop

8.1.1 *Event's Aggregate Data*

Title	Empowering the future of green workforce & policies
Date	19th November 2024
Venue	Online, MS Teams
Organizers	PEDAL Consulting s.r.o.
Audience (number and type)	29 in total (12 female) (Type: SKILLBILL Partners, public government, consultancies, industry associations, interest groups, research and development (R&D) organizations, business associations, NGOs, associations of renewable energies, academia, private companies, SMEs, mechanical design, R&D, and electronic systems companies)
Duration	10:00 – 12:30 CET (2.5 hours)

8.1.2 *Stakeholders reached*

The event brought together a diverse range of stakeholders, including:

- SKILLBILL partners (6),
- public government representatives (4),
- consultancies (2),
- industry associations (2),
- interest groups (1),
- research and development (R&D) organizations (2),
- business associations (1),
- NGOs (3),
- associations of renewable energies (2),
- academia (3),
- private companies (1),
- SMEs (2),

A total of 29 participants attended the event, which included 2 organizers and 2 speakers. Out of the 29 participants, 12 (circa 41%) were female.

8.1.3 *Event's goals, objectives and relevance with SKILLBILL*

This workshop was first out of two Mobilization and Mutual Learning Workshops (MML) aimed at fostering collaboration and innovation in the renewable energy sector. It was organized under WP2

– T2.4 Mobilisation and mutual learning based on working group outcomes (M13-36). This task goes in parallel with the work of T2.3 Set up, operation and coordination of working groups – building on its outputs.

The **objectives of the workshop** were as follows:

- Utilise a co-creative bottom-up approach to collect suggestions and ideas for further improving recommendations from SKILLBILL Working Groups on electricity, heat, fuels, and mobility, involving different kind of stakeholders.
- Develop actionable new recommendations to address the challenges of the green transition.
- Bring a broader part of our target community together in order to promote knowledge sharing and exchange on good practices.
- Promote networking, initiating or reinforcing existing collaborations and synergies between involved stakeholders.

8.1.4 *Organisation of the event*

Steps Taken to Set Up the Activity/Event: The organisation of the workshop was methodical, building on insights gathered via the active involvement in T2.3: Setup, Operation, and Coordination of Working Groups (WGs). PEDAL actively participated in all meetings during the second round of the four WGs sessions held in May 2024 and conducted a thorough review of materials from both the first and second rounds of WGs meetings.

In July 2024, following an in-depth analysis of the recommendations proposed during these sessions, PEDAL categorised the recommendations based on the issues they addressed and identified synergies. This analysis revealed and highlighted two primary themes: **green skills/workforce** and **green policies,** leading to the workshop's title: ***Empowering the Future of Green Workforce & Policies***.

The workshop concept was finalized in July 2024, structured into two main thematic parts:

1. **Green Workforce / Skilled workforce.**
2. **Green Policies / Policies for the new era.**

Each session featured an introductory presentation by a field expert, followed by an interactive co-creation session aimed at collecting participant feedback in an engaging topic and collaborative manner. To facilitate the co-creation activities, **MIRO boards** were developed in August 2024, and their usage is detailed further in Section 8.1.6 of this report.

Collaboration with project partners: The workshop concept and use of online tools were discussed and refined in collaboration with Q-PLAN through emails and online calls. Q-PLAN provided valuable feedback and shared insights and tips gained from their experiences in organizing WG meetings, contributing to the workshop's smooth organisation and execution.

Securing Speakers: In July 2024, PEDAL reached out to the first speaker, **Dirk Hendricks, General Secretary** of the European Renewable Energies Federation (EREF). As an experienced professional and SKILLBILL Lighthouse Expert, Mr. Hendricks was invited to moderate both co-creation sessions and deliver the introductory presentation for the session on Green Policies. Following an online meeting to discuss the workshop objectives and roles in detail, the communication with Mr. Hendricks continued through email and calls.

Later, Mr. Hendricks invited the second speaker, Mrs. **Nathalie Richet**, **Senior Master Programme Manager** at Association of European Renewable Energy (EUREC), to deliver the introductory presentation for the first session on Green Workforce.

Workshop Promotion and Preparation: The workshop was scheduled for **19th November 2024**, running from **10:00 CET to 12:30 CET.** Promotion was carried out through various communication channels, leveraging project partners' networks and contacts (see Section 8.1.5. Dissemination activities). All documentation (such as agenda, invitation email, banner, videos/reels/, website post, social media posts, registration form) was prepared by PEDAL and shared with project partners to maximise outreach.

Following participants registration via a Google Form, all registrants were added to a pre-arranged Microsoft Teams meeting. Upon registration, participants automatically received an email containing the meeting link and the workshop agenda. To enhance engagement and ensure readiness, a reminder email was sent to all registered participants on 18th November 2024, one day prior to the event. This email included the workshop link and access to MIRO boards, allowing participants to familiarise themselves with the interactive tools and reflect on the topics to be discussed. A final reminder was sent to all registrants one hour before the workshop commenced on 19th November 2024, ensuring maximum participation.

Following the workshop on 19th November 2024, a thank-you email was sent to all participants. This email included a request to complete the Google feedback form, and a PDF copy of the presentations delivered during the workshop. Once the workshop report with the key take-aways was finalised, it was shared with the participants on 9th December 2024 via email. The report is annexed.

The workshop was hosted **via Microsoft Teams platform** to ensure accessibility for diverse stakeholders across Europe. **The online format** was chosen to accommodate the busy schedules of experts and to maximise attendance from stakeholders spanning multiple European countries.

8.1.5 *Dissemination activities*

The workshop was disseminated through various channels:

- During **SKILLBILL monthly Plenary meeting** on 18th September 2024 as well as during online **5th Project meeting** on 16th October 2024 all SKILLBILL partners were encouraged to share the event via their own channels.
- **PEDAL Website** – Online article in English was published on 25th September 2024 on PEDAL own website, summarizing all necessary information and regularly updated: https://www.pedal-consulting.eu/workshop-empowering-the-future-of-green-workforce-and-policies/
- **PEDAL Social Media:**
  - 1st round: on 30th September 2024 (Save the date video/reel)
    - LI: https://www.linkedin.com/posts/pedal-consulting_workshop-empowering-the-future-of-the-green-activity-7246420409569427456-enyM?utm_source=share&utm_medium=member_desktop
    - FB: https://www.facebook.com/pedal.consulting/videos/1112016880641195/
    - TW: https://x.com/PEDALconsulting/status/1840661363787440157
    - IG:https://www.instagram.com/reel/DAiJXIgxJsL/?utm_source=ig_web_copy_link&igsh=MzRlODBiNWFlZA==

- 2nd round: on 28th October 2024 (Promotion of speaker/video/reel)
  - LI:https://www.linkedin.com/posts/pedal-consulting_meet-skillbill-experts-on-renewable-energy-activity-7256584611474882560-yv0_?utm_source=share&utm_medium=member_desktop
  - FB: https://www.facebook.com/pedal.consulting/videos/569254865550771/
  - TW: https://x.com/PEDALconsulting/status/1850844399011336348
  - IG:https://www.instagram.com/reel/DBqarZmRaKJ/?utm_source=ig_web_copy_link&igsh=MzRlODBiNWFlZA==
- 3rd round: on 13th November 2024
  - LI:https://www.linkedin.com/posts/pedal-consulting_invitation-to-a-workshop-empowering-the-activity-7262377428008783873-QTsD?utm_source=share&utm_medium=member_desktop
  - FB: https://www.facebook.com/pedal.consulting/videos/1274562993728952/
  - TW: https://x.com/PEDALconsulting/status/1856636114758488368
  - IG:https://www.instagram.com/reel/DCTpO-bxuwZ/?utm_source=ig_web_copy_link&igsh=MzRlODBiNWFlZA==
- Right after finishing the event an informative post was published to share key highlights and updates: on 19th November 2024
  - LI:https://www.linkedin.com/posts/pedal-consulting_skillbillproject-greenworkforce-greenpolicies-activity-7264624045780836352-o8fz?utm_source=share&utm_medium=member_desktop
  - FB:https://www.facebook.com/pedal.consulting/posts/pfbid02bGebphTnFQewh6N8dtMKzriQD4BkjxLdbY2BbjbhdZhN7M4127WCsYHsDQdFUF4Xl
  - TW: https://x.com/PEDALconsulting/status/1858863482906484901
  - IG:https://www.instagram.com/p/DCje6z5M9by/?utm_source=ig_web_copy_link&igsh=MzRlODBiNWFlZA==

- **Enviroportal** - The information about the workshop was also published on the Information Portal of the Ministry of Environment of the Slovak Republic – Enviroportal.sk – on 22nd October 2024.
  - https://www.enviroportal.sk/udalost/podpora-zelenej-ekonomiky-a-pracovneho-trhu
- **Email invitation** – Email invitation was shared via project partners, as well as workshop speakers to maximize potential participation. The invitation was also sent to the relevant stakeholders in Slovakia – 47 selected ones – in Slovak language on 4th October 2024.
- **WG Meetings** – The information about organisation of workshop was shared during three WGs meeting, which were organised during October and November 2024.
- **Advisory board meeting** – The information about organisation of workshop was shared during SKILLBILL online Advisory board meeting, which was organised on 5th November 2024.

8.1.6 *Structure of the event (short minutes)*

INTRODUCTION

The workshop started at 10:00 CET with an opening session welcoming participants and set the stage for the event - outlining the workshop's purpose/aim and objectives, introduction of the speakers. A concise overview of the **SKILLBILL project** was presented, highlighting its goals, ongoing activities, and relevance to the workshop's themes. To foster participants' engagement and collaboration, an interactive online tool - MIRO - was introduced through an ice-breaking activity. This exercise not only encouraged participation but also familiarized attendees with the platform in a relaxed and approachable manner.

ICE-BRAKING ACTIVITY AND ONLINE TOOL EXPLANATION

The ice-breaking activity was designed to create a comfortable and interactive atmosphere for participants. Attendees were asked a simple question about their Christmas plans, sparking informal conversations and easing participants into the discussion. Simultaneously, this activity served as a technical check to ensure all attendees could access, use and navigate the MIRO board without any difficulties.

Figure 78. MIRO Board – Ice-breaking activity

SESSION 1: GREEN WORKSFORCE

The workshop's first session was dedicated to the topic of a **skilled workforce** for the renewable energy sector. It began with an insightful presentation by **Nathalie Richet,** Senior Project Manager at **EUREC** (The Association of European Renewable Energy), who introduced the Renewable Energy Skills Partnership and its objectives. Following this, a co-creation session facilitated by Dirk Hendricks, General Secretary of EREF (European Renewable Energies Federation), engaged participants in a collaborative discussion. Attendees utilized the MIRO board to propose strategies for addressing skill gaps and creating the capacity-building opportunities in renewable energy sector. The session concluded with a summary of the key takeaways and proposed actions, which are detailed later in this report.

SESSION 2: GREEN POLICIES

After a short 10-minute coffee break, the focus shifted to green policies and their role in the energy transition. **Dirk Hendricks** delivered an in-depth presentation on the latest developments in EU renewable energy policies and strategic initiatives. The session then moved into another co-creation activity, where participants collaboratively explored innovative policy solutions using MIRO board. The discussion culminated in a summary of the major insights, which are presented in subsequent sections of this report.

CLOSING AND RECAP

The workshop concluded with a final summary of discussions, emphasizing the importance of continued collaboration and knowledge-sharing to address the pressing challenges in renewable energy sector. Participants were thanked for their active engagement and reminded to fill out the feedback form. The event concluded at 12:30 CET as scheduled.

TOOLS UTILIZED

To effectively gather insights from participants during the workshop, an online interactive platform, MIRO board, was employed as the primary interactive tool during the workshop. Its selection was based on its ability to provide a structured, collaborative platform for brainstorming and idea exchange, incl. to propose recommendations and exchange best practices. The co-creation sessions were built around the same MIRO board template, ensuring consistency across discussions while addressing two separate topics.

MIRO Board Structure and Functionality

Each MIRO board was divided into three sections, each serving a unique purpose in fostering meaningful dialogue and actionable outcomes:

1. **Identification of Challenges and Barriers:** In the first section, participants were invited to identify the key challenges and barriers within the RES sector, tailored to the specific session's focus - green workforce in the first session and green policies in the second. This step was set the foundation for informed and targeted discussions. The identification of challenges, barriers as well as the understanding of the obstacles RES sector is facing is a critical a preliminary step to proposing effective solutions.
2. **Recommendations:** The central focus of each co-creation session was the second section of the MIRO board, dedicated to collecting targeted and actionable recommendations. Building on the challenges identified earlier, participants contributed practical, actionable ideas and solutions to overcome these (highlighted) barriers. This section served as a brainstorming hub, enabling the consolidation of innovative and practical solutions that could be adopted across various contexts within the RES field.
3. **Good Practices:** The final section of the MIRO board emphasized sharing good practices. Participants were encouraged to draw from their own experiences, showcasing successful initiatives already implemented within their organizations or companies. Or to propose new practices yet not implemented, but that could be adopted. Submissions were organized using color-coded post-it notes to distinguish between existing and suggested practices.

This structured MIRO boards' design and approach facilitated a collaborative and inclusive approach to problem-solving. By encouraging participants to share their knowledge and experiences, the workshop successfully captured a wide selection of perspectives and expertise. This interactive

methodology not only enriched the discussions but also provided a valuable repository of insights and recommendations for shaping a greener workforce and more effective policies in the RES sector.

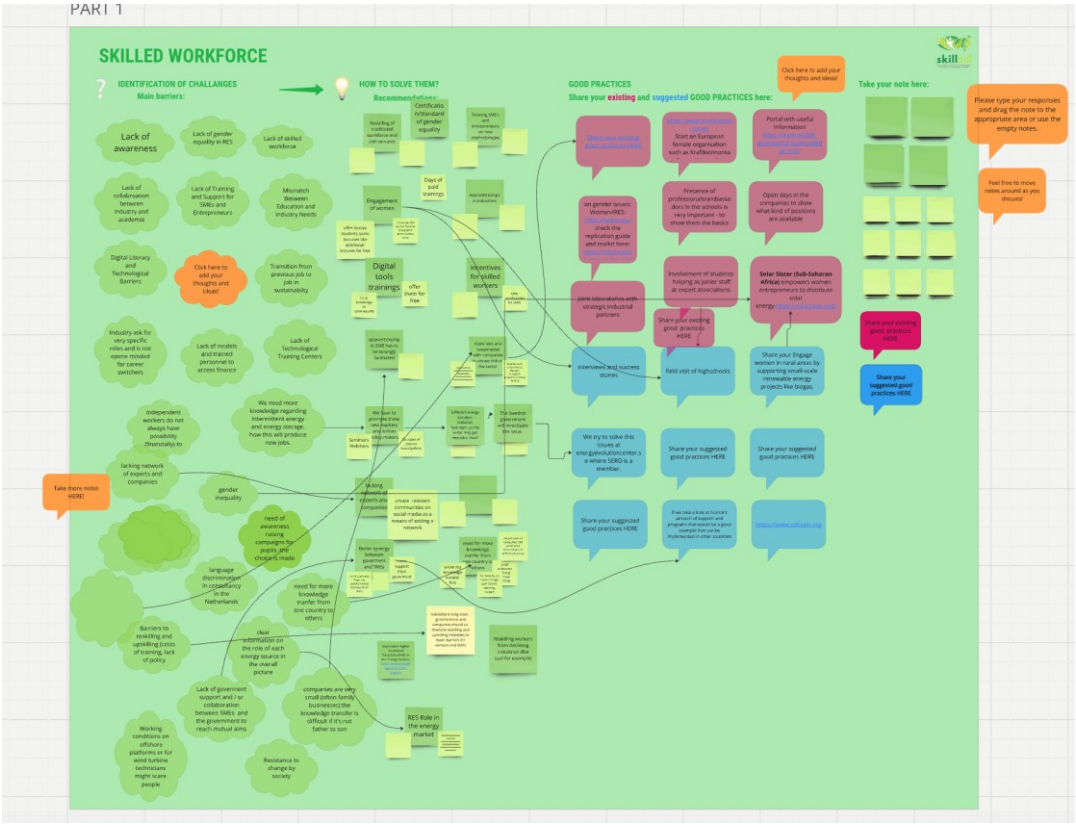


Figure 79. MIRO board – Skilled workforce

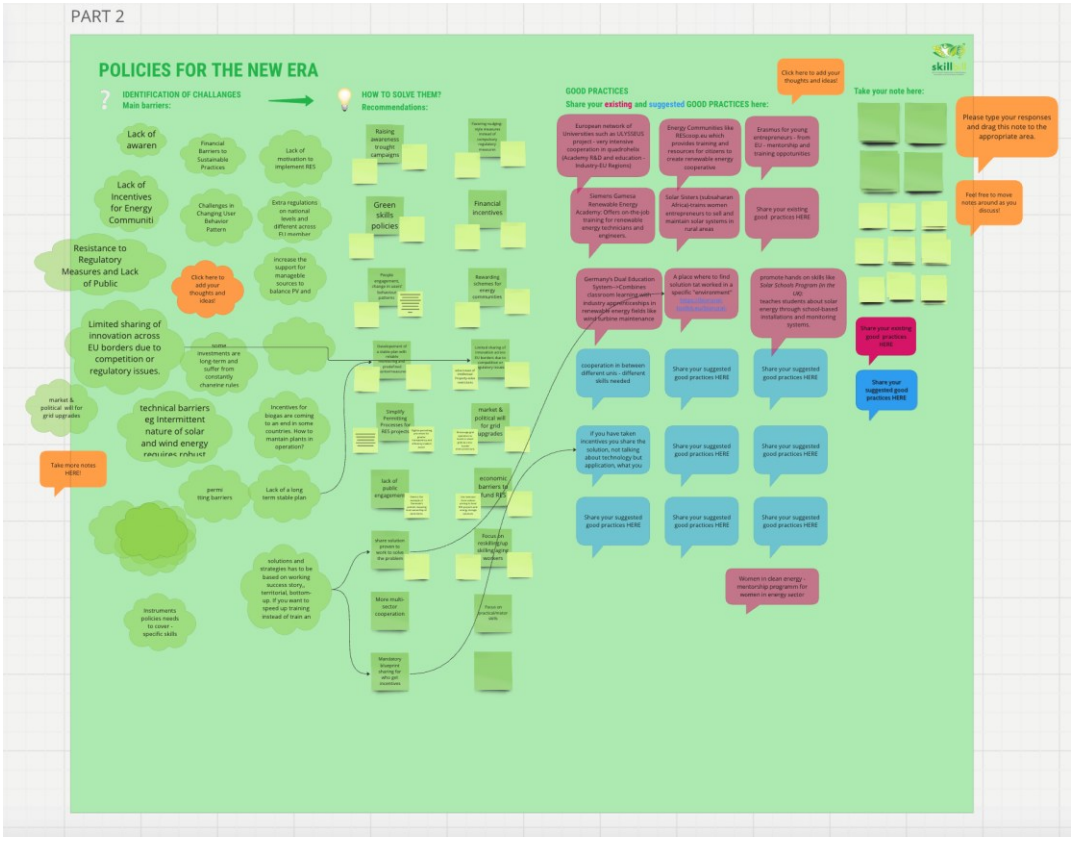


Figure 80. MIRO board – Green policies

8.1.7 *Outcomes of the event*

The **detailed workshops outcomes** were compiled into a comprehensive report, capturing the rich insights and contributions from participants. This detailed document was subsequently shared with all attendees to ensure transparency and continuity in the collaborative process. For clear and transparent overview of the workshop outcomes, the summary tables were used to elaborate on the key barriers/challenges and good practices of green workforce as well as green skills.

1. GREEN WORKFORCE

Identification of barriers/main challenges:

Table 50. Identification of barriers regarding green workforce

Area of barriers	Identification of barrier	
Industry-Academia Collaboration	Limited collaboration results in graduates lacking industry-relevant skills, creating a mismatch between education outcomes and workforce needs.	
	Transition from previous job to job in sustainability.	
Skills and Technological Gaps	Digital Literacy and Technological Barriers:	Deficits in digital literacy and technological training delay the ability of workers to adapt to modern tools and systems.
	Lack of models and trained personnel to access finance:	Limited knowledge and training resources regarding intermittent energy sources and energy storage technologies restrict workforce expansion in these areas.
	Lack of technological training centres:	
Financial and Structural Barriers	Independent workers often lack the financial means to pursue professional development in RES sector.	
	Lack of government support and / or collaboration between SMEs and the government to reach mutual aims.	
	Training centres and apprenticeship opportunities are insufficiently funded, particularly in SMEs and rural areas.	
	Family-run businesses face challenges in systematic knowledge transfer, often relying on informal methods. Mentoring schemes to transfer the knowledge on non-family related persons is missing, resulting in a loss of skills.	
	Lacking network of experts and companies among RES sectors.	
	Industry asks for very specific roles and is not open-minded for career switchers.	

Area of barriers	Identification of barrier
	Lack of clear information on the role of each energy source in the overall picture, meaning what skills/knowledge a person should have to be able to perform a particular job.
Social and Demographic Barriers	Gender inequality remains a present issue, with few women represented in the sector.
	Offshore or physically demanding jobs are often perceived as unappealing due to harsh working conditions.
	Secondary schools fail to attract young talent to the energy sector, particularly among girls and underrepresented groups.
Geopolitical and Language Barriers	Lack of knowledge transfer between countries creates disparities in workforce readiness.
	Language discrimination in specific contexts, such as consultancy roles in the Netherlands or Germany (as well as in other European countries) specifically in public sphere which require at least C1 or C2 level of language. That can limit accessibility to diverse talent pools from other countries.
Lack of Awareness	Limited awareness of career opportunities in RES sectors delays recruitment.
	Resistance to societal change slows the adoption of sustainable workforce strategies.
	Lack of knowledge regarding intermittent energy and energy storage.
	Lack of awareness among children in schools from low age and attracting them.

Key outcomes and recommendations:

Table 51.Key outcomes from co-creation session regarding green workforce

Focus of improvement	Summary of proposed recommendations
Promoting Gender Equality	Implement certifications and standards for gender equality in the workplace.
	Introduce incentives for women, such as free additional lectures or tailored training programs.
	Facilitate work-life balance through parallel programs for children to support working mothers (e.g. kindergartens in/nearby the workplace).
	Engage women in rural areas through small-scale renewable projects like mini-grids and biogas.

Focus of improvement	Summary of proposed recommendations
	Increase women's participation in internships within RES to highlight the value of diverse perspectives and demonstrate how their unique viewpoints can contribute meaningfully to the sector's growth and innovation.
	Establish gender quotas for leadership positions within RES to ensure equitable representation of women and to foster diverse decision-making at the highest levels.
	Promote gender equality by showcasing real-life role models who exemplify the success and contributions of women in RES.
Enhancing Training Opportunities	Days of paid trainings for employees to gain necessary qualification and knowledge.
	Subsidize training costs through co-financing models involving government and SMEs.
	Focus on training opportunities not only on national level, but also on local level and enhance the level of education in particular regions within large countries (e.g. in France).
	Offer free or subsidized digital tools and basic cybersecurity training improving digital literacy.
	Expand apprenticeship programs, particularly in SMEs, with strong government facilitation.
	Develop higher vocational education (HVE) programs tailored to the energy sector, like e.g. https://www.yrkeshogskolan.se/in-english/.
	Focus on reskilling workers from declining industries (e.g. from coal sector) to jobs in RES sector. Many of these workers has the required skills but no labor market opportunities in the current situation.
	Providing in-house training within companies to enhance the education of workers among specific companies.
	Standardization of education certificates in RES sector among European Union states.
Strengthening Industry-Academia Partnerships	Need for more university knowledge transfer from one country to others.
	Small academies offering inhouse training.
	No need to re-invent things: just import winning models.
	Foster collaboration through joint laboratories, internships, and co-education initiatives.

Focus of improvement	Summary of proposed recommendations
	Incentivize companies to partner with universities in cross-country programs.
	Promote competitions and awards to attract students and raise interest in energy careers.
	Involve more industrial partners to promote competitions & awards for students.
	More labs and cooperation with companies to attract young people to the sector.
Boosting Public Awareness	Launch campaigns targeted at younger audiences to present the energy sector as an exciting and viable career path.
	Organize open days at RES workplaces to provide students and the public with a real-life glimpse into the day-to-day responsibilities of professionals in the field.
	Leverage success stories and interviews to inspire future professionals.
	Focus on awareness rising on basic knowledge on cybersecurity.
	Create relevant communities on social media as a means of setting a network.
	Open days for universities focusing on promotion of “green” study programs among high school students and promotion of job possibilities and skills gained after finishing studies.
	Promotion of new jobs in renewable energy sector among public trough seminars and webinars.
Policy and Government Initiatives	Better synergy between government and SMEs, in regards of support from government.
	Facilitate mutual programs between governments and SMEs to drive workforce development.
	Provide financial incentives for sustainable energy solutions, such as biogas and hydro projects.
	Promote policy exchanges to replicate successful models like France’s support programs.
	Offer certificates for skill which would be valid among European Union countries.
	Propose cooperations through European projects to receive funding.

Good practices exchange:

Table 52. Good practices regarding the green policies

Existing good practices	
Kraftkvinnorna	A Swedish initiative focused on empowering women in energy sectors. https://www.kraftkvinnorna.se/
SKILLBILL Green Portal	An online resource portal offering tools and information about RES and for workforce development for public as well as experts. https://www.skillbill-greenportal.eu/
Solar Sister	An organization empowering women entrepreneur to distribute solar energy in Sub-Saharan Africa. https://solarsister.org/
SOLTRAINS in Africa	A regional initiative on capacity building and the demonstration of solar thermal systems in the SADC region. soltrains.org
Women4RES	Provides gender-responsive resources to promote female participation in renewable energy sectors. The replication guide and toolkit available here: https://w4resobservatory.eu/gender-responsive-resources/
Focus on students/academia	Open days in the companies to show what kind of positions are available.
	Presence of professionals/ambassadors in the schools is very important - to show them the basics.
	Joint laboratories with strategic industrial partners.
	Involvement of students helping as junior staff at expert associations.
Energy Evolution Center	The project develops a collaboration arena where both public and private actors can gather to exchange experiences and establish contacts as well as implement support efforts in companies to reduce the load on the electricity grid and contribute to the development of, among other things, energy storage. energyevolutioncenter.se

France's of support and programs

Suggested good practices
Create European-level organizations modelled after Kraftkvinnorna to support women in energy.
Organize joint projects and investigations involving policy makers and industry experts.
Encourage the establishment of small academies providing in-house training programs.
Interviews and success stories about people involved in RES sector.
Field visit of high schools to RES facilities.
Engage women in rural areas by supporting small-scale renewable energy projects like biogas, mini-grids, or solar energy

Existing good practices
Incorporate professionals from RES sector into secondary school programs to provide students with real-life examples and insights into careers in the industry.

2. GREEN POLICIES

Identification of barriers:

Table 53. Identification of barriers regarding green policies

Area of barriers	Identification of barrier
Regulatory and Policy Barriers	Lack of incentives for energy communities inhibits innovation and engagement of residents.
	Extra and inconsistent regulations at national levels across EU member states hinder cross-border collaboration and investment.
	Permitting barriers slow down the deployment of RES due to complex and lengthy processes.
	Lack of a long-term stable plan in implementing RES.
	Challenge of focusing too much on replicating existing solutions or success stories without fostering the development of novel, adaptive skills and strategies that address unique or emerging barriers.
	Need for policies to go beyond generic frameworks and address specific skills required for sustainable innovation and growth.
	Slow Professional Development Cycle in Renewable Energy Careers (long process in gaining necessary qualifications and skills in RES).
Financial and Market Challenges	Many RES projects face financial barriers, including limited funding for sustainable practices and insufficient incentives for biogas operations.
	Long-term investments are discouraged by constantly shifting regulatory frameworks and lack of stable plans.
	Market reluctance and insufficient political will to upgrade grids delay the integration of intermittent energy sources like solar and wind.
Technical Barriers	Intermittent nature of renewable sources necessitates robust storage solutions and significant grid upgrades.
	Incentives for state support (e.g. for biogas plants) are coming to an end in some countries. The future maintenance if their operation is questionable.
Social and Behavioural Barriers	Resistance to regulatory measures by civil society undermine policy effectiveness.
	Lack of public engagement in policy process.

Area of barriers	Identification of barrier
	There is insufficient focus on behavioural change and community-level engagement to build trust and adoption of renewable technologies.

Key outcomes and recommendations:

Table 54. Key outcomes from co-creation session regarding green policies

Focus of improvement	Summary of proposed recommendations
Strengthening Public Engagement	Implement public awareness campaigns using tourism and visible renewable energy installations to foster trust and acceptance.
	Introduce rewarding schemes to incentivize participation in energy communities and local ownership models, such as Denmark's policy requiring local ownership of wind farms.
Stabilizing Policy Frameworks	Develop long-term, stable policy plans with reliable monitoring systems and predefined countermeasures to adapt to emerging challenges.
	Establish mandatory blueprint-sharing policies for entities receiving government incentives, ensuring the dissemination of proven solutions.
Simplifying Permitting Processes	Create “one-stop-shop” frameworks to centralize and expedite approvals for renewable energy projects.
	Digitize permitting processes to enhance transparency and efficiency, reducing administrative hurdles.
	Simplify the administrative steps - streamlining approval procedures, reducing paperwork, and implementing digital tools for faster processing can significantly speed up project timelines.
Financial and Economic Strategies	Use revenues from carbon pricing mechanisms to fund renewable energy projects and energy storage solutions.
	Promote multi-sector cooperation and cross-industry funding opportunities to overcome economic barriers.
Encouraging Technological and Multi-sectoral Collaboration	Address intellectual property restrictions by promoting frameworks for shared innovations and applications across EU borders.
	Encourage energy operators to invest in smart grids and cross-border interconnections to enhance grid resilience and efficiency.
	Share solutions proven to work to solve the problem between involved actors in RES.
	Promote more trans-sectoral cooperation between various fields, such as marine biology and ocean energy, to enhance the development and implementation of RES. Encourage collaboration between experts in

Focus of improvement	Summary of proposed recommendations
	different sectors, including those working directly with e.g. offshore energy systems, such as engineers, marine biologists, and field workers.
Workforce Reskilling and Training	Focus on reskilling aging workers and upskilling the workforce with practical and motor skills tailored to renewable energy needs.
	Develop fast-track programs (allow it from the policy point of view) that combine specialized training with practical experience and reference-building opportunities to quickly prepare individuals for careers in RES.
	Introduce policy grants to support workers taking (paid) leave for professional development, enabling them to gain new skills, knowledge, and education in later stages of life.
	Create a structured pathway / roadmap from education to employment within the RES sector.
	Develop intensive, fast-track training courses tailored to meet the specific skills and experience required by RES sector. These courses should be designed to quickly equip workers with the practical expertise necessary to meet industry standards and criteria for employment.
	Create intensive, hands-on training courses for workers in RES, not just for digital roles but also for those in technical, manual, and field-based positions. These programs should focus on developing practical skills for roles such as installation, maintenance, and repair of renewable energy systems.

GOod practices exchange:

Table 55. Good practices regarding the green policies

Existing	
ULYSSEUS Project	A European network of universities fostering collaboration across academia, industry, and regions to advance renewable energy education and innovation. https://ulysseus.eu/sk/projects/
REScoop.eu	Provides training and resources to empower citizens to form renewable energy cooperatives. https://www.rescoop.eu/
Dual Education System (e.g. in Germany, Slovakia etc.)	Combines academic learning with industry apprenticeships to prepare a skilled workforce in renewable energy sectors.
Biorural Toolkit	Shares success stories from bio-based rural projects, offering context-specific solutions for challenges in renewable energy development. https://biorural-toolkit.eu/biorural-success-stories/

Erasmus for young entrepreneurs	Mentorship and training opportunities for youth. https://www.erasmus-entrepreneurs.eu/
Siemens Gamesa Renewable Energy Academy	Offers on-the-job training for renewable energy technicians and engineers. https://training.siemensgamesa.com/sginternet/index.jsp
Solar Schools Program (in the UK)	Teaches students about solar energy through school-based installations and monitoring systems. https://www.solarforschools.co/

Suggested
Encourage cooperation among universities to address diverse skill needs across the energy sector.
Implement remote, hands-on training programs like the UK's Solar Schools Program, enabling practical education on renewable energy.
Develop mentorship programs for women in clean energy sectors to ensure gender diversity and inclusive growth.

The ideas generated:

The workshop featured two co-creation sessions that leveraged the MIRO online platform to facilitate meaningful discussions and collaboration. These sessions focused on two pivotal topics: developing a skilled workforce and shaping green policies. This interactive format allowed attendees to identify barriers, propose solutions, and share best practices related to each theme, ensuring that a wide variety of perspectives were captured throughout the workshop.

GREEN WORKFORCE

The workshop emphasized the importance of a skilled workforce for the transition to sustainable energy but highlighted significant barriers in connecting industry, academia, and society. These include **limited collaboration between academia and industry**, creating a **skills gap**, as well as **technological gaps**. **Financial and structural challenges** also hinder professional development, especially in SMEs and rural areas. **Social barriers**, such as gender inequality, underrepresentation of women, and unattractive offshore roles, were identified. Additionally, **language barriers** and **a lack of awareness** about renewable energy careers, particularly among young people, further delay recruitment efforts.

To overcome these barriers, the participants of the workshop suggested several key recommendations. **Promoting gender equality** was highlighted, with suggestions such as implementing certifications for gender equality, offering tailored training programs, and introducing work-life balance initiatives. Another key area of improvement is **enhancing training opportunities** by subsidizing training costs and expanding apprenticeship programs, particularly in SMEs and rural areas as well as knowledge transfer between countries. **Stronger partnerships between industry and academia** were recommended, such as joint laboratories, internships, and co-education initiatives to bridge the gap between education and industry needs. **Public awareness** campaigns targeting younger audiences, including open days at renewable energy workplaces and showcasing success stories, were also emphasized to inspire the next generation of professionals. Additionally,

policy and government support are crucial, with calls for stronger collaboration between governments and SMEs, financial incentives for sustainable energy projects, and certification programs for green skills.

GREEN POLICIES

The RES sector is undergoing a transformation that requires innovative policies to address financial, technical, and social challenges while promoting cross-border collaboration. The participants identified several barriers to effective policymaking, including **regulatory issues** like the lack of incentives for energy communities, inconsistent EU regulations, and complex permitting processes, which hinder renewable energy deployment. **Financial and technical challenges**, such as low funding for sustainable practices, market reluctance and insufficient political will to upgrade grids, were also noted. Additionally, **social barriers**, like public resistance and lack of community engagement, complicate policy implementation. The need for adaptable policies to address these challenges was emphasized.

To address these challenges, the participants proposed several key recommendations. **Strengthening public engagement** was emphasized. Introducing rewarding schemes to incentivize participation in energy communities and local ownership models was also suggested. **Stabilizing policy frameworks** was another priority, with calls for long-term, reliable plans and clear countermeasures to address emerging challenges. **Simplifying permitting processes** was another key focus, with recommendations to create centralized approval systems and digitize processes to improve efficiency.

On the **financial side**, the participants suggested using carbon pricing revenues to fund renewable energy projects and energy storage solutions, as well as promoting **cross-industry funding** to overcome economic barriers. **Technological and multi-sectoral collaboration** was also deemed essential, with calls to **foster collaboration between different sectors**. Finally, **workforce reskilling and training** were identified as key to ensuring a skilled workforce for the renewable energy sector. Fast-track programs that combine specialized training with practical experience, as well as grants for professional development, were proposed to support workers' transition into renewable energy careers. The development of a skilled workforce can be facilitated through targeted regulatory measures and policies that provide financial support to the sector, thereby accelerating faster transition to sustainable energy.

CONCLUSIONS

In summary, the workshop discussions underscored the importance of addressing the barriers to workforce development and green policy implementation in the energy sector. The proposed recommendations focus on creating **a more inclusive, skilled workforce** through **improved training, stronger industry-academia collaboration, and public awareness campaigns**. On the policy side, efforts should focus on **stabilizing regulatory frameworks, simplifying permitting processes, focusing on faster development of much needed skills and encouraging multi-sector and international collaboration** to overcome various already mentioned challenges. By scaling up successful practices and implementing these recommendations, a robust and sustainable green workforce can be created, and effective policies can ensure the successful deployment of renewable energy technologies.

8.1.8 *Evaluation of the event*

From 29 participants **5 people** has filled out the feedback form. Based on the results from feedback form, which was circulated to participants after the workshop, the workshop generally met

participants' expectations, with 60% rating it as "Absolutely" meeting their expectations and 20% as "Very much" and another 20% as "Moderate".

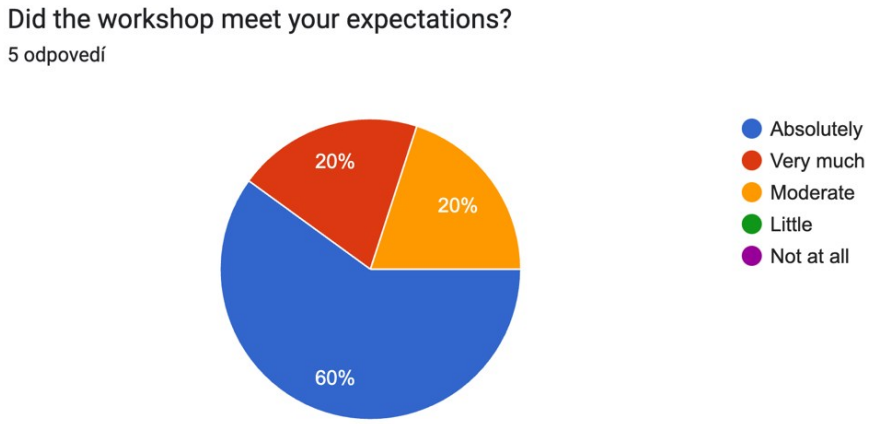


Figure 81. Question: Did the workshop meet your expectations?

Majority of the participants (80%) was overall very satisfied with the workshop. Another 20% of participants indicated satisfaction with the workshop as well.

Figure 82. Question: What is your overall satisfaction with the workshop?

Regarding satisfaction with various aspects of the event, the feedback was mixed but leaned positive. Content and timing were rated relatively high, with most responses clustered around "excellent" and "commendable." However, a few participants indicated dissatisfaction, particularly in the areas of content, quality, timing and speakers, where "poor" ratings emerged. Knowledge exchange stood out positively, receiving multiple "excellent" ratings and no "poor" responses, suggesting this aspect of the event resonated well with attendees.

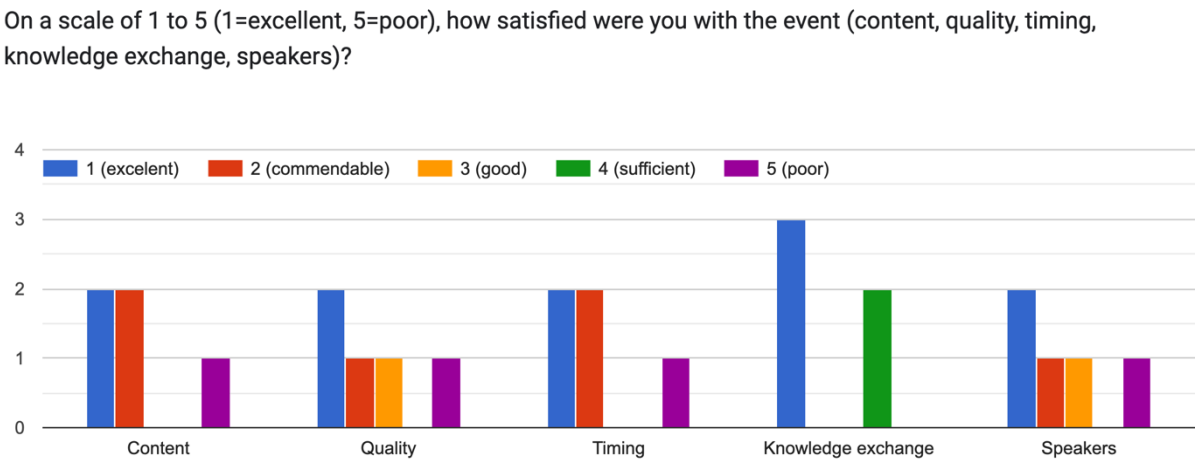


Figure 83. Question: On a scale of 1 to 5 (1=excellent, 5=poor), how satisfied were you with the event (content, quality, timing, knowledge exchange, speakers)?

The topics discussed were broadly relevant to participants' interests, as 60% rated them as either "Extremely" or "Very much" relevant. This alignment with participant needs likely contributed to the high overall satisfaction ratings, with 80% of respondents reporting they were "Very satisfied" and the remaining 20% "Satisfied." There were no neutral or negative responses in this category, indicating a generally positive overall impression of the workshop.

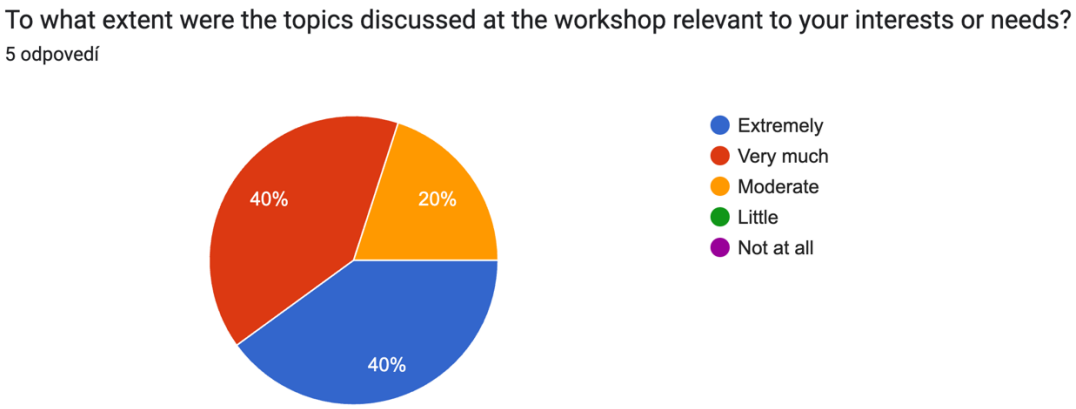


Figure 84. Question: To what extent were the topics discussed at the workshop relevant to your interests or needs?

Participants learned about the event through diverse channels, with the most common source being social media (40%), followed by the project website (20%), email/newsletters (20%), and 20% were partners of the project.

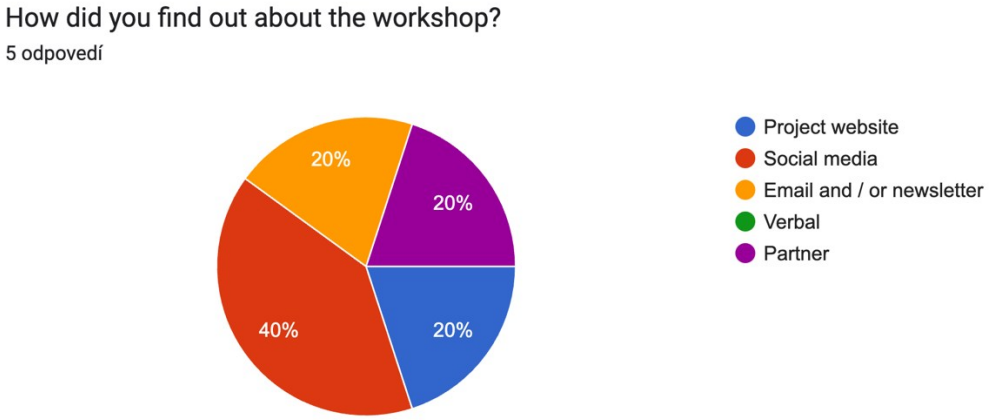


Figure 85. Question: How did you find out about the workshop?

Positive Highlights

Participants highlighted several positive aspects of the workshop, including:

- Active contributions and engaging discussions from participants.
- High-quality organization and a vibrant, collaborative community.The innovative, interactive methods used, such as collaborative boards.

These comments suggest that the event's structure and facilitation were well-received and fostered meaningful interactions.

Areas for Improvement

Feedback for improvement focused on increasing engagement and clarity:

- **Engagement:** Some suggested using tools like Slido or multiple interactive platforms to encourage active participation in online settings.
- **Clarity:** Simplifying and clarifying the event's overall concept was mentioned as a key area for improvement.
- **Outreach:** A recommendation to involve more government and policy sector representatives was made, pointing to the potential for expanding the workshop's impact.

The workshop was largely successful in providing value to participants, particularly in knowledge exchange and fostering a vibrant community. However, the mixed feedback on content quality and some challenges in engagement suggest opportunities to refine the second workshop. By addressing clarity, boosting interaction, and broadening outreach, future workshops could further enhance participant satisfaction and impact.

8.2 2nd Mobilisation and Mutual Learning Workshop

8.2.1 *Event's Aggregate Data*

Title	A SKILLED WORKFORCE FOR THE TRANSITION TO NET-ZERO
Date	25th June 2025
Venue	European Renewable Energies Federation (EREF) premises, Avenue Marnix 28, Brussels, Belgium (onsite event)
Organizers	PEDAL Consulting s.r.o., EREF
Audience (number and type)	24 participants in total (7 female) (Type: SKILLBILL Partners, EU officers, EP representatives, industry representatives, academia representatives, EU institutions…)
Duration	10:00 – 12:30 CET (2.5 hours)

8.2.2 *Stakeholders reached*

The event brought together a diverse range of stakeholders, including:

- SKILLBILL partners
- representatives of EU institutions (EU officers, European Parliament representatives etc.)
- industry representatives
- academia representatives.

A total of **24 participants** attended the onsite event, out of **which 7 (circa 30%) were female**.

8.2.3 *Event's goals, objectives and relevance with SKILLBILL*

This workshop was second out of two Mobilization and Mutual Learning Workshops (MML) - organized under WP2 – T2.4 Mobilization and mutual learning based on working group outcomes (M13-36) - aimed at fostering collaboration and innovation in the renewable energy sector, especially in between industries and academia.

The event was fully aligned with SKILLBILL's goal to reduce the green skills gap through multi-level stakeholder engagement, evidence-based curricula, and tailored education pathways. It built on insights generated by the 4 working groups on renewable electricity, heat, mobility and fuels (T2.3 Set up, operation and coordination of working groups), translated research into policy-relevant recommendations, and reinforced synergies with major EU initiatives such as the Union of Skills, Net Zero Academies, and REPowerEU.

The **event's main objectives and purpose** were as follows:

- Foster collaboration and knowledge exchange between academia, industry, and policymakers: Strengthen partnerships to ensure a coordinated approach to developing workforce ready for the future of renewable energy.

- Improved understanding on industry needs and projections on labour market and sector developments: showcase and exchange on trends and risks in form of skills shortage.
- Explore innovative solutions, best practices and strategies for RES Skills Development: Dive into what needs to be done in education/upskilling/reskilling in RES field in cooperation with industry.
- Connecting policy initiatives to reality: overview on EU initiatives and their expected impact on industry challenges.

To sum it up, the workshop aimed at bringing viable solutions to lack of green skills/RES sector is facing, promote knowledge sharing & exchange of good practices as well as networking, collaborations and initiating or reinforcing synergies, incl. in form of upcoming initiatives which could help foster the sustainability of SKILL BILL beyond its project duration (which ends in August 2025).

8.2.4 *Organization of the event*

The organization of the workshop was methodical and started far in advance, in January 2025. As already mentioned, it was building on insights gathered via the active involvement in T2.3: Set up, Operation, and Coordination of Working Groups (WGs). PEDAL actively participated in all meetings and conducted thorough review of materials from the WGs meetings. But not only that. The goal was also to strengthen synergies between SKILLBILL project and European-level skills initiatives to share with e.g. EU representatives the cross-sectoral evidence of skills gaps and successful training models – to spread the word that this kind of initiatives make different.

In January 2025, almost half a year before the event's date, **the dialogue with EREF** has started. The topics of the discussions were the aim of the workshop and what message we want to convey, the content, agenda, relevant speakers, format (onsite/online) etc. The emails discussions and exchange of ideas were ongoing, continuously contributing to the workshop's smooth organisation, execution and reaching the desired impact.

As first MML workshop was online, it was decided that the 2nd one will be held onsite, ideally – if we want to have a relevant impact – in Brussels, EU capital and having the relevant stakeholders.

Based upon EREF background, network as well as PEDAL's insight and support, the draft agenda was prepared, and speakers were reached out to. The dedicated online meeting with internal speakers was held on 28. May 2025 with the aim to coordinate what we seek to convey from our side to make the MML workshop (and its message) the most impactful.

It was agreed that first, the scene will be set with the SKILLBILL's description and the elaboration on the needs and its impact on achieving energy goals (D2.1), the tools developed under SKILLBILL (Specialisation School and VET program), and experience on how industry and academia collaboration looks in Finland and Spain (Metropolia University and University of Seville).

The workshop was agreed to take place onsite, **in person, on 25. June 2025 (09:00 - 12:00 CET),** the same day as the final project meeting, later same afternoon and the date before the Sustainable Futures Conference, co-organised by BlueRev, Engage4Bio, BlueBioClusters, and SKILLBILL, Horizon Europe funded projects focusing on sustainable regional development on 26 June 2025 (9.30-19.30) in Brussels (Comet Louise, Place Stéphanie 20, 1050, Brussels).

It was also decided to target the specific participant of the workshop – so not to have it wide-open but goes after the experts in the field to maximize the workshop impact. The invitation email was

drafted by PEDAL and used by project partners to invite relevant speakers and experts from their networks directly. Therefore, it was also not that widely promoted.

The interested stakeholders were asked to register via a Google Form, or through QR code as well.

Figure 86. Registration form QR code

Figure 87. Feedback form QR code

Following the workshop, a thank-you email was sent to all participants. This email included a request to complete the Google feedback form to further improve the quality of the future activities. The feedback QR code was also provided during the workshop for the participants.

The workshop was hosted by the SKILLBILL project partner, European Renewable Energies Federation premises at Avenue Marnix 28**, Brussels, Belgium** to maximize the attendance from the EU stakeholders.

8.2.5 *Dissemination activities*

The workshop was disseminated throughout direct invitation emails as well as via social media post (LI, FB) and project and partners website.

Also, other various channels were used to attract the most relevant participants:

- During **SKILLBILL monthly Plenary meetings**
- **Dedicated session to 2nd MML workshop** – what we do want to convey with the workshop – internal speakers – 28 May 2025 all SKILLBILL partners were encouraged to share the event via their own channels.
- **PEDAL and projects Website** – Online article in English was published on PEDAL own website, summarizing all necessary information, incl. the registration link/QR code. Links:
  - https://www.pedal-consulting.eu/shape-the-skilled-workforce-for-the-transition-to-net-zero/
  - https://www.linkedin.com/feed/update/urn:li:activity:7343982779455451136
  - https://skillbill-project.eu/skillbill-hosts-2nd-mobilization-mutual-learning-workshop-shaping-the-skilled-workforce-for-net-zero/
  - https://skillbill-project.eu/skillbill-moves-to-its-completion-withfinal-project-meeting-the-2nd-mutual-learning-workshop-and-final-dissemination-event/
- **PEDAL and project' social media:**
  - https://www.linkedin.com/feed/update/urn:li:activity:7341442776825303042
  - https://www.pedal-consulting.eu/shape-the-skilled-workforce-for-the-transition-to-net-zero/
  - https://www.linkedin.com/posts/skillbill-project_workshop-activity-7343550981734813696-a4ju?utm_source=share&utm_medium=member_desktop&rcm=ACoAAA7kkdoBQI7bT3cOwZKDV89Y3cXx3gKKFX4

- https://www.linkedin.com/posts/skillbill-project_final-week-activity-7346092958988840961-hfS8?utm_source=share&utm_medium=member_desktop&rcm=ACoAAA7kkdoBQI7bT3cOwZKDV89Y3cXx3gKKFX4

- **Email invitation** – Email invitation was shared via project partners to maximize the potentially relevant participation.
- **Advisory board members** – The information about organisation of workshop was shared with the Advisory board members together with the invitation for SKILLBILL final conference via email.

8.2.6 *Structure of the event (short minutes)*

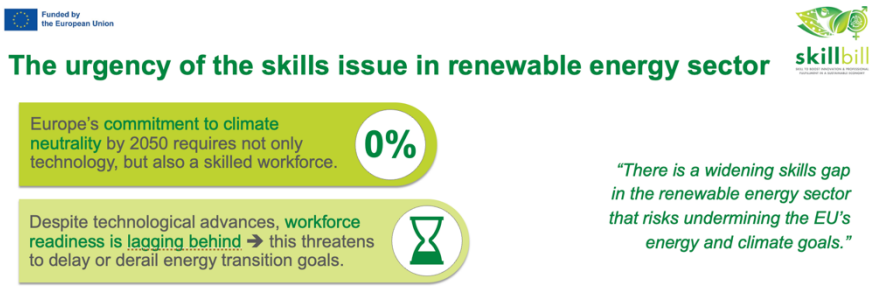
The workshop was structured into three main sessions; each aimed at exploring a different dimension of the green skills challenge and combining expert input with moderated group discussions.

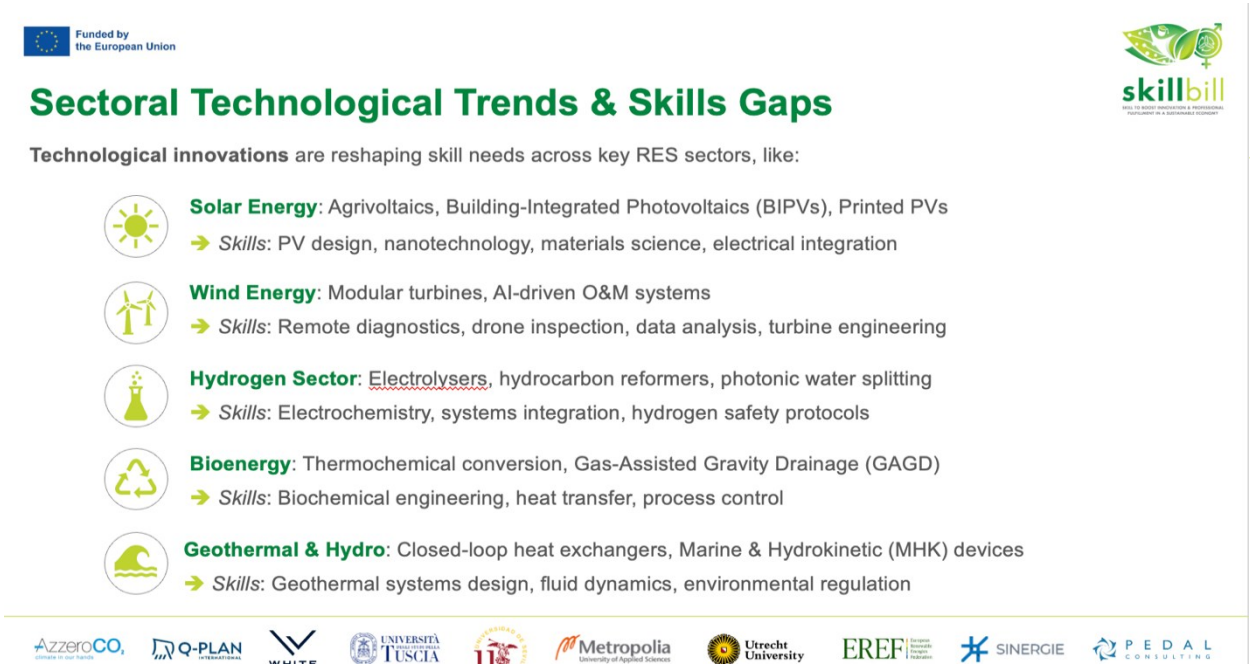
OPENING SESSION: VISION, LEGACY AND ALIGNMENT WITH EU STRATEGY

The event opened with warmly welcoming remarks of ***Johannes Vollmer (EREF)*** who set the scene highlighting the engagement in relevant dialogue about **the urgent need for upskilling** and workforce development to close Europe's green skills gap, ensure the long-term impact of EU-funded skills initiatives to meet Europe's ambitious green energy goals. He called for stronger coordination among academia, industry, and policymakers to ensure that educational outputs meet labour market needs.

Key Contributors in this intro session, continued to in setting the scene to show the full alignment of SKILBILL project with EU Strategy**.** ***Enrico Facci (AzzeroCO$_2$),*** SKILLBILL project coordinator**,** presented SKILLBILL's mission to close the green skills gap through multi-level stakeholder engagement, evidence-based curricula, and tailored education pathways to reinforce synergies with already mentioned major EU initiatives already mentioned-above. Enrico presented the SKILLBILL project's objectives, methodology, stakeholder engagement approach, the development of sector-specific Master's and VET programmes and their relevance to multiple renewable energy sector.

The floor was given to ***Anastasios D. Galatsopoulos (White Research)*** who showed how the skills gap is putting Europe's transition to net-zero at risk.





He reported on key findings from SKIILLBILL's Work Package 2, highlighting major challenges such as:

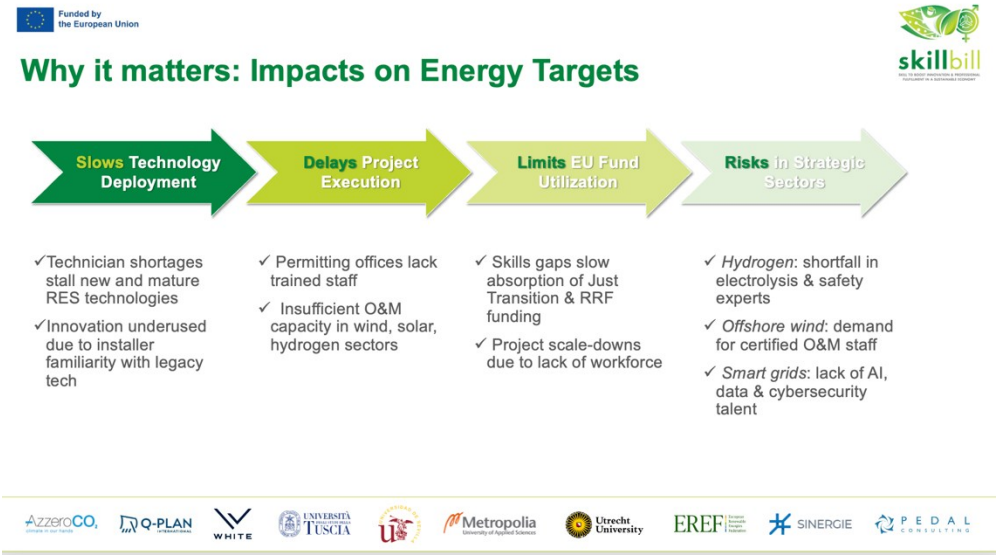
The shortage of qualified technicians and engineers and outdated curricula:

- Technology-driven shifts are rapidly transforming skill requirements in solar, wind, heat pumps, and bioenergy.
- Severe shortage of skilled profiles: especially technicians, system designers, and engineers.
- Overlooked workforce in civil society despite being critical in deployment.

The need for digital and interdisciplinary skills:

- Persistent soft skills gaps: stakeholder engagement, project management, communication, and systems thinking.
- Digital and interdisciplinary competencies are underdeveloped and urgently needed


Funded by the European Union
skillbill
Sectoral Technological Trends & Skills Gaps
Cross-cutting Skills Shortages
Acute shortage of skilled technicians, system designers, and engineers across RES sectors.
→ Affects deployment, operations, and innovation cycles for mature and emerging technologies.
Persistent soft skills gaps
→ Project management, stakeholder engagement, communication, systems thinking.
Lack of digital and interdisciplinary competences
→ IoT, AI, circular design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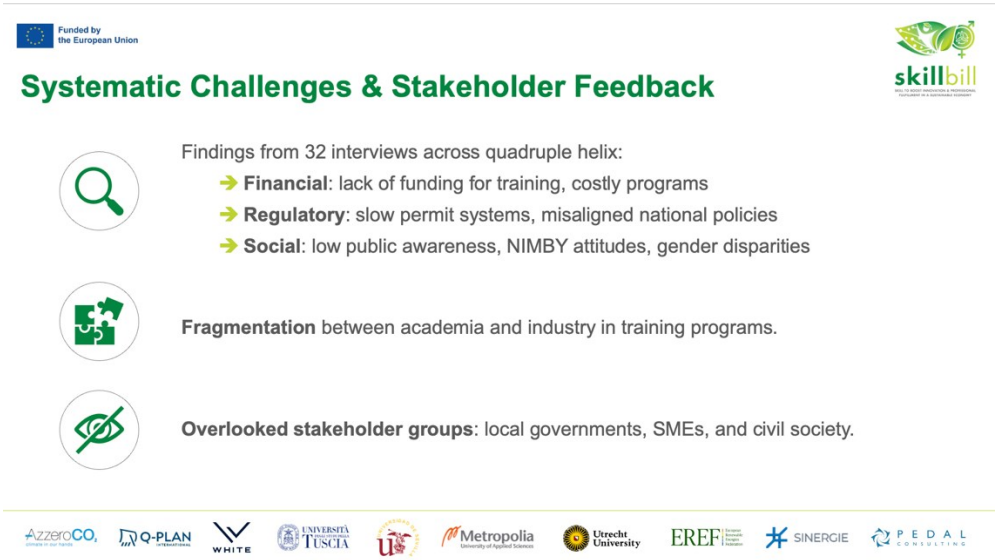
Why it matters: Impacts on Energy Targets
Slows Technology Deployment
Delays Project Execution
Limits EU Fund Utilization
Risks in Strategic Sectors
✓Technician shortages stall new and mature RES technologies
✓Innovation underused due to installer familiarity with legacy tech
✓ Permitting offices lack trained staff
✓ Insufficient O&M capacity in wind, solar, hydrogen sectors
✓ Skills gaps slow absorption of Just Transition & RRF funding
✓ Project scale-downs due to lack of workforce
✓ Hydrogen: shortfall in electrolysis & safety experts
✓ Offshore wind: demand for certified O&M staff
✓ Smart grids: lack of AI, data & cybersecurity talent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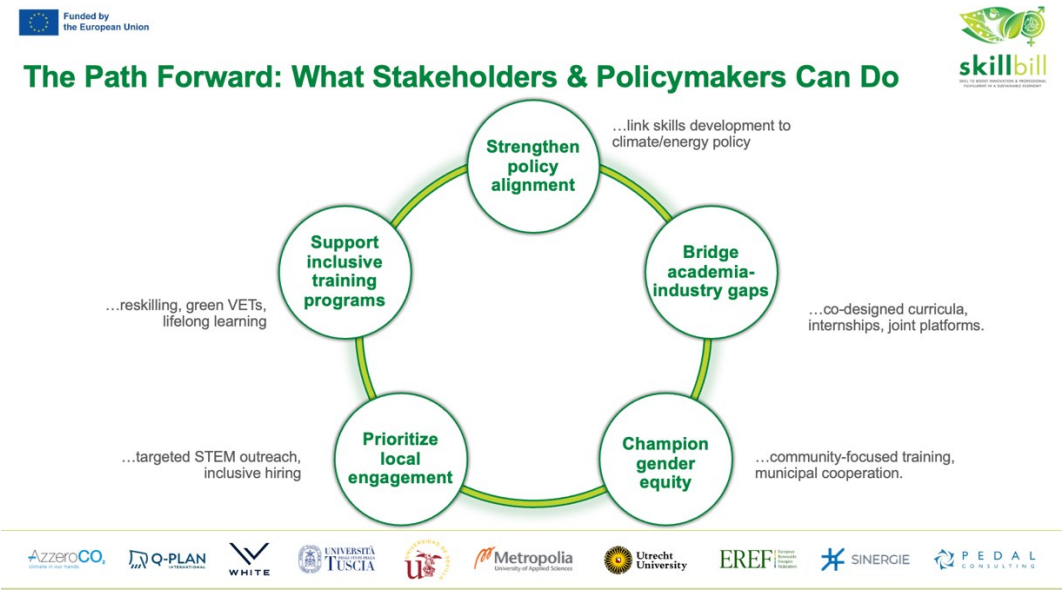
Systematic Challenges & Stakeholder Feedback
Findings from 32 interviews across quadruple helix:
→ Financial: lack of funding for training, costly programs
→ Regulatory: slow permit systems, misaligned national policies
→ Social: low public awareness, NIMBY attitudes, gender disparities
Fragmentation between academia and industry in training programs.
Overlooked stakeholder groups: local governments, SMEs, and civil society.



Anastasios D. Galatsopoulos has finished his presentation with the following: "If we are to meet the EU's energy goals, we must treat skills as infrastructure - fund it, plan it, and modernize it with the same urgency as we do for RES themselves".

Johannes Vollmer provided a summary of IRENA's workforce projections: RES jobs in the EU are expected to nearly double by 2030 (**EU employed 1.8 million in RES in 2023**, expected to reach **3.5 million by 2030)** but it's unclear if this trajectory will be met as skill shortages risk delaying the energy transition. The other key figures from IRENA's report on the global renewable energy workforce are as follows:

- **Deployment is outpacing workforce growth**, stalling energy transition efforts.
- **RES manufacturing** remains strong in Europe for wind but lags in solar compared to China.
- **70% of businesses cite skills gaps** as a barrier to investment.
- **Estimated €12 billion** investment required in workforce development.

SESSION 1: EU INITIATIVES IN RES SKILLS DEVELOPMENT

The first session of the workshop focused on the evolving EU policy landscape and strategic instruments as well as existing and upcoming initiatives supporting skills development in the renewable energy sector. The keynote presentation was delivered by ***Cristiana Marchitelli****, Policy Officer at* ***DG ENER*** *(Unit B4: Digitalisation, Competitiveness, Research and Innovation),* who provided a comprehensive overview of the European Commission's priorities, actions, and challenges in building a workforce required for Europe's transition to net-zero.

Cristiana Marchitelli opened her presentation by highlighting the EU's long-standing commitment - spanning over 20 years - to upskilling and reskilling as part of its green and digital transition strategies. She noted that the launch of the **first comprehensive EU Skills Agenda in 2020** marked a significant milestone, introducing key initiatives such as the **Pact for Skills and Skills for Jobs**.

Skills development is now embedded across multiple strategic EU frameworks and legal and policy reform initiatives, including:

- Mario Draghi Report on EU Competitiveness.
- Union of Skills.

- Clean Industrial Deal.
- Affordable Energy Action Plan.

These frameworks aim to address labour shortages, training fragmentation, and barriers to investment in skills development.

Flagship EU Initiatives and Legislative Instruments: Several flagship initiatives were presented as pillars of the EU's approach to renewable energy workforce development:

Large-Scale skills partnerships

- Active in offshore and onshore renewables, and the digitalisation of energy.
- Promote collaboration between academia, SMEs, industry, and civil society.

Skills portability and digital credentials

- Focus on the interoperability of certifications and quality assurance across Member States.
- Aim to harmonise training outcomes and ease cross-border mobility.

Net Zero academies

- Already established in solar, wind, and raw materials sectors.
- A new academy focused on electricity grids is planned for 2026.
- Designed to support long-term partnerships and structured training pathways.

Strategic energy technology plans (SET Plans) and ETIPs

- A new taskforce under the SET Plan will guide Member States and the Commission in defining future priorities for achieving net-zero targets by 2030 and 2050.

Legislative and Funding Frameworks: Cristiana also provided an overview of legislative and financial tools supporting Member States and stakeholders, including:

- **RED and EED Directives**, which embed obligations for workforce development into national energy and efficiency strategies.
- The **LIFE Programme** and **BUILD UP Skills**, now expanding to cover the full energy efficiency value chain.
- The **European Social Fund+ (ESF+)**, with a 2024 amendment proposal to prioritize decarbonisation-related reskilling.
- **Recovery and Resilience Facility (RRF)**, where skills gaps are seen as a barrier to effective fund absorption.

Despite these mechanisms, she stressed that many **National Energy and Climate Plans (NECPs)** lack concrete skills planning and only refer to workforce development superficially.

Key Observations and Challenges: Several systemic issues were identified such as:

- **Skills policy remains under-prioritised** on the EU policy agenda despite increasing labour demands – it is not a top item on the EU agenda.
- **Low absorption rates** of EU funds (such as Recovery Plan, Eu Social Fund) at national level due to fragmented or inadequate skills strategies.
- **Significant data gaps** in labour market intelligence, particularly for installers and manufacturers.

- **Monitoring and indicators** are often limited or outdated, hindering effective evaluation of progress.

Call to Action and Future Outlook: Cristiana echoed President Ursula von der Leyen's recent remarks highlighting the need to **rethink the Multiannual Financial Framework** to prioritise closing the skills gap. She emphasised the importance of **evidence-based policymaking** and called for stronger stakeholder involvement to:

- Identify emerging training needs.
- Standardise outcomes to reduce fragmentation.
- Ensure project results, including from SKILLBILL, feed into policymaking via structured channels.

One of the key upcoming initiatives mentioned was the **launch of the Renewable Energy Skills Alliance** under the *Reskill for Net Zero* project, scheduled for **November 2025**. This alliance will aim to connect EU projects, pool resources, and align funding and policy instruments to scale the renewable energy workforce effectively.

The session continued with presentation of ***Andrea Facci**, a professor from **University of Tuscia**, and **Giovanni Pede**, project manager as **SINERGIE***, who introduced SKILLBILL's **Master and Vocational training programs** supporting the skills development and synergies through integration into related EU initiatives. Andrea shared insights into the Master Program Design and operation, referencing pedagogical foundations and student engagement focusing clearly on curriculum content and benefits rather than institutional branding.

He was also mentioning the obstacles regarding setting up academic cooperation across boarders – not only within SKILLBILL project, but in general as well due to the diversity of national education systems across Europe. Differences in accreditation processes, credit recognition (such as ECTS compatibility), curriculum structures, and institutional requirements often hinder seamless collaboration between universities and training providers. These structural mismatches can complicate the development of joint programmes, student mobility, and mutual recognition of qualifications. Setting up cross-border vocational or dual-track education initiatives is challenging due to varying legal, administrative, and quality assurance frameworks. As a result, even when strong interest exists among institutions, the bureaucratic complexity often delays or limits the full realisation of collaborative academic efforts. Addressing these barriers will require greater EU-level harmonisation, mutual recognition agreements, and dedicated support mechanisms for transnational education partnerships.

Discussion followed regarding the employability of students – although, the hard data is pending, but qualitative feedback from students suggests strong skill enhancement and career value as acquired skills have a positive impact on participants' professional development and enhance their career prospects.

Also, the important suggestions on funding needs that are required to expand the use of the master programme developed under SKILLBILL, were mentioned such as:

- **Co-funding mechanisms with industry**, such as **public-private partnerships**, to support internships, industrial placements, and joint teaching modules - ensuring both financial viability and labour market relevance.
- **EU-level programme support**, particularly through **Erasmus+**, **ESF+**, and the forthcoming **Renewable Energy Skills Alliance**, to cover operational costs, transnational mobility, and curriculum alignment across countries.

Andrea also shared his feedback or reflections out of SKILLBILL experience that skills development must be co-created with industry and there should be clear division of responsibility – while academia focuses on **methods,** foundational competencies, the industry provides practical, tech-specific training and **brand-culture.** The education must address not only current roles but prepare for evolving job profiles in RES.

Giovanni Pede presented the design and implementation of two SKILLBILL vocational training courses: **Energy Management** and **Photovoltaic Panels**, developed through a structured process including needs analysis, content design, mobile simulation tools (AR), and training-of-trainers (ToT). By mid-2025, **142 individuals were trained**, with nearly **50% being women**. Replications took place in **Italy and Slovakia**, supported by formal letters of intent from institutions like IBIMI, Matej Bel University, and Gymnázium Fiľakovo. Sustainability efforts focus on embedding SKILLBILL content into existing VET programmes, such as qualification courses (i.e. courses aimed at qualifying trainees according to established standards, such as the "Energy Manager" qualification) and corporate training (i.e. tailored training aligned with company objectives, such as achieving the ISO 50001 management standard). The materials, including simulators, will be integrated into e-learning platforms and VET catalogues, with plans to localise content through AI-supported translation and Moodle-based courses.

Funding strategies include leveraging ESF+, regional and interprofessional funds, as well as national initiatives financed through the EU Recovery Plan/NRRP. Key lessons learned highlight the effectiveness of blended learning, the importance of training trainers as potential multipliers (ToT), and the need for local adaptation, robust infrastructure, and strong institutional partnerships to ensure long-term scalability.

Another important lesson concerns onboarding: it is necessary to specifically train users in the use of digital tools as a medium for learning.

SESSION 2: ROUND TABLE ON SHARING BEST PRACTICES FROM AMONG INDUSTRY & SECTOR EXPERIENCES ON HOW TO ADDRESS LABOUR MARKET SHORTAGES

After a **short coffee break**, session 2 on sectoral workforce challenges and solutions followed. This session brought together leading industry representatives to present data-driven insights and real-world examples of how labour shortages are affecting the roll-out of renewable technologies. Each presentation was followed by a short discussion among participants.

Solar Sector – *Jacopo Piccagli (SolarPower Europe)*

Jacopo began on a distinctly optimistic note, proudly highlighting already mentioned a **record-breaking 61 GW of solar PV capacity added** from 2022 to 2023—a dazzling 50% year-on-year increase. This phenomenal growth was mirrored in employment, reaching a staggering **820,600 full-time equivalent workers**, with the lion's share (87%) involved in deployment.

Key Highlights:

- **Deployment dominates**: Job distribution heavily favours deployment, while **O&M and recycling** are expected to grow significantly.
- **Stagnating workforce growth**: Short-term dips in workforce expansion were observed in 2023–2024, with projected acceleration beyond 2025.
- **Worrying skills bottlenecks**: A severe shortage of certified electricians (up to 33% in Germany) and construction workers threatens progress.

Strategic Insights/Need for:

- **Urgent need for skilled labour**: Lack of workforce planning could dangerously stall growth.
- **Digital & AI talent gap**: Europe is lagging global competitors like China in digital integration.
- **Skills ecosystem fragmentation**: A chaotic jungle of micro-credentials makes training navigation burdensome for professionals and recruiters alike.
- Barriers to entry for new workers due to lack of harmonised certification, fragmentation in training across EU Member States.
- Public-private cooperation essential to scale training efforts.
- Advocated for inclusion of solar skills in national recovery and resilience plans.
- Stressed the importance of youth engagement and raising visibility of solar careers.

Wind Sector – *Mariana Batista* *(WindEurope)*

Mariana passionately echoed the solar sector's challenges, confirming that **the wind industry faces nearly identical hurdles**. Currently employing **370,000 workers** across the EU and UK, WindEurope expects this to surge to **600,000 by 2030**.

Critical Points:

- **Vocational uptake crisis**: Shockingly declining enrolment in vocational and technical training institutions, despite soaring demand for technicians (Marianna called it "Talent war in wind energy" as there was a rapid increase in required skills (from 10 to 30+) - already mentioned growth to 600,000 jobs in the sector by 2030).
- **Digital & technical skills gaps**: High demand for software engineers, technicians, and system thinkers – as digital skills are now essential.
- **Innovative reskilling models**: The UK's industry-government reskilling platform was cited as a brilliant blueprint for transitioning offshore oil workers into offshore wind.
- **Need to upskill/reskill workers from traditional sectors (e.g. mining) into wind also via vocational trainings** as people need guidance in reskilling + who is going to pay for reskilling? Employers are always hesitant to cover training costs and therefore, public-private partnerships might be the key, as well as EU projects and governments must step in.

Best Practice: The Dutch Internship Covenant - an industry-led, government-supported initiative making internship placements a mandatory non-price criterion in wind farm tenders[6]. "An extraordinary example of turning regional youth into long-term industry talent," Mariana emphasized.

[6] https://nedzero.nl/en/news/dutch-wind-industry-will-guarantee-internships

European Heat Pump Association – *Eleonora Shehu*, *Policy Officer*

Eleonora gave a speech on Heat Pump Sector Realities – emphasizing the importance of it for reaching REPowerEU targets. She delivered a frank and sobering account of the heat pump sector's uphill battle. While aiming for **60 million installations by 2030**, the sector needs to onboard **at least 500,000 additional skilled workers**. And there is a skills gap in installers across the entire value chain.

Three Crucial Challenges:

- **Misinformation** campaigns by fossil fuels lobbies: false claims about complexity and inefficiency of heat pumps. ("heat pumps are hard to install").
- **Expensive and time-consuming training**: Installers face income loss during lengthy certifications.
- **Aging workforce**: Majority of current installers are over 50, with an approaching retirement cliff – it will create further shortages.

Effective Solutions/Policy examples:

- **Ireland's Domestic Heat Pump Installer Incentive (August 2024):** support scheme in Ireland covers both - the training cost and lost income of installer training - a glowing example of public-private cooperation.
- **Youth Campaigns**: As there is a clear need to attract young people/young generation to this sector, clever messaging like "Heroes of the Energy Transition", new languages and visuals etc. are being used. There is also the focus to engage students already from high schools to vocational trainings.

Ongoing Projects:

- **SafeUse project** on R290 (flammable refrigerants) training.
- **Heat Pump Accelerator Platform** (with Fraunhofer, VITO) for RED II Article 18 compliance[7].
- **RE Skills Partnership** participant.

GCP EUROPE - building services engineering, mechanical contractors, plumbers & HVAC (Heating, ventilation and air conditioning) installers – *Oliver Jung*, *Secretary General*

Oliver energetically articulated the diverse and often misunderstood role of installers across HVAC, plumbing, and building integration sectors. Highlighted systemic undervaluing of installers' roles and the need for better data collection, prestige promotion, and digital tools for compliance. He advocated for incentive-based approaches, as well as "the entire value chain must contribute (shared responsibility) – approach" and shared successful national examples from Austria and Sweden.

[7] Article 18 of the Renewable Energy Directive (RED II), focusing on **information and training compliance**, outlines obligations for EU Member States to ensure the availability of **information, training, and certification** related to renewable energy. It mandates that all relevant stakeholders - such as consumers (including vulnerable groups), installers, architects, suppliers, and planners - have **access to clear and practical information** on renewable energy technologies, their benefits, and available support schemes.

Main Observations:

- **Data Blindness**: A persistent lack of reliable workforce data clouds planning.
- **Systemic Talent Drain**: Higher pay in B2B services pulls skilled installers away from B2C, limiting access for vulnerable households.
- **Political Friction**: Public resistance to heat pumps is intensified by a lack of trained installers.

Notable Innovations:

- **Green Warriors Campaign**: Emphasizing the AI-resilience and dignity of manual trades.
- **Inspiration from Nordic Countries**: Iceland and Norway attract more workers by maintaining **rigorous, prestigious training standards**.
- **System Thinking**: Emphasis on installers understanding entire building systems, not just isolated technologies.
- Advocates "carrot" approach: make training worth it for companies.
- **Digitalization of compliance processes** to save time.
- Build **financial incentive systems** tied to energy performance outcomes.

After the industry representative presentations, the participants discussed the problems and suggested solutions, funding mechanisms, the visibility of technical careers, the role of national education systems, and the need for harmonised certification frameworks.

SESSION 3: ACADEMIA: INDUSTRY COOPERATION ON EDUCATIONAL INITIATIVES FOR IMPLEMENTING THE GREEN DEAL AND THE CLEAN INDUSTRIAL DEAL

This final session addressed the structural disconnection between higher education institutions and labour market needs, offering both critique and forward-looking solutions. The contributors were:

- Nathalie Richet from European Research Centres active in renewable energy (EUREC);
- Prof. David Tomas Sanchez Martinez from University of Seville, Spain;
- Esa Toukouniitty, Senior Lecturer & Project Manager represented Metropolia University in Finland;
- Andrea Facci, a Professor from University of Tuscia.

EUREC (European Research Centres active in renewable energy) - *Nathalie Richet, Senior Master Programme Manager*

Nathalie vibrantly presented EUREC's influential role in education and training through their pioneering **European Master programs** with dual tracks in Renewable Energy Engineering and Sustainable Energy Systems Management. It is 16-month program with required mobility across two countries and based upon the partnerships with universities and companies for thesis/internship projects.

She pointed out the pedagogical innovations of the program such as interdisciplinary learning (focus on interdisciplinary skills and hands-on project work), mobility, and industry involvement. Nathalie also stressed out the strong alumni network (1,300+ graduates) but pointed at the challenges as well: a) difficulty scaling up female participation in STEM and b) bureaucratic complexity of joint degree programs.

Prof. David Sánchez Martínez *from* ***University of Seville, Spain*** critically pointed out the structural misalignment between academia and industry, revealing two profound problems: 1. Survival-Driven Development Plans of Academia - universities prioritize student intake and publications due to funding metrics and 2. Scientific vs. Practical Focus - professors are incentivized to publish, often about scientific developments or technologies at low-TRL, not to collaborate with companies or train for the labour market. Professors originally trained in science, not engineering and therefore, there is strong academia's focus on research output over workforce readiness.

David proposed industrial chairs -long-term partnerships to co-fund research and training-, mutual involvement -academics should sit on industry boards and vice versa- and new EU metrics that reward teaching excellence and the educational innovation and industry engagement and collaboration as vocational and higher education need to work together and complement each other.

Then *Esa Toukouniitty* ***from Metropolia UAS in Finland*** took the floor and presented a highly practical model of applied research and student-led innovation in collaboration with Finnish SMEs solving real-life technical challenges through student projects. Esa pointed out the key success factors such as:

- curriculum-integrated projects as very student contributes to applied research,
- hands-on innovation - even simple tools (like pH meters and thermal cameras) provide immense value to small companies,
- strong industry engagement - frequent, responsive dialogue between students, professors, and SMEs,
- underscoring also the value of low bureaucracy.

Facilitator of the discussion followed, ***Javanshir Fouladvand*** *from* ***Utrecht University, Netherland*** further guided participants to exchanged views on the academia–industry collaboration for skills development. The topics of discussion were challenges of scaling project-based learning reconciling academic and industry timelines, incentivizing cooperation, and fostering gender equality in STEM. A consensus emerged on the need for structural reform and more inclusive training models.

The discussion concluded with shared enthusiasm for continued cross-sector cooperation. There was a strong consensus on:

- **The transformative power of project-based learning**.
- **The dire need for Member State engagement**.
- **The practical value of integrating vocational and higher education**.

CLOSING OF THE WORKSHOP

The workshop concluded with a final summary of discussions, emphasizing the importance of continued collaboration and knowledge-sharing to address the pressing challenges in renewable energy sector. Participants were thanked for their active engagement and reminded to fill out the feedback form. The event concluded with an hour delay due to the heating and fruitful discussions.

8.2.7 *Outcomes of the event*

The 2nd Mobilisation and Mutual Learning (MML) Workshop of the SKILLBILL project successfully brought together key actors from academia, industry, and public institutions to address the urgent need for a skilled workforce to support Europe's clean energy transition. Through expert

presentations, moderated discussions, and cross-sectoral exchange, the workshop generated a comprehensive set of conclusions, recommendations, and actionable insights to inform policy, programming, and educational design.

Key Takeaways:

- **Workforce readiness is a strategic bottleneck:** Across sectors - including solar, wind, heat pumps, and building services - labour shortages, outdated curricula, and slow training cycles are stalling deployment despite market demand and policy ambition. The gap between projected renewable energy goals and available skilled labour is widening.
- **EU policy instruments are in place but underutilised:** While the EU has established an advanced framework for skills development - the Pact for Skills, Net Zero Academies, and ESF+ - skills policy remains under-prioritised in national planning, and fund absorption is low. NECPs often reference skills superficially and lack implementation detail.
- **Education – industry misalignment persists:** Structural divides between academic institutions and employers hinder curriculum relevance, skills standardisation, and graduate employability. Professors are often incentivised to publish over teaching or training, while vocational pathways remain undervalued despite being critical to RES deployment.
- **Sectoral insights confirm common patterns and needs:** Industry representatives across sectors echoed common challenges: fragmented training systems, lack of harmonised certification, low youth engagement, and poor public visibility of technical careers. At the same time, examples from Ireland, the Netherlands, and Finland demonstrated the success of incentive schemes, dual education models, and applied learning.
- **The skills gap is not just technical:** In addition to hard technical skills, there is a growing demand for digital, interdisciplinary, and soft skills - including stakeholder engagement, project management, and systems thinking. These are currently underdeveloped in both academic and vocational education streams.

Recommendations:

1. **Align training supply with sectoral demand:**
   - Develop region-specific and sector-specific labour market forecasts.
   - Involve industry in shaping VET and academic curricula, particularly for emerging roles in installation, O&M, and digital integration.
2. **Modernise and harmonise certification frameworks:**
   - Promote mutual recognition of skills and qualifications across EU Member States.
   - Streamline micro-credential systems to ensure clarity and quality assurance for both learners and employers.
3. **Make training accessible and attractive:**
   - Offer financial incentives for learners and SMEs to participate in training (e.g., Ireland’s income-replacement scheme for heat pump installers).
   - Launch EU-wide awareness campaigns to elevate the status of technical professions and attract younger generations, especially women and underrepresented groups.
4. **Foster academia - industry collaboration:**

- Introduce “industrial chairs” co-funded by companies and universities to bridge the gap between theoretical education and practical skills development.
- Encourage academics to sit on industry boards and vice versa to promote mutual understanding and co-creation.

5. **Integrate VET and higher education pathways:**
   - Promote flexible dual-track systems that allow learners to move between vocational and academic routes.
   - Recognise and credit project-based learning, internships, and real-world problem solving.
6. **Ensure policy coherence and results uptake:**
   - Strengthen skills components in NECPs and national recovery strategies.
   - Use structured channels to feed project results like SKILLBILL into EU policymaking (e.g., Renewable Energy Skills Alliance).

Action Points:

For policy makers and EU institutions:

- Finalise and launch the Renewable Energy Skills Alliance (Nov 2025) to consolidate project outcomes and improve coordination.
- Rethink the Multiannual Financial Framework to prioritise workforce development and fund absorption at Member State level.
- Embed measurable skills targets into future revisions of the RED, EED, and ESF+ regulations.

For industry and sectoral associations:

- Establish or expand public-private partnerships for training and reskilling initiatives.
- Replicate successful models such as the Dutch Internship Covenant and UK offshore reskilling platform.
- Contribute to a pan-European database on workforce needs and training standards.

For academia and VET providers:

- Scale up applied, interdisciplinary programmes (e.g., EUREC’s dual-track Master’s and Metropolia’s SME collaboration model).
- Reform academic incentives to reward teaching excellence, industry cooperation, and real-world impact.
- Actively participate in EU platforms such as Net Zero Academies, BUILD UP Skills, and RE-SKILL for Net Zero.
- Approach Erasmus+ and/or ESF+ funding for further development of VET programmes and scale-up.

For the SKILLBILL Consortium:

- Continue to refine and pilot Master’s and VET programmes that address sectoral needs and EU priorities even after the project ends.

- Share data and insights with DG ENER, JRC, and national authorities to inform policy.
- Support gender-inclusive and socially equitable approaches to skills development further

Conclusions

The 2nd SKILLBILL MML Workshop highlighted that labour shortages, outdated training, and weak national implementation are key barriers to the EU's energy transition. Participants called for better coordination between education and industry, improved certification systems, and greater support for practical, inclusive learning. Successful models from several EU countries underscored the value of public-private cooperation. A key outcome was the call to integrate SKILLBILL results into the upcoming Renewable Energy Skills Alliance to support a skilled, future-ready workforce.

8.2.8 *Evaluation of the event*

From 24 participants 8 people has filled out the feedback form. Based on the results from feedback form, which was circulated to participants after the workshop, the **workshop met participants' expectations, with 87,5% rating it as "Absolutely"** and 12,5% as "Very much" meeting their expectations. Same percentage applies for the overall satisfaction with the workshop.

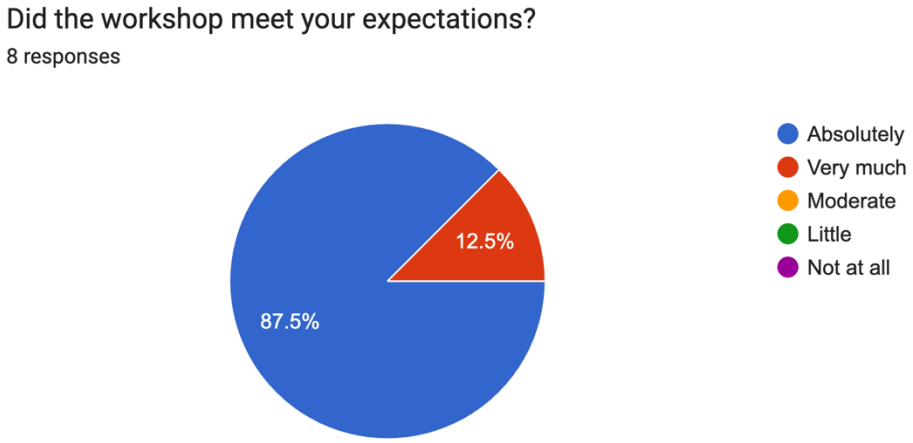


Figure 88. Did the workshop meet your expectations?

Figure 89. What is your overall satisfaction with the workshop?

The participants were highly satisfied with the workshop's **content** (5 out of 8 rated it *excellent*, i.e. **62.5%**) and **knowledge exchange** (6 out of 8, i.e. **75%** rated it *excellent*), with similarly strong results for **speakers** (4 out of 6, i.e. **66.7%** *excellent*). **Quality** was also rated *excellent* by 6 out of 8 participants (**75%**), though 2 respondents (**25%**) marked it as *poor*. **Timing** received the most mixed feedback, with only 2 *excellent* ratings (**25%**), and the majority (4 out of 8, i.e. **50%**) rating it as *good*. Despite a few lower scores (which might be a problem of understanding of the rating – 1=excellent, 5=poor), overall feedback reflects a high level of satisfaction, particularly with content quality and expert contributions.

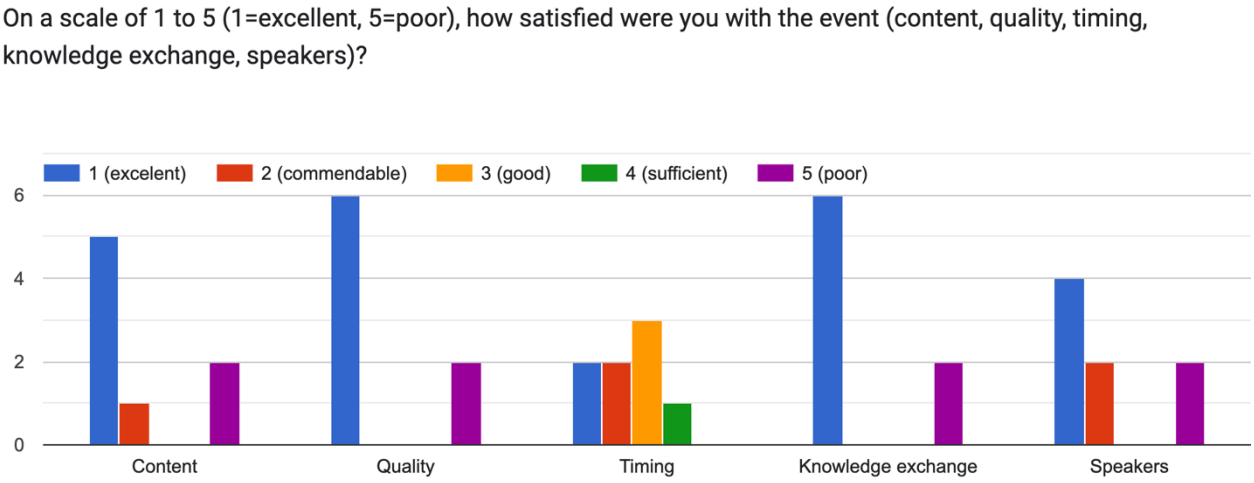


Figure 90. Question: On a scale of 1 to 5 (1=excellent, 5=poor), how satisfied were you with the event (content, quality, timing, knowledge exchange, speakers)?

Regarding the **Relevance of workshop topics,** according to the feedback provided, **100% of respondents** found the workshop topics relevant to their interests or needs. Specifically, **62.5% (5 out of 8)** rated the topics as *extremely relevant*, while the remaining **37.5% (3 out of 8)** rated them as *very much relevant*. No participants selected moderate, little, or not at all - indicating a strong alignment between the workshop content and participant expectations.

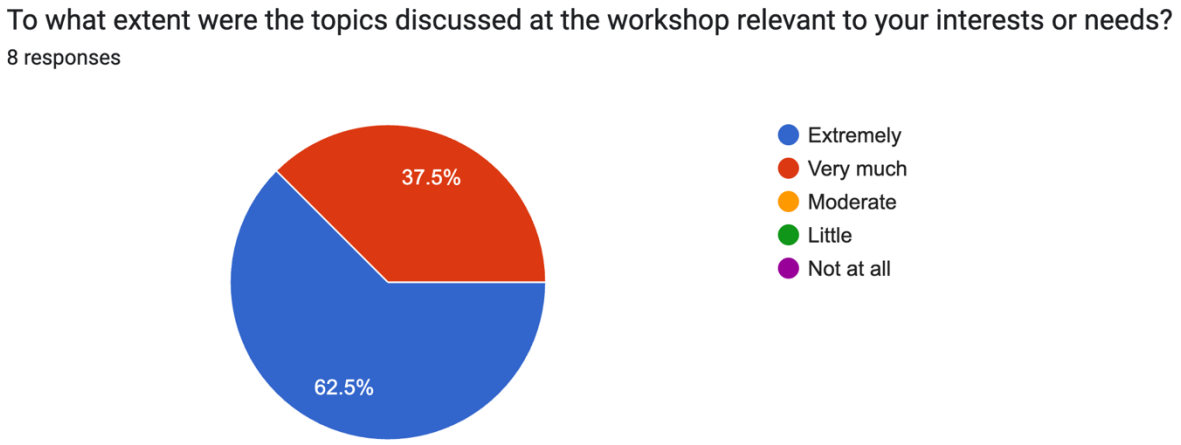


Figure 91. To what extent were the topics discussed at the workshop relevant to your interests or needs?

The following chart illustrates how participants learned about the workshop. The most common channel was **email and/or newsletter**, cited by **37.5%** of respondents. All other sources - including the project website, social media, verbal communication, partner referrals, project partners, and project team membership - each mentioned by **12.5%** of respondents. This shows a diversified communication approach, with direct email outreach playing the most significant role in participant engagement.

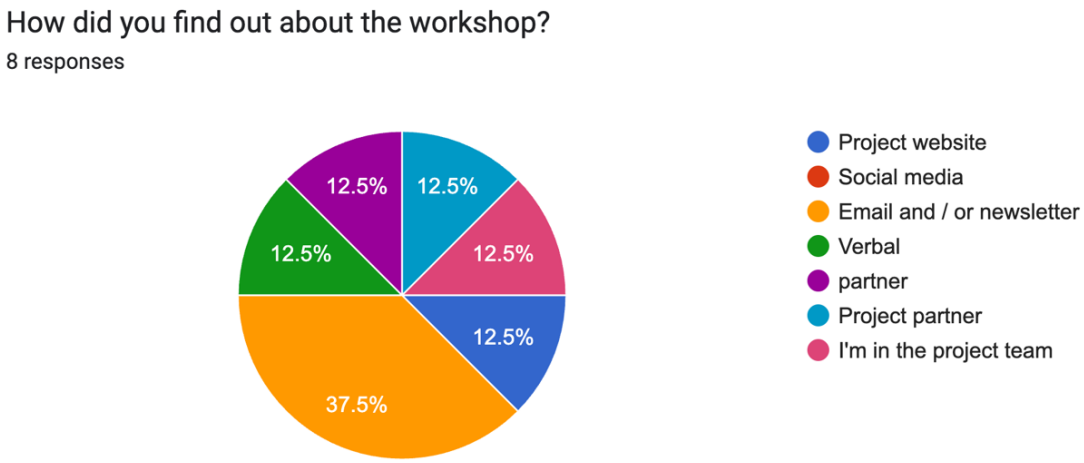


Figure 92. How did you find out about the workshop?

Positive Highlights

- High overall quality of the event and content shared
- Excellent knowledge and expertise of the speakers
- Strong insights into EU policy directions in VET and energy
- Well-structured presentation of project results with clear industry relevance
- Honest and constructive engagement from all stakeholder groups

- High-quality knowledge exchange during discussions
- Active participation from diverse sectors
- Well-chosen speaker line-up bringing academic and industry perspectives together

Suggestions for Improvement

- Improve time management; several discussions were cut short due to agenda overruns
- Consider extending the event duration - potentially a full-day workshop
- Be more concise in project presentations to allow more time for discussion
- Introduce more interactive tools to boost participant engagement
- Create more space for dialogue and Q&A during sessions
- Reduce the tightness of the schedule to avoid rushing conversations

Policy Recommendations and Actionable Steps

Workshop participants shared the following recommendations to foster tangible progress in the RES skills ecosystem:

- **Facilitate continued collaboration** through follow-up meetings between academia, industry, and user associations to co-design workforce strategies and adapt training curricula.
- **Support youth-led innovation**, including energy labs in schools and community settings, and provide early guidance to students on RES career pathways - ranging from technical to managerial roles - linked to labour market needs.
- **Promote active industry involvement** in curriculum development by setting up formal boards where companies can collaborate with education providers.
- **Join the upcoming Renewable Energy Skills Alliance** to ensure coordinated action, policy uptake, and sustainability of project outcomes.
- **Address persistent gender imbalances**, particularly among installers, electricians, and maintenance workers, by developing targeted strategies to engage young women in technical trades.
- **Improve interoperability of learning environments** across Europe to enable shared resources, mobility, and consistent quality in training delivery.
- **Encourage behavioural change** and increase public awareness to stimulate market demand for RES technologies and related skills.

The feedback from participants highlighted the high quality of the workshop, the expertise of the speakers, and the richness of knowledge exchange as key strengths. Suggestions for improvement focused on enhancing time management, allowing more space for discussion, incorporating interactive tools, and considering a longer format for future editions. Several respondents recommended sustained collaboration between academia and industry, as well as increased efforts to engage youth and raise awareness of career opportunities in the RES sector. Proposed actions included organising follow-up meetings, supporting behavioural change through information campaigns, and contributing to initiatives such as the upcoming Renewable Energy Skills Alliance.

9. Conclusions

This report presents the consolidated outcomes of the four Working Groups (WGs) established under the SKILLBILL Stakeholder Joint Initiative, focusing on Renewable Electricity, Sustainable Mobility, Renewable Fuels, and Renewable Heat. The initiative involved extensive stakeholder engagement, including 32 interviews, a co-creation workshop with 32 participants, and the official formation of the WGs with 36 confirmed members. Additionally, 47 stakeholders participated in two Mobilisation and Mutual Learning (MML) workshops.

Altogether, the process brought together diverse expertise to address the advancement of Renewable Energy Systems (RES) in Europe. A total of **177 recommendations** were developed within the scope of working groups' meetings covering sustainable electricity, mobility, fuels, and heating sectors. These are summarised in Section 6.7 and offer a practical roadmap to support European climate and sustainability objectives.

The recommendations have been categorised into four key areas - **Political/Regulatory, Educational/Academic, Financial, and Social** - with common themes such as financial incentives, education and training, community engagement, regulatory support, integration, and collaboration. They also highlight both areas of divergence across stakeholder perspectives, such as specific technologies under each sector.

The three rounds of WG meetings were highly productive:

- The **first round** (53 participants) resulted in 51 initial recommendations.
- The **second round** (45 participants) proposed 51 regulatory directions for creating a supportive policy environment.
- The **third round** (47 participants) delivered 75 guidelines for training programmes.
- A final **plenary meeting** with 28 experts identified 54 emerging skills and 16 new job profiles relevant to the RES sector.

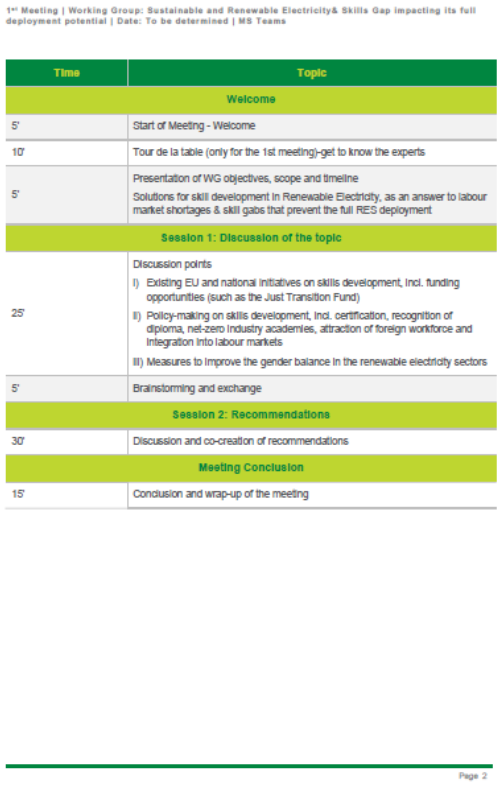
The two Mobilisation and Mutual Learning Workshops (MMLWs) generated an additional 68 recommendations. The first MMLW contributed 56 recommendations - 37 related to the green workforce and 19 to green policies (see Section 8.1.7). The second MMLW produced 12 further recommendations, structured into six thematic categories (see Section 8.2.7), along with complementary action points.

While some of these recommendations overlapped with or expanded upon those developed within the Working Groups (WGs), others introduced entirely new perspectives. Collectively, these contributions reflect a solid and comprehensive foundation for advancing the skills and systemic structures essential to a just and effective energy transition in Europe.

10. Annexes

10.1 Annex I | WG Meetings Agendas

1st Meeting Electricity



1st Meeting | Working Group: Sustainable and Renewable Electricity& Skills Gap impacting its full deployment potential | Date: To be determined | MS Teams

Time	Topic
Welcome	
5'	Start of Meeting - Welcome
10'	Tour de la table (only for the 1st meeting)-get to know the experts
5'	Presentation of WG objectives, scope and timeline Solutions for skill development in Renewable Electricity, as an answer to labour market shortages & skill gabs that prevent the full RES deployment
Session 1: Discussion of the topic	
25'	Discussion points I) Existing EU and national initiatives on skills development, incl. funding opportunities (such as the Just Transition Fund) II) Policy-making on skills development, incl. certification, recognition of diploma, net-zero industry academies, attraction of foreign workforce and integration into labour markets III) Measures to improve the gender balance in the renewable electricity sectors
5'	Brainstorming and exchange
Session 2: Recommendations	
30'	Discussion and co-creation of recommendations
Meeting Conclusion	
15'	Conclusion and wrap-up of the meeting

Page 2

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The project

SKILLBILL's overall objective is to develop a large and strong foundation for the growth and acceleration of renewable energy's deployment, thanks to engaging with stakeholders of the whole chain, diffusing scientific culture and skilling multi-level workers. The basic idea underling the project is that the knowledge should be diffused at several different levels and qualitatively appropriate both to train the adequate number of workers and to increase RES awareness and to reach a more social and inclusive Europe. The project aims at creating several pathways to induce target groups to get interested or involved in RES besides their initial level of education and their working position. It's important, beside the creation of instruments for the upskilling and reskilling of workers, technician and designers, to have awareness modules for unspecific public in order to fight against lack of information, bad quality material, gender gap and the phenomenon of functional illiteracy: it is widely documented that lifelong suitable learning process is the fundamental driver to support the development, maintenance and update of skills. Thus, SKILLBILL proposes concrete actions to accelerate the deployment of renewable energy at different levels to analyse and involve all the interested parts in open discussion using adequate language; create several different pathways to increase skills after having mapped knowledge gap and without gender prejudice; develop and implement innovative learning method; and evaluate the work performed.

Coordinator: AZZERO CO2 SRL (AzzeroCO2)

PARTNER		SHORT NAME
AzzeroCO2	AZZERO CO2 SRL	AzzeroCO2
Q-PLAN	Q-PLAN INTERNATIONAL ADVISORS PC	Q-PLAN
WHITE	WHITE RESEARCH SPRL	WR
Università della Tuscia	UNIVERSITA DEGLI STUDI DELLA TUSCIA	UNITUS
US	UNIVERSIDAD DE SEVILLA	USE
Metropolia	METROPOLIA AMMATTIKORKEAKOULU OY	METROPOLIA
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SINERGIE	SINERGIE SOC CONS ARL	SINERGIE
PEDAL	PEDAL CONSULTING SRO	PC

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1st Meeting Mobility

1st Meeting | Working Group: Sustainable Mobility & Skills Gap impacting its full deployment potential | Date: To be determined | MS Teams

Time	Topic
Welcome	
5'	Start of Meeting - Welcome
10'	Tour de la table (only for the 1st meeting)
5'	Scope of the meeting Solutions for driving the development and adoption of sustainable mobility & Skills Gap impacting its full deployment potential
Session 1: Discussion of the topic	
25'	Indicative starting points of discussion I) (New) financial instruments that would help develop RES processes II) Just transition Fund for reskilling workers from the carbon intensive industries/regions III) Future oriented energy plans (to overcome inappropriate regulations)
15'	Brainstorming and exchange
Session 2: Recommendations	
15'	Discussion and co-creation of recommendations
15'	Elaboration of recommendations
Meeting Conclusion	
15'	Conclusion and wrap-up of the meeting

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The project

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PEDAL CONSULTING	PEDAL CONSULTING SRO	PC

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1st Meeting Heat

1st Meeting | Working Group: Sustainable and Renewable Heat & Skills Gap impacting its full deployment potential | Date: To be determined | MS Teams

Time	Topic
Welcome	
5'	Start of Meeting - Welcome
10'	Tour de la table (only for the 1st meeting)
5'	Scope of the meeting Solutions for driving the development and adoption of renewable heat & Skills Gap impacting its full deployment potential
Session 1: Discussion of the topic	
25'	Indicative starting points of discussion* i) (New) financial instruments that would help develop RES processes ii) Just transition Fund for reskilling workers from the carbon intensive industries/regions iii) Future oriented energy plans (to overcome inappropriate regulations)
15'	Brainstorming and exchange
Session 2: Recommendations	
15'	Discussion and co-creation of recommendations
15'	Elaboration of recommendations
Meeting Conclusion	
15'	Conclusion and wrap-up of the meeting

Page 2

The project

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CONTACT US info@skillbill-project.eu VISIT www.skillbill-project.eu

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1st Meeting Fuels

Time	Topic
Welcome	
5'	Start of Meeting - Welcome
10'	Tour de la table (only for the 1st meeting)
5'	Scope of the meeting Solutions for driving the development and adoption of renewable fuels & Skills Gap impacting its full deployment potential
Session 1: Discussion of the topic	
25'	Indicative starting points of discussion I) (New) financial instruments that would help develop RES processes II) Just transition Fund for reskilling workers from the carbon intensive industries/regions III) Future oriented energy plans (to overcome inappropriate regulations)
15'	Brainstorming and exchange
Session 2: Recommendations	
15'	Discussion and co-creation of recommendations
15'	Elaboration of recommendations
Meeting Conclusion	
15'	Conclusion and wrap-up of the meeting

The project

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2nd Meeting Electricity

2nd Meeting | Working Group: Renewable Electricity& Skills Gap impacting its full deployment potential | Date: Wednesday, May 15th 2024 | MS Teams

Time	Topic
Welcome	
5'	Start of Meeting - Welcome
10'	Tour de la table
5'	Presentation of WG meeting objectives, scope and timeline "Meeting aim: recommendations to improve EU regulation to foster enabling environments for skills development in renewable energy development "
10'	Challenges and needs in skills development and labour market shortages that prevent the full RES deployment
Session 1: Discussion of the topic	
25'	Discussion points i) Existing EU and national initiatives on Renewable Energy skills development, incl. funding opportunities (such as the Just Transition Fund) ii) Overview of policy and regulatory reform under the Green Deal to increase the RES share in Europe's energy sector iii) Improvement in regulation and further initiatives for job creation and skills development in the renewable electricity sector, incl. certification, recognition of diplomas, net-zero industry academies, attraction of foreign workforce and integration into labour markets
Session 2: Recommendations	
20'	Discussion and co-development of recommendations
Meeting Conclusion	
10'	Elaboration of recommendations and wrap-up of the meeting
5'	Feedback form

Page 2

The project

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2nd Meeting Mobility

Time	Topic
Welcome	
10'	Start of Meeting – Welcome-Tour de la table
5'	Presentation of WG meeting objectives, scope and timeline "Directions for regulatory shifts that help share a favourable environment for sustainable renewable energy and fuels tech diffusion"
10'	Challenges and needs in skills development and labour market shortages that prevent the full RES deployment
Session 1: Discussion of the topic	
30'	Discussion points* i) Existing EU and national initiatives on Renewable Energy skills development, incl. funding opportunities (such as the Just Transition Fund) ii) Regulatory shifts needed to shape a favourable environment for Sustainable Mobility diffusion. iii) Regulatory shifts for job creation and skills development in Sustainable Mobility, incl. certification, recognition of diploma, net-zero industry academies, attraction of foreign workforce and integration into labour markets
Session 2: Recommendations	
25'	Discussion and co-development of recommendations
Meeting Conclusion	
10'	Voting on most important recommendations elaborated and wrap-up of the meeting
5'	Feedback form

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Coordinator: AZZERO CO2 SRL (AzzeroCO2)

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Q-PLAN	Q-PLAN INTERNATIONAL ADVISORS PC	Q-PLAN
WHITE	WHITE RESEARCH SPRL	WR
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2nd Meeting Heat

Time	Topic
Welcome	
10'	Start of Meeting – Welcome-Tour de la table
5'	Presentation of WG meeting objectives, scope and timeline "Directions for regulatory shifts that help share a favourable environment for sustainable renewable energy and fuels tech diffusion"
10'	Challenges and needs in skills development and labour market shortages that prevent the full RES deployment
Session 1: Discussion of the topic	
30'	Discussion points i) Existing EU and national initiatives on Renewable Energy skills development, incl. funding opportunities (such as the Just Transition Fund) ii) Regulatory shifts needed to shape a favourable environment for Renewable Heat diffusion. iii) Regulatory shifts for job creation and skills development in Renewable Heat, incl. certification, recognition of diploma, net-zero industry academies, attraction of foreign workforce and integration into labour markets
Session 2: Recommendations	
25'	Discussion and co-development of recommendations
Meeting Conclusion	
10'	Voting on most important recommendations elaborated and wrap-up of the meeting
5'	Feedback form

The project

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2nd Meeting Fuels

Time	Topic
Welcome	
10'	Start of Meeting – Welcome-Tour de la table
5'	Presentation of WG meeting objectives, scope and timeline "Directions for regulatory shifts that help share a favourable environment for sustainable renewable energy and fuels tech diffusion"
10'	Challenges and needs in skills development and labour market shortages that prevent the full RES deployment
Session 1: Discussion of the topic	
25'	Discussion points* i) How to overcome regulatory barriers towards a favourable environment for renewable fuels diffusion., and what are the existing EU and national initiatives ii) How to overcome economic and market barriers (such as lack of financing options, high initial costs, long payback time, investment risk, market uncertainty) towards Renewable Energy skills development iii) How to overcome societal barriers (lack of know-how, NIMBYism, information issues, reluctance to change) towards job creation and skills development in Renewable Fuels (incl. certification, recognition of diploma, net-zero industry academies, attraction of foreign workforce and integration into labour markets)
Session 2: Recommendations	
25'	Discussion and co-development of recommendations
Meeting Conclusion	
10'	Voting on most important recommendations elaborated and wrap-up of the meeting
5'	Feedback form

The project

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3rd Meeting Electricity

3rd Meeting | Working Group: Renewable Electricity& Skills Gap impacting its full deployment potential | Date: Wednesday, October 23rd 2024| MS Teams

Time	Topic
	Welcome
5'	Start of Meeting – Welcome **Scope of the meeting**: Guidelines for education/training programs to facilitate skilling, reskilling and upskilling
20'	A brief outline of the labour market situation and needs gap in renewable electricity, EU level measures for **reinforcing educational and training programs**, e.g. through the implementation of Net-Zero Industry Academies and other initiatives
	Session 1: Discussion towards the development guidelines
40'	Current and future **skills demand** in the renewable electricity sector, covering • **Skills development** in sectors where skilling, reskilling and upskilling are critical for meeting EU climate and energy targets • **Curriculum modernisation** with innovative technologies (eg. AI, IoT, smart grids) that are expected to impact the renewable electricity sector • Policy and legal reform measures and **best practices** from Advisory Board members Develop **guidelines** for educational and training programs
	Session 2: Guidelines Prioritisation
15'	Ranking of guidelines for policies and education/training programs towards skilling, reskilling and upskilling of renewable electricity
	Meeting Conclusion
10'	Elaboration of recommendations and wrap-up of the meeting

Page 2

The project

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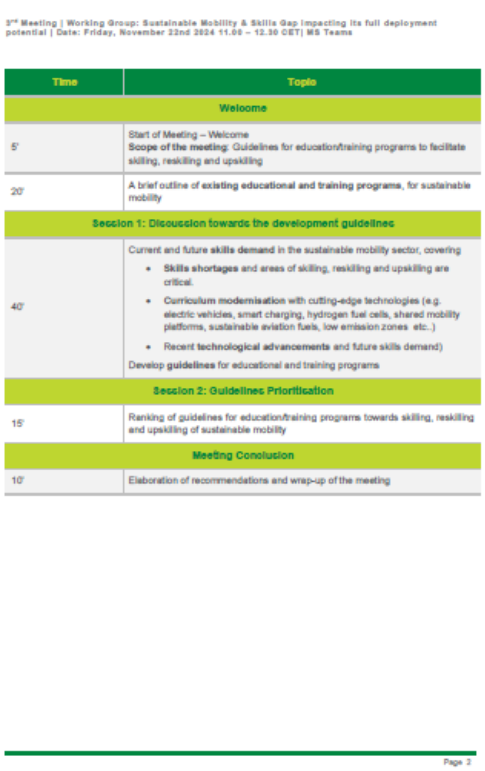
3rd Meeting Mobility



3rd Meeting | Working Group: Sustainable Mobility & Skills Gap impacting its full deployment potential | Date: Friday, November 22nd 2024 11.00 – 12.30 CET| MS Teams

Time	Topic
	Welcome
5'	Start of Meeting – Welcome **Scope of the meeting**: Guidelines for education/training programs to facilitate skilling, reskilling and upskilling
20'	A brief outline of **existing educational and training programs**, for sustainable mobility
	Session 1: Discussion towards the development guidelines
40'	Current and future **skills demand** in the sustainable mobility sector, covering • **Skills shortages** and areas of skilling, reskilling and upskilling are critical. • **Curriculum modernisation** with cutting-edge technologies (e.g. electric vehicles, smart charging, hydrogen fuel cells, shared mobility platforms, sustainable aviation fuels, low emission zones etc..) • Recent **technological advancements** and future skills demand) Develop **guidelines** for educational and training programs
	Session 2: Guidelines Prioritisation
15'	Ranking of guidelines for education/training programs towards skilling, reskilling and upskilling of sustainable mobility
	Meeting Conclusion
10'	Elaboration of recommendations and wrap-up of the meeting

Page 3

The project

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3rd Meeting Heat

3rd Meeting | Working Group: Sustainable and Renewable Heat & Skills Gap impacting its full deployment potential | Date: Tuesday, October 29th 2024| MS Teams

Time	Topic
	Welcome
5'	Start of Meeting – Welcome **Scope of the meeting**: Guidelines for education/training programs to facilitate skilling, reskilling and upskilling
20'	A brief outline of **existing educational and training programs**, for sustainable and renewable heat
	Session 1: Discussion towards the development guidelines
40'	Current and future **skills demand** in the renewable heat sector, covering • **Skills shortages** and areas of skilling, reskilling and upskilling are critical. • **Curriculum modernisation** with cutting-edge technologies (e.g. ground source heat pumps, concentrated solar thermal heating, thermal energy storage, district heating etc..) • Recent **technological advancements** and future skills demand) Develop **guidelines** for educational and training programs
	Session 2: Guidelines Prioritisation
15'	Ranking of guidelines for education/training programs towards skilling, reskilling and upskilling of sustainable and renewable heat
	Meeting Conclusion
10'	Elaboration of recommendations and wrap-up of the meeting

Page 2

The project

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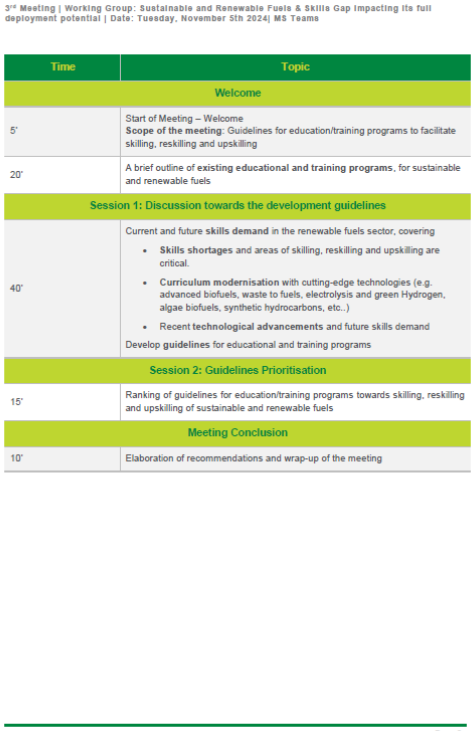
3rd Meeting Fuels



3rd Meeting | Working Group: Sustainable and Renewable Fuels & Skills Gap impacting its full deployment potential | Date: Tuesday, November 5th 2024| MS Teams

Time	Topic
Welcome	
5'	Start of Meeting – Welcome **Scope of the meeting**: Guidelines for education/training programs to facilitate skilling, reskilling and upskilling
20'	A brief outline of **existing educational and training programs**, for sustainable and renewable fuels
Session 1: Discussion towards the development guidelines	
40'	Current and future **skills demand** in the renewable fuels sector, covering • **Skills shortages** and areas of skilling, reskilling and upskilling are critical. • **Curriculum modernisation** with cutting-edge technologies (e.g. advanced biofuels, waste to fuels, electrolysis and green Hydrogen, algae biofuels, synthetic hydrocarbons, etc..) • Recent **technological advancements** and future skills demand Develop **guidelines** for educational and training programs
Session 2: Guidelines Prioritisation	
15'	Ranking of guidelines for education/training programs towards skilling, reskilling and upskilling of sustainable and renewable fuels
Meeting Conclusion	
10'	Elaboration of recommendations and wrap-up of the meeting

Page 2

The project

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Plenary Meeting

Time	Topic
	Welcome
5'	Start of Meeting – Welcome **Scope of the meeting:** Identify new jobs and skills required in RES
15'	Tour de la table: get to know each other
20'	**Working Groups Activities and Key Insights:** Presentation of WG activities within the SKILLBILL Project and Summary of Key Insights of previous meetings.
	Interactive Session: Guidelines Prioritisation
40'	**Discussion:** Identified skills across the four Working Groups **Future Job Skills:** Participants align identified skills under the categories and skills prioritisation (emerging, future-driven, etc) **Design of the Future Jobs in RES:** Heroes of RES for the near future - skills needed for emerging job profiles
	Meeting Conclusion
10'	Closure and wrap-up of the meeting

The project

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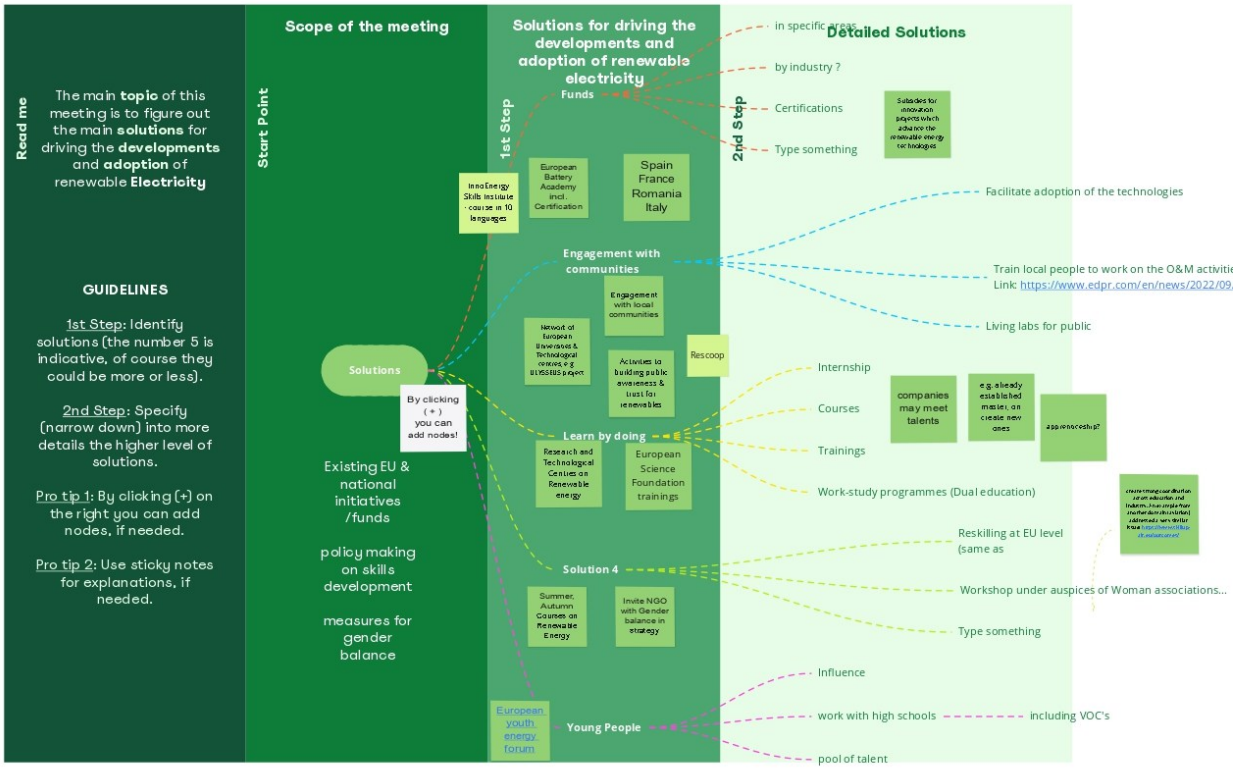
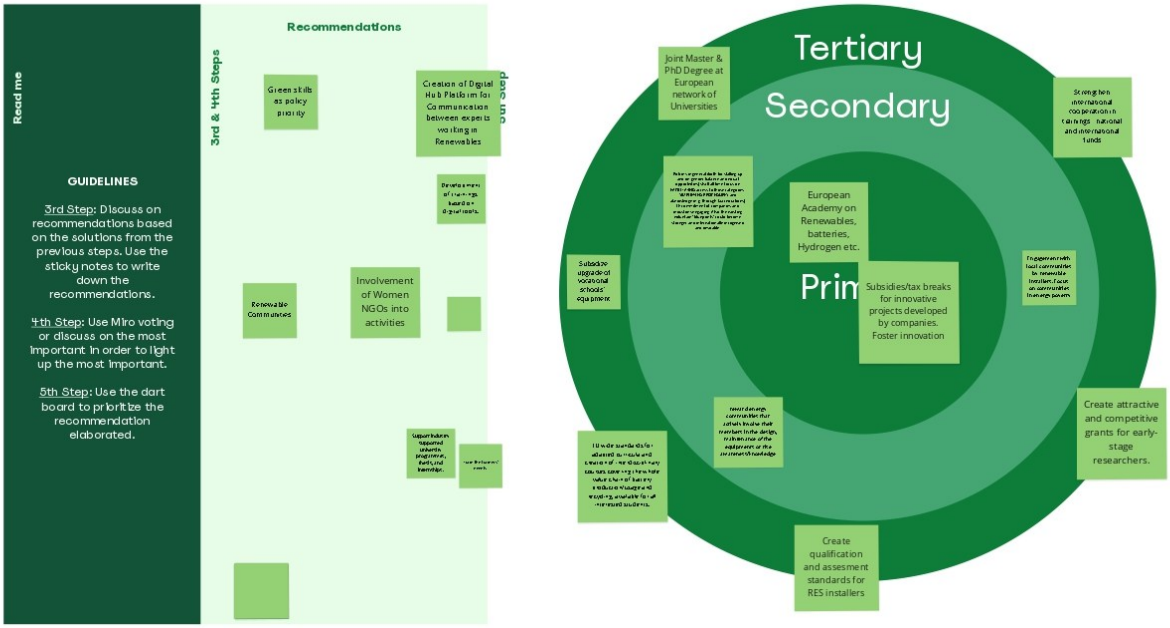
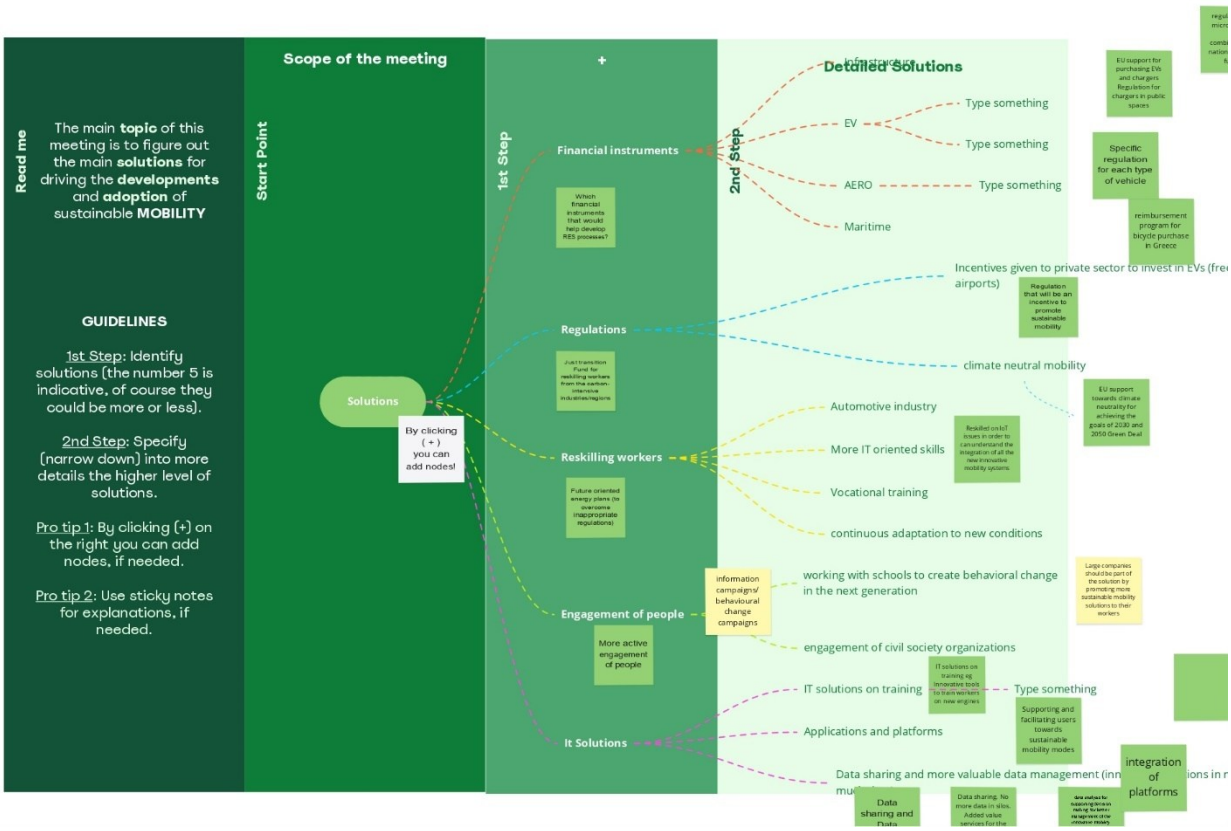
10.2Annex II | Miro Boards of WG Meetings

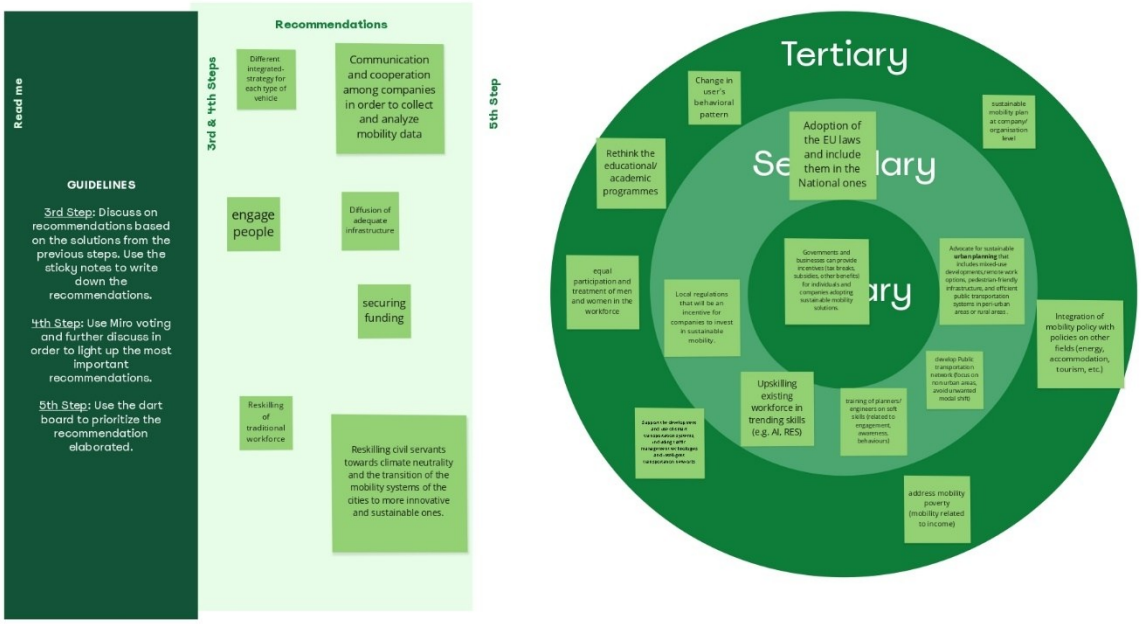
1st meeting Electricity (link to Miro)



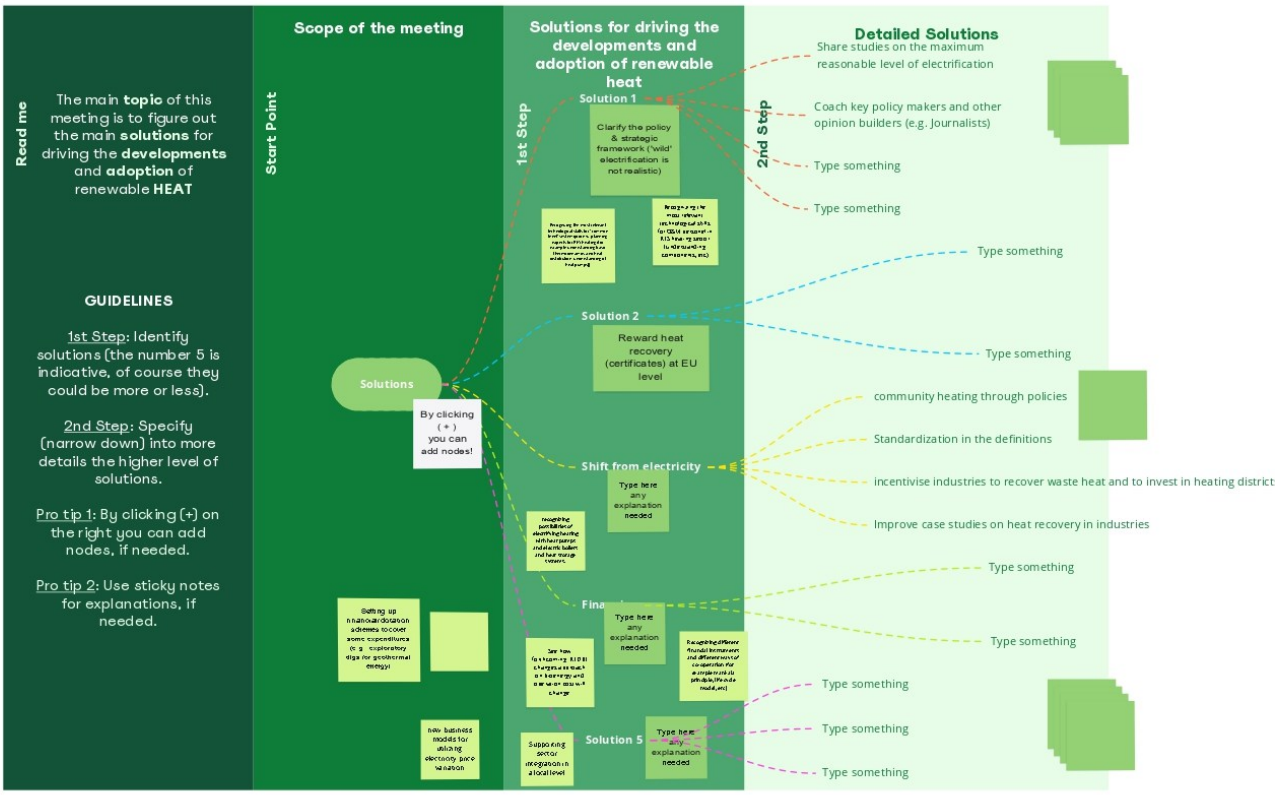


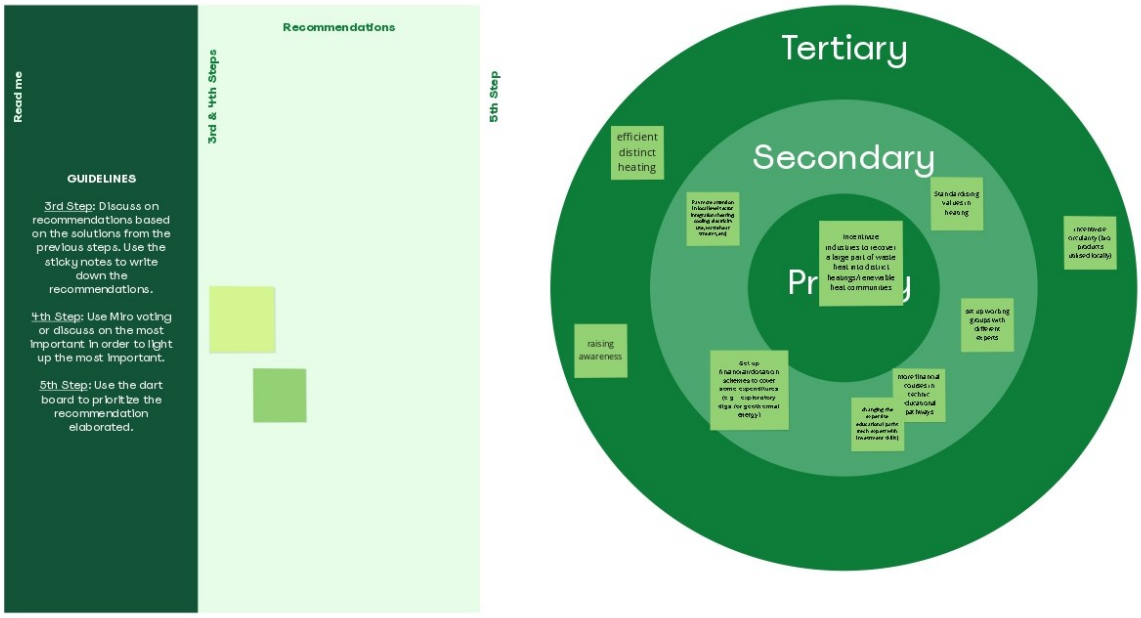
1st Meeting Mobility (link to Miro)



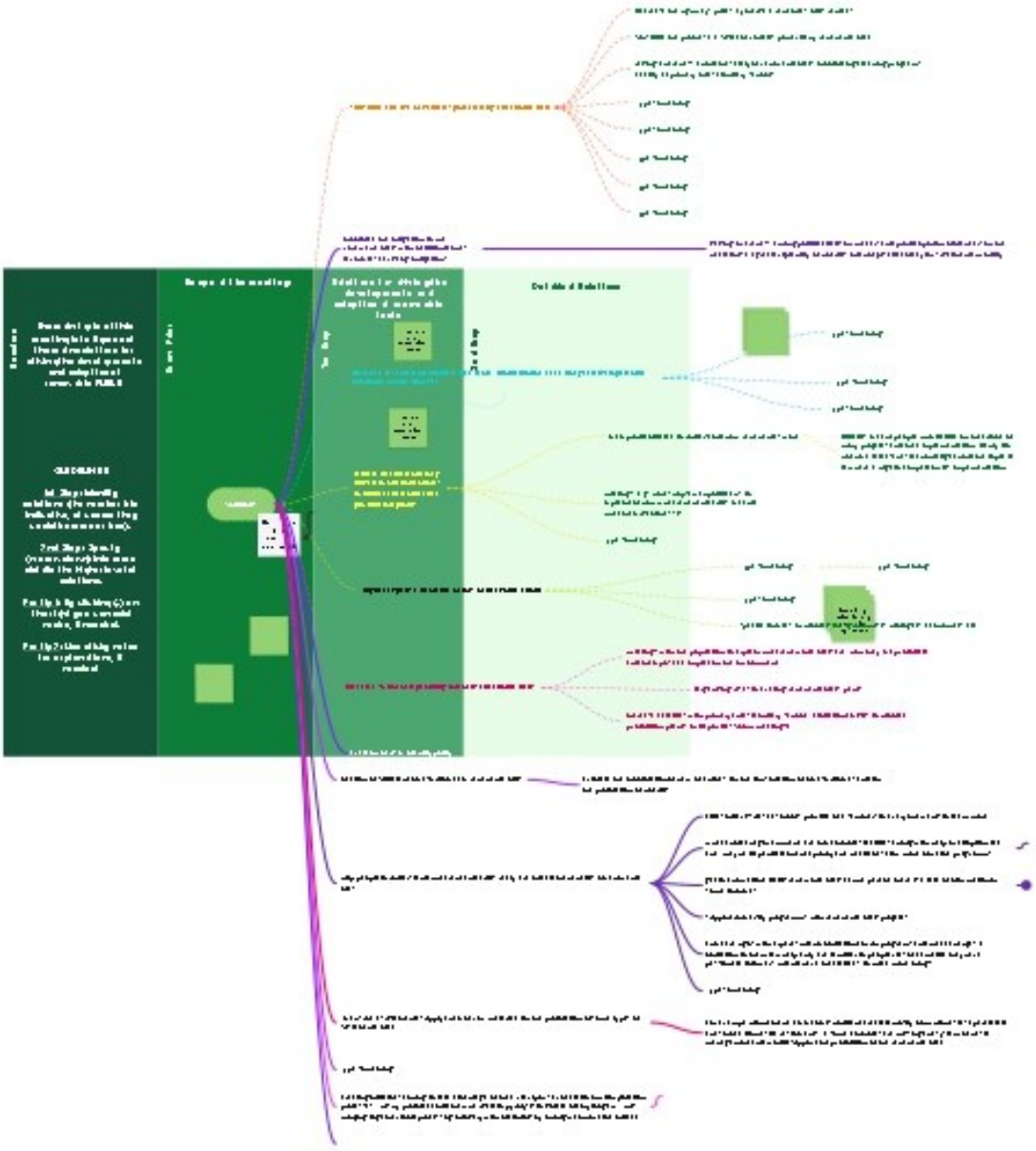


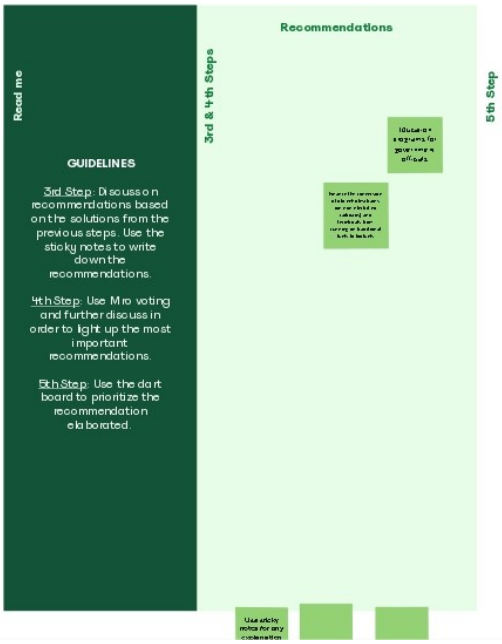
1st Meeting Heat (link to Miro)

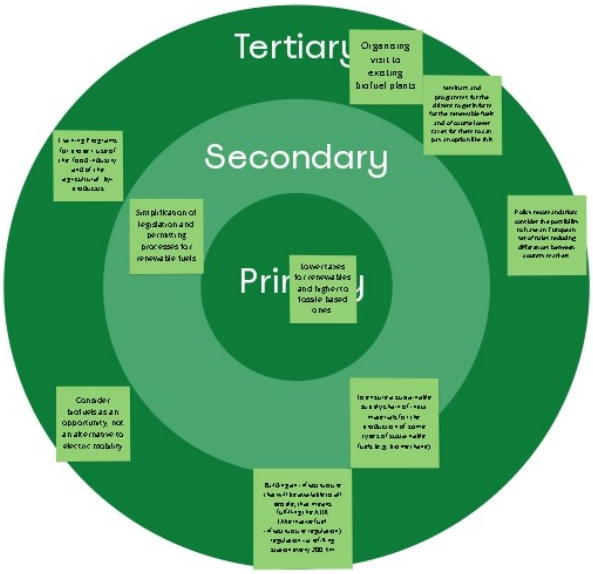




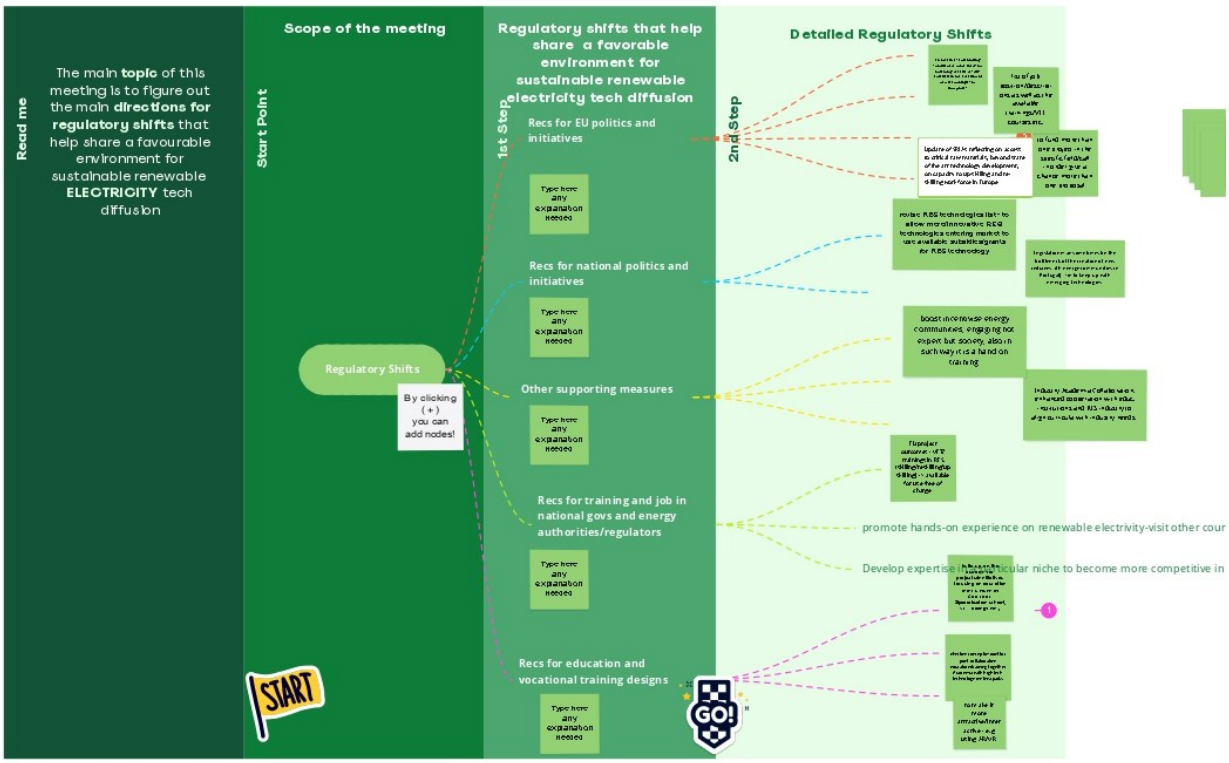
1st Meeting Fuels (link to Miro)

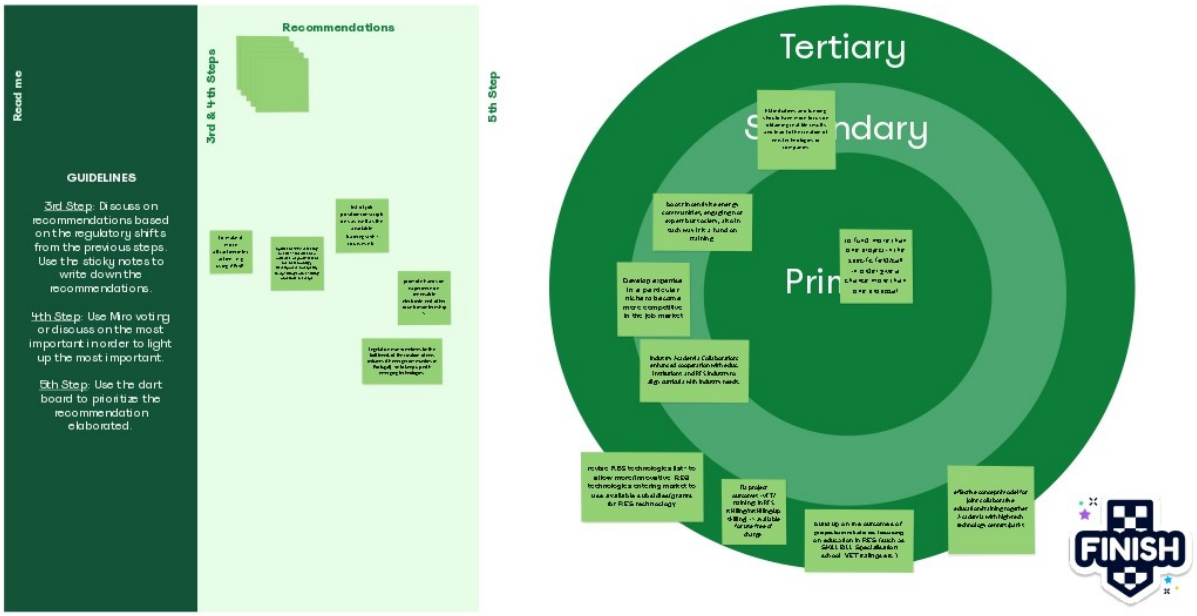



Read me
GUIDELINES
3rd Step: Discuss on recommendations based on the solutions from the previous steps. Use the sticky notes to write down the recommendations.
4th Step: Use Miro voting and further discuss in order to light up the most important recommendations.
5th Step: Use the dart board to prioritize the recommendation elaborated.
Recommendations
3rd & 4th Steps
5th Step

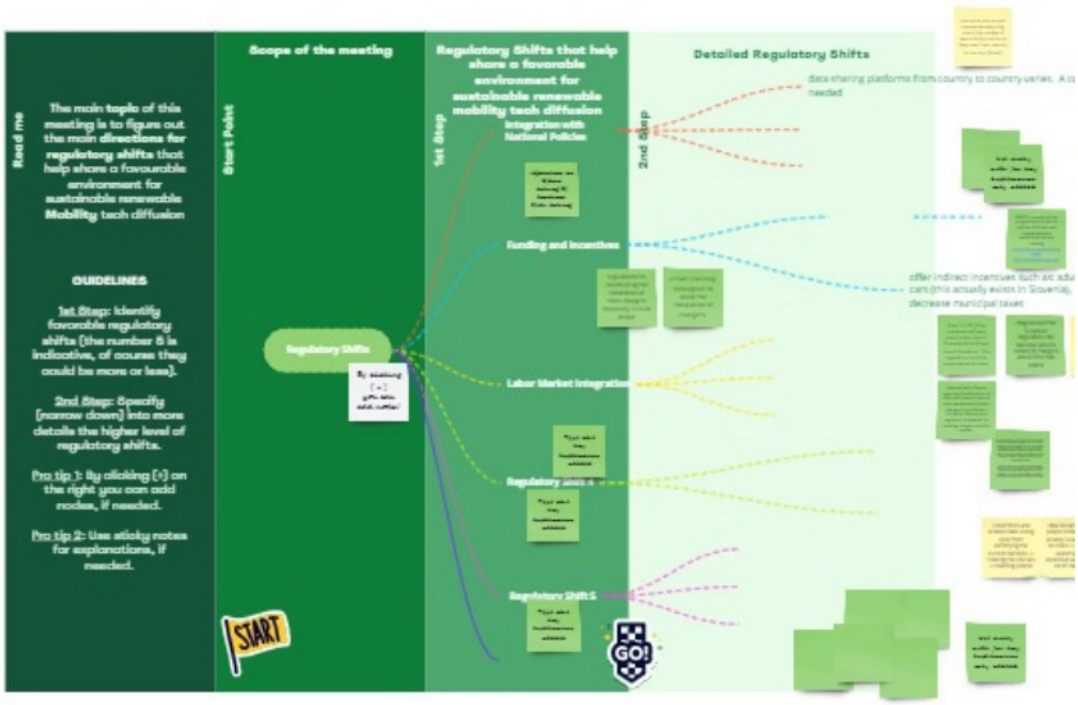

Tertiary
Organising visit to existing biofuel plants
Secondary
Simplification of legislation and permitting processes for renewable fuels
Lower taxes for renewables and higher to fossile based ones
Consider biofuels as an opportunity, not an alternative to electric mobility

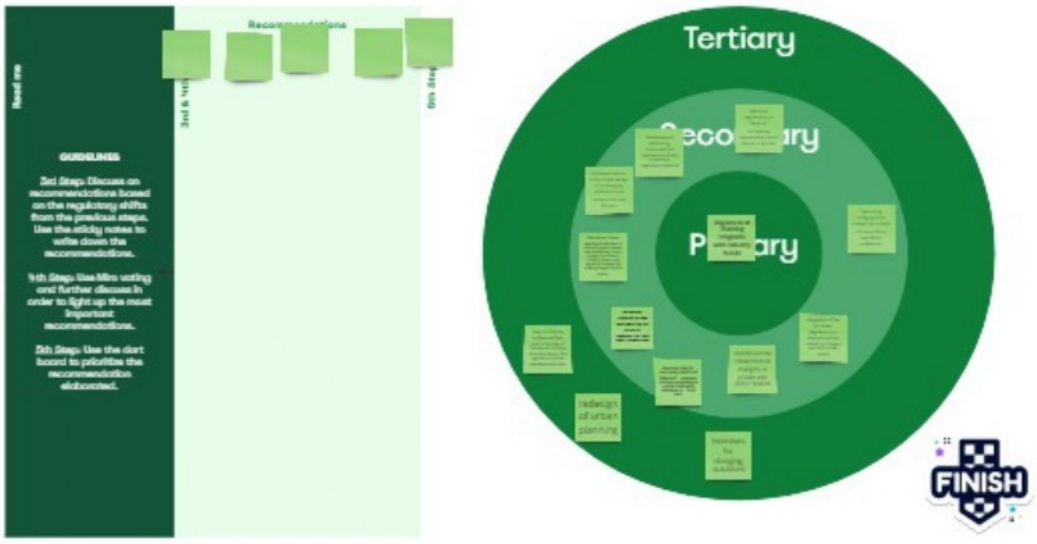
2nd Meeting Electricity (link to Miro)





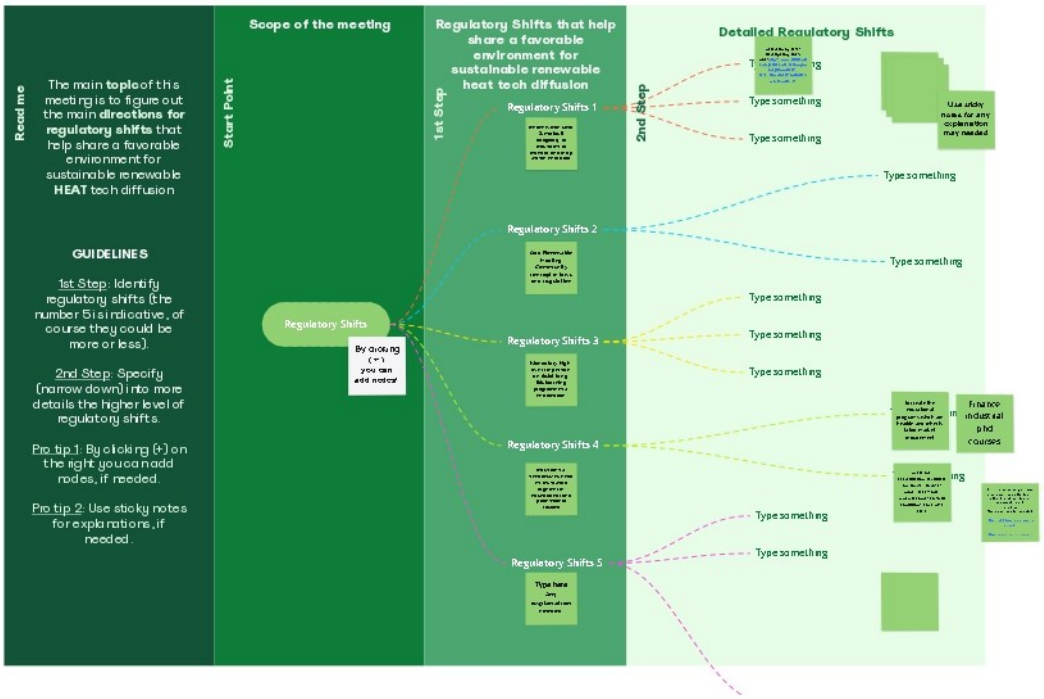
2nd Meeting Mobility (link to Miro)

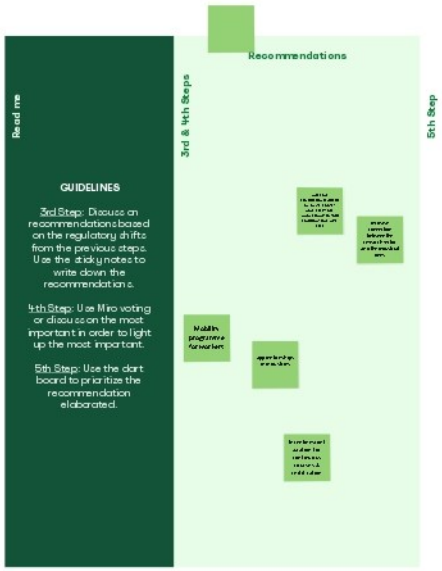


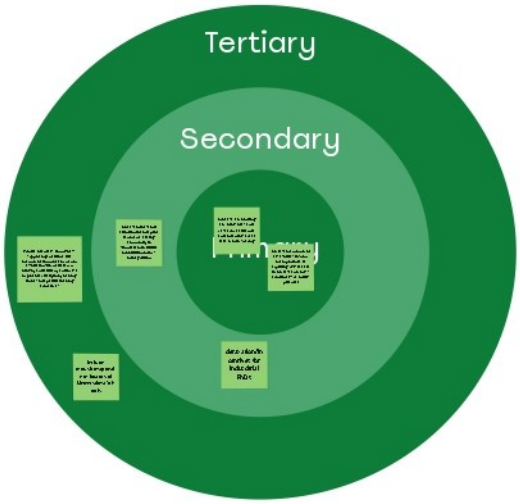


2nd

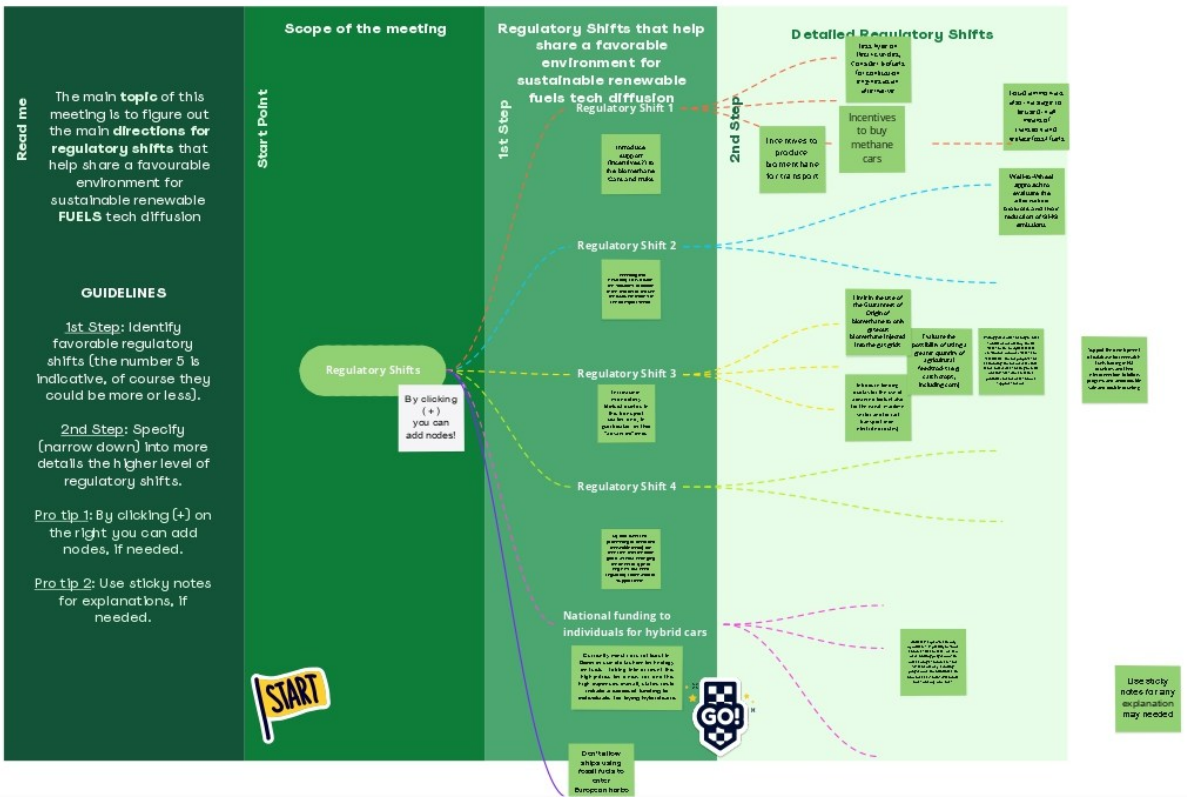
2nd Meeting Heat (link to Miro)

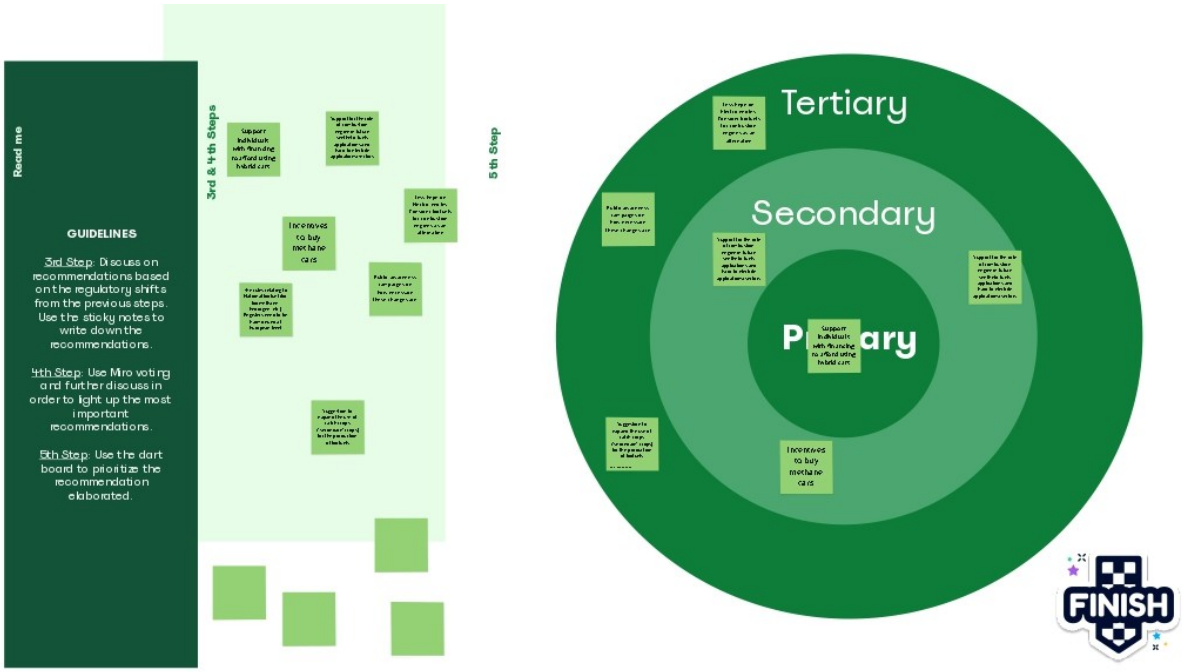




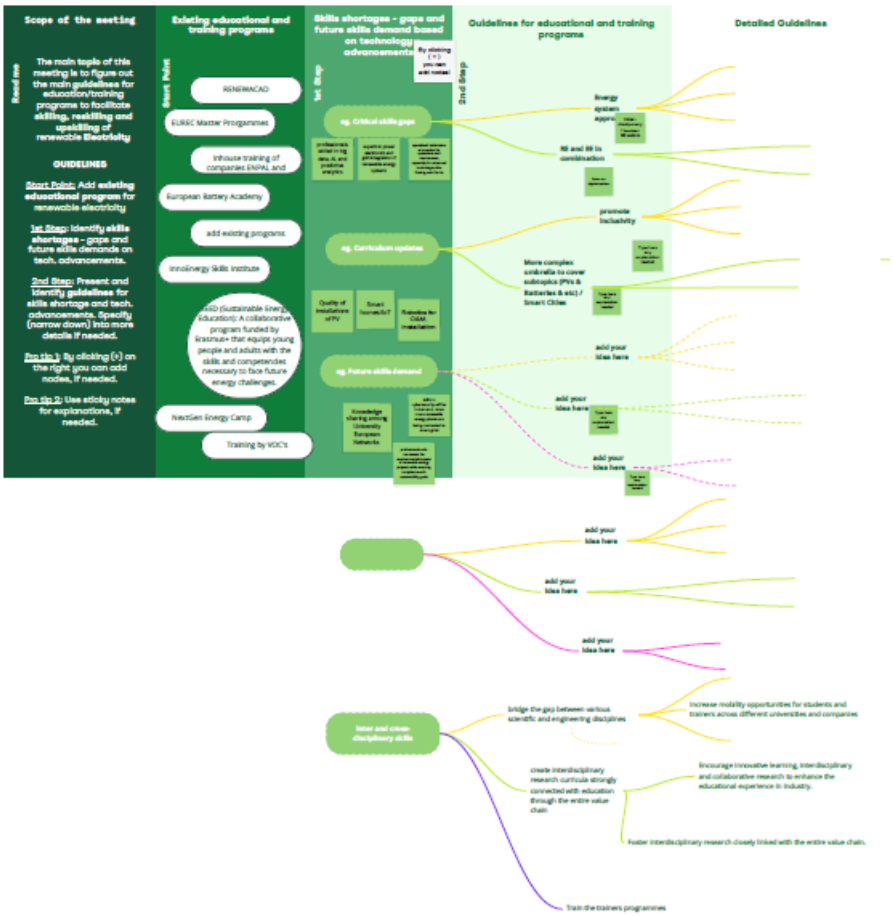


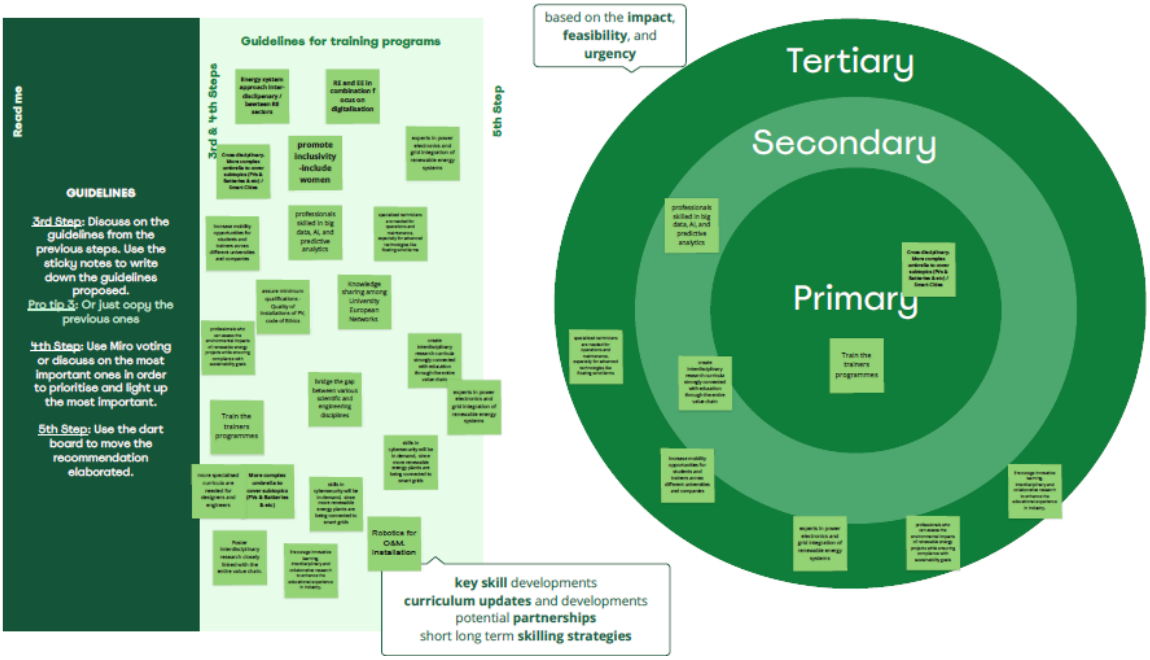
2nd Meeting Fuels (link to Miro)





3rd Meeting Electricity (link to Miro)





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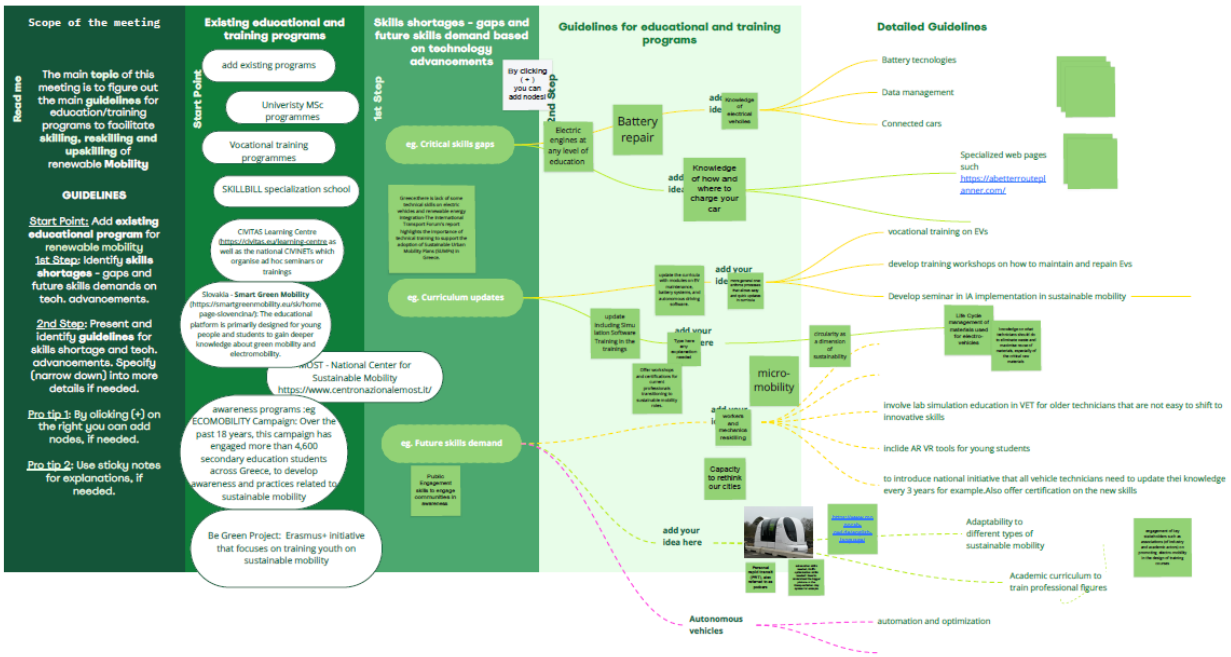
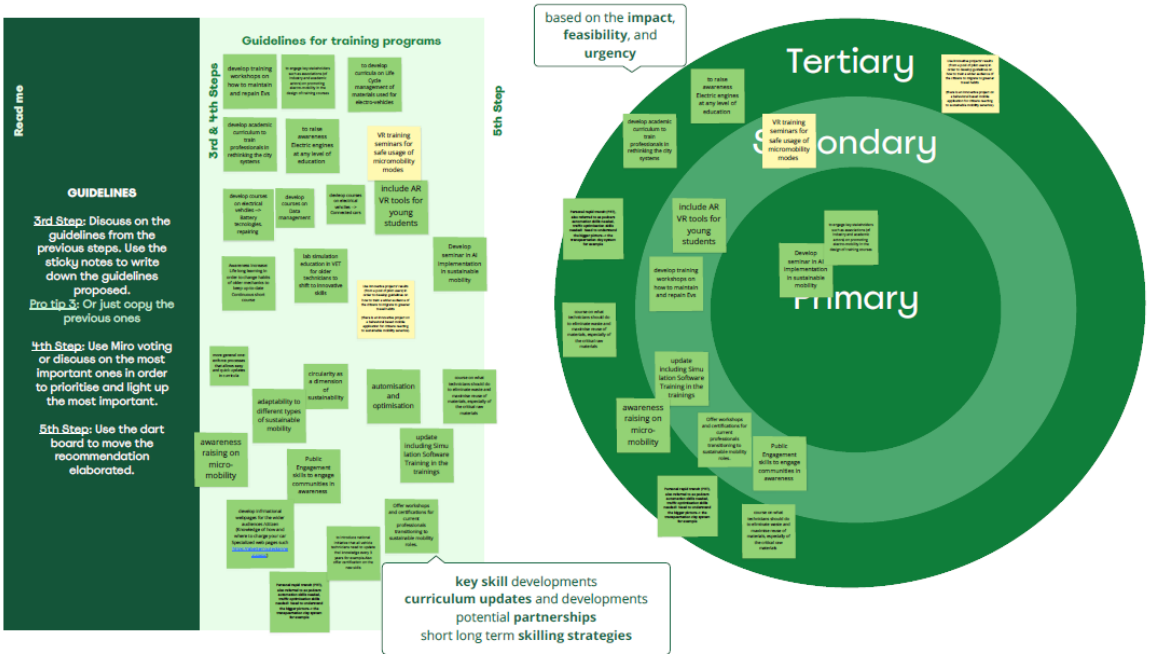
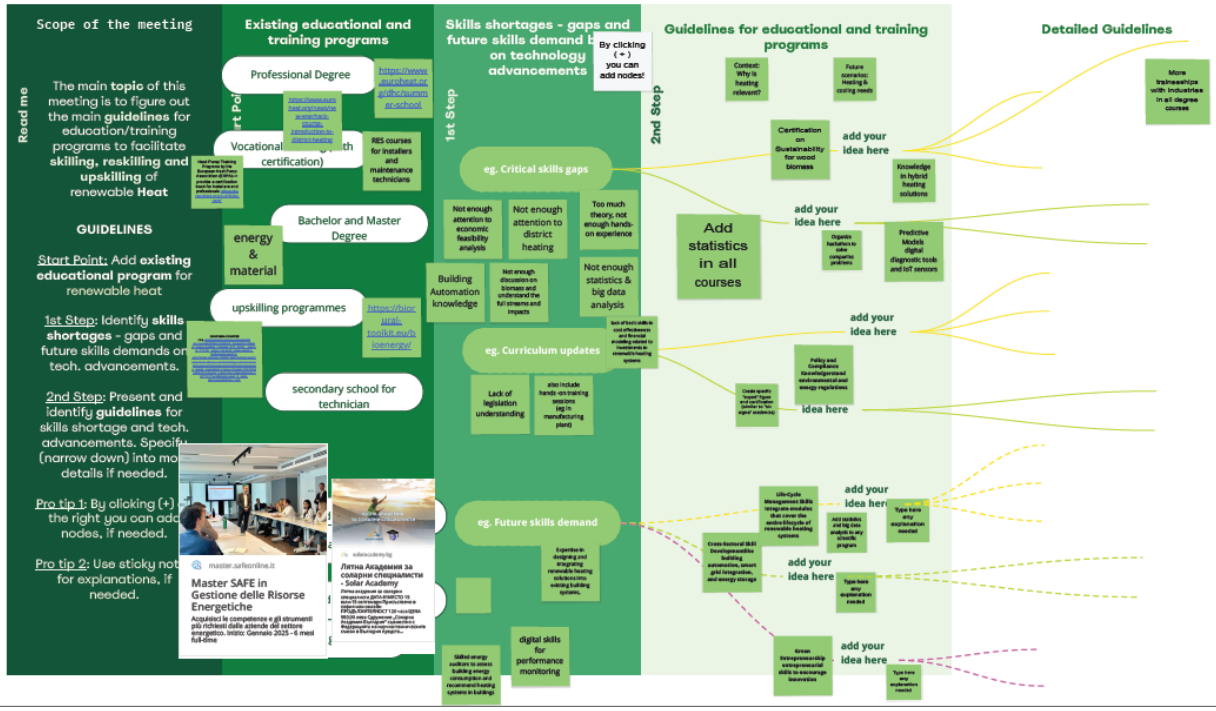
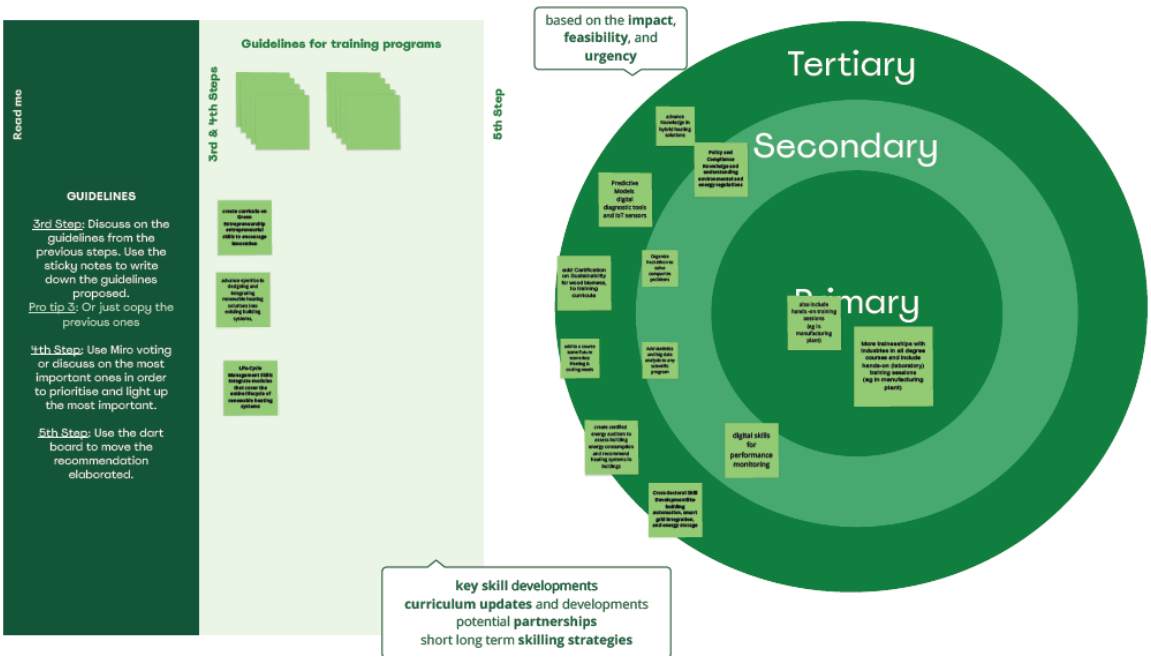


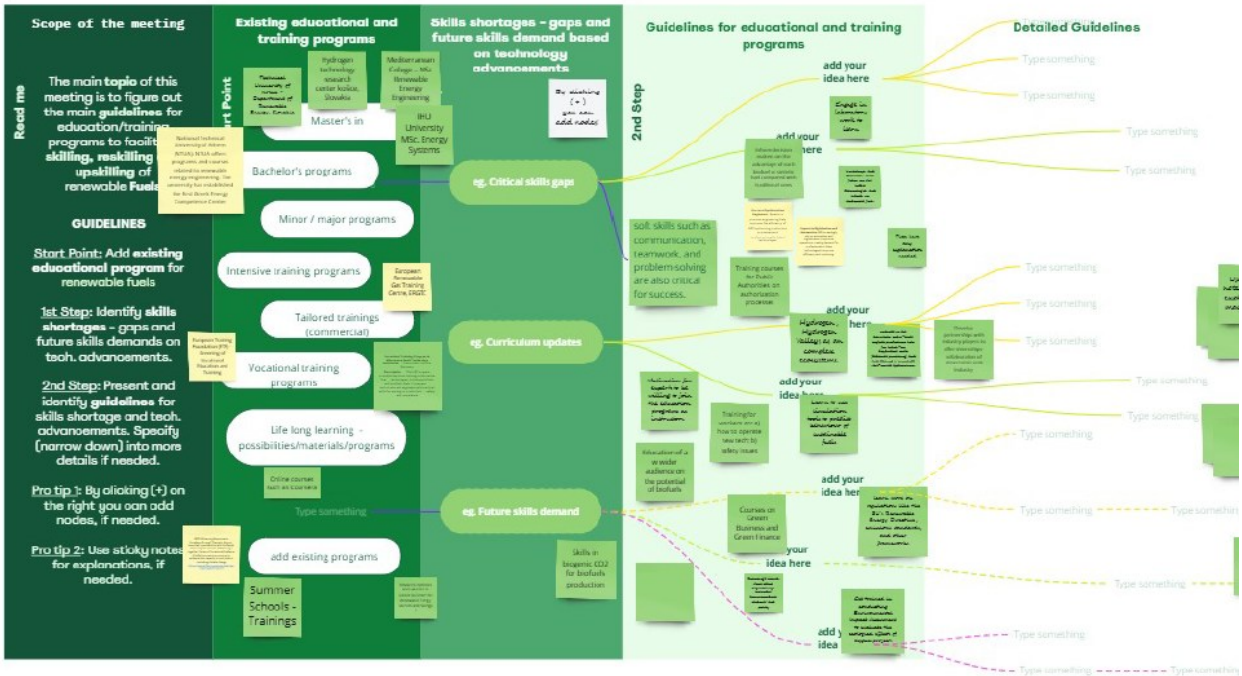


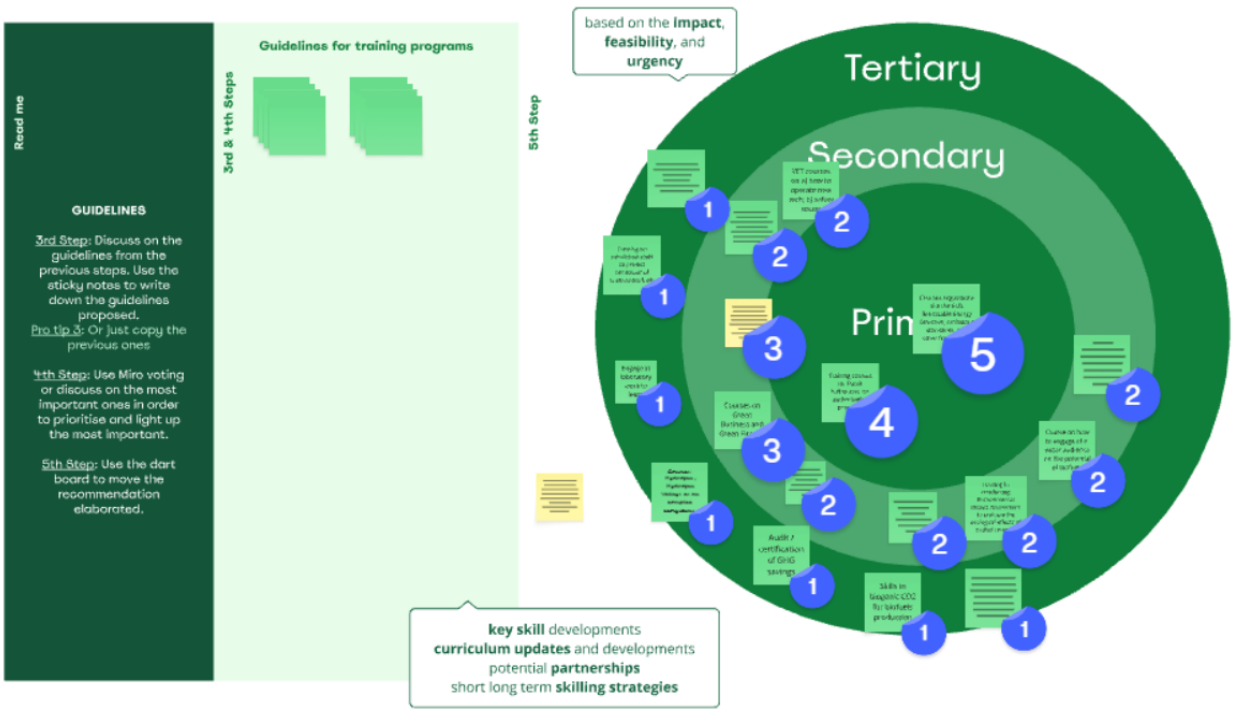
3rd Meeting Heat (link to Miro)



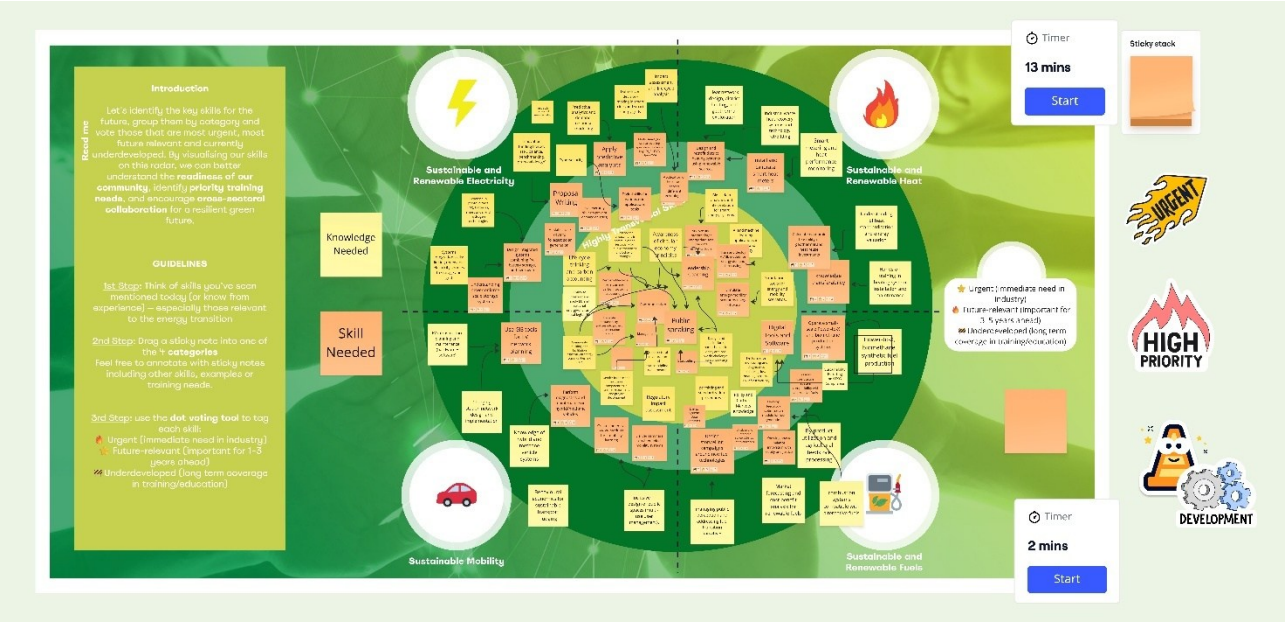


3rd Meeting Fuels (link to Miro)





Plenary Meeting (link to Miro)



10.3 Annex III 'MML Agendas

1st MML*[8]

Agenda

TIME (CET)	TOPIC	SPEAKER
WELCOME (10:00 – 10:30)		
10:00 – 10:10	Welcome and introduction	Stanislava Drusková /PEDAL Consulting
10:10 – 10:20	SKILLBILL Project in a nutshell and the aim of workshop	Karolina Mendelová / PEDAL Consulting
10:20 – 10:30	Introduction to ONLINE tool – the ice breaking activity	Karolina Mendelová PEDAL Consulting & Dimitra Kyriakopoulou /Q-Plan
PART 1 – SKILLED WORKFORCE (10:30 – 11:20)		
10:30 – 10:45	Renewable Energy Skills Partnership	Nathalie Richet / EUREC
10:45 – 11:15	Co-creation/Interactive session 1 (using MIRO board)	Dirk Hendricks / EREF
11:15 – 11:20	Conclusions and summary	Dirk Hendricks / EREF
10-MINUTES-COFFEE BREAK (11:20 – 11:30)		
PART 2 – POLICIES FOR THE NEW ERA (11:30 – 11:20)		
11:30 – 11:45	EU RES: Latest Developments and Strategic Initiatives	Dirk Hendricks / EREF
11:45 – 12:15	Co-creation/Interactive session 2 (using MIRO board)	Dirk Hendricks / EREF
12:15 – 12:20	Conclusions and summary	Dirk Hendricks / EREF
CLOSURE OF THE WORKSHOP (12:20 – 12:25)		

Page 2

The project

SKILLBILL's overall objective is to develop a large and strong foundation for the growth and acceleration of renewable energy's deployment, thanks to engaging with stakeholders of the whole chain, diffusing scientific culture and skilling multi-level workers. The basic idea underling the project is that the knowledge should be diffused at several different levels and qualitatively appropriate both to train the adequate number of workers and to increase RES awareness and to reach a more social and inclusive Europe. The project aims at creating several pathways to induce target groups to get interested or involved in RES besides their initial level of education and their working position. It's important, beside the creation of instruments for the upskilling and reskilling of workers, technician and designers, to have awareness modules for unspecific public in order to fight against lack of information, bad quality material, gender gap and the phenomenon of functional illiteracy: it is widely documented that lifelong suitable learning process is the fundamental driver to support the development, maintenance and update of skills. Thus, SKILLBILL proposes concrete actions to accelerate the deployment of renewable energy at different levels to analyse and involve all the interested parts in open discussion using adequate language; create several different pathways to increase skills after having mapped knowledge gap and without gender prejudice; develop and implement innovative learning method; and evaluate the work performed.

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PARTNER		SHORT NAME
AzzeroCO2	AZZERO CO2 SRL	AzzeroCO2
Q-PLAN	Q-PLAN INTERNATIONAL ADVISORS PC	Q-PLAN
WHITE	WHITE RESEARCH SPRL	WR
Università della Tuscia	UNIVERSITA DEGLI STUDI DELLA TUSCIA	UNITUS
US	UNIVERSIDAD DE SEVILLA	USE
Metropolia	METROPOLIA AMMATTIKORKEAKOULU OY	METROPOLIA
Utrecht University	UNIVERSITEIT UTRECHT	UU
EREF	EUROPEAN RENEWABLE ENERGIES FEDERATION	EREF
SINERGIE	SINERGIE SOC CONS ARL	SINERGIE
PEDAL	PEDAL CONSULTING SRO	PC

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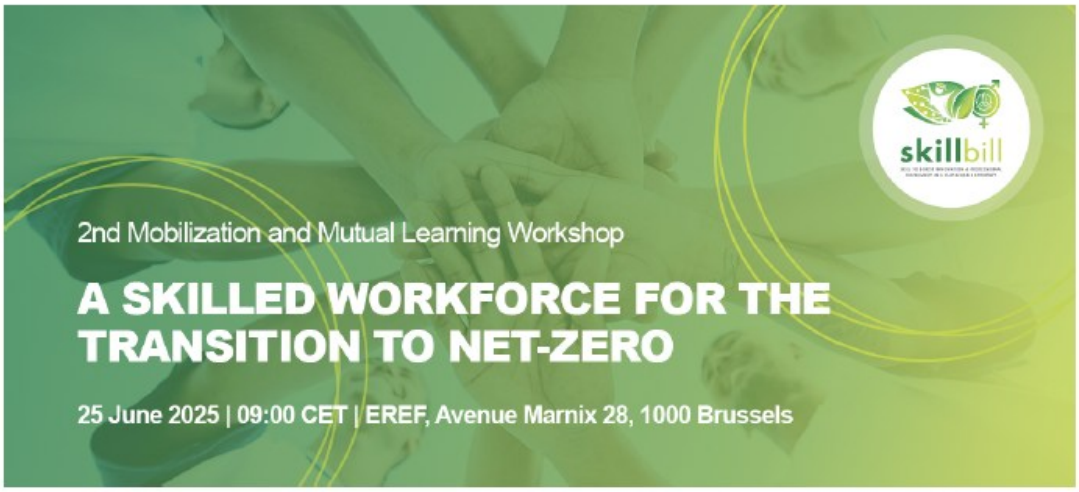
[8] Presentations are available upon request

2nd MML*



Agenda

09:00 – 09:05 **Welcome and introduction**
Stanislav Laktis,Senior Project Officer, PEDAL Cons. & Johanes Vollmer, Senior Project Officer, EREF

09:05 – 09:15 **Short overview on SKILL BILL, concept and objectives of MML workshop**
Enrico Facci, Azzero CO2 & SKILL BILL coordinator

09:15 – 09:25 **Introductory presentation: How the skills gap is putting Europe's transition to net-zero at risk** (Sector needs projections in skill development and the impact on achieving EU energy targets)
Anastasios D. Galatsopoulos, Project Manager, White Research

09:25 – 10:15 **Session 1: EU initiatives in RES skills development (60")**

- Overview on EU programs and policies that foster skilling, reskilling and upskilling to foster the transition to net-zero, with focus on renewables deployment – Cristiana Marchitelli, Policy Officer, DG ENER, B4 Digitalisation, Competitiveness, Research and Innovation European Commission
- EU party perspectives on enabling frameworks for skill development in RES - Nicolas Casares, MEP S&D, Michael Bloss, MEP Green Party, Niels Fleming Hansen, MEP EPP (tbc)
- SKILL BILL's master and vocational training programs: support to skills development and synergies through integration into related EU initiatives – Andrea Facci, Assistant Professor, University of Tuscia & Giovanni Pede, Project Manager, SINERGIE

Followed by discussions involving all participants, moderated by Dirk Hendricks, Secretary General, EREF

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10:15 – 10:30	**Coffee break**
10:30 – 11:15	**Session 2: Round table on sharing best practices from among the industry & sector experiences on how to address labour market shortages (5-10'' per industry representative)** • Solar Power Europe – Jacopo Piccagli, Project & Policy Officer • Wind Europe – Marina Batista, Education & Skills Manager • European Heat Pump Association – Eleonora Shehu, Policy Officer • GCP EUROPE (building services engineering, mechanical contractors, plumbers & HVAC installers) – Oliver Jung, Secretary General *Followed by discussions among all sector representatives, moderated by Johannes Vollmer, EREF*
11:15 – 12:00:	**Session 3: Academia – industry cooperation on educational initiatives for implementing the Green Deal and the Clean Industrial Deal (30'')** • EUREC (European Research Centres active in renewable energy) - Nathalie Richet, Senior Master Programme Manager • Global Education Network Europe - Liam Wegimont, Executive Director • University of Seville - David Tomas Sanchez Martinez, Professor • Metropolia - Esa Toukouniitty, Senior Lecturer & Project Manager • University of Tuscia - Andrea Facci, Assistant Professor *Followed by discussions among all participants, moderated by Javanshir Fouladvand, Assistant Professor at Utrecht University*
12:00	**Closing of the workshop**

Registration: https://forms.gle/RZgw2J29cxLbjcqF9

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REskilling for sustainability

The project

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Coordinator: **AZZERO CO2 SRL (AzzeroCO2)**

PARTNER		SHORT NAME
AzzeroCO2 climate in our hands	AZZERO CO2 SRL	AzzeroCO2
Q-PLAN INTERNATIONAL	Q-PLAN INTERNATIONAL ADVISORS PC	Q-PLAN
WHITE	WHITE RESEARCH SPRL	WR
UNIVERSITÀ DEGLI STUDI DELLA TUSCIA	UNIVERSITA DEGLI STUDI DELLA TUSCIA	UNITUS
UNIVERSIDAD DE SEVILLA	UNIVERSIDAD DE SEVILLA	USE
Metropolia University of Applied Sciences	METROPOLIA AMMATTIKORKEAKOULU OY	METROPOLIA
Utrecht University	UNIVERSITEIT UTRECHT	UU
EREF European Renewable Energies Federation	EUROPEAN RENEWABLE ENERGIES FEDERATION	EREF
SINERGIE	SINERGIE SOC CONS ARL	SINERGIE
PEDAL CONSULTING	PEDAL CONSULTING SRO	PC

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