



European Education Area Strategic Framework Working Group Vocational Education and Training and the Green Transition

Peer Learning Activity

24 and 25 April 2024 – Graz, Austria

Summary report



1 Introduction

The Peer Learning Activity (PLA) of the European Education Area (EEA) Working Group on Vocational Education and Training (VET) and the Green Transition was held in Graz, Austria, from 24 to 25 April 2024. The event was hosted jointly by the [Austrian Federal Ministry of Labour and Economy](#) and the [Austrian Federal Ministry of Education, Science and Research](#). Participants included representatives from various EU Member States (Cyprus, Estonia, Finland, France, Germany, Hungary, Ireland, Latvia, Poland, Portugal, Spain and Sweden), EFTA countries (Iceland), social partners (BUSINESSEUROPE), the European Commission and consultants (ICF). The primary objective of the PLA was to share and learn from the inspiring practices in Austrian Vocational Education and Training, focusing on integrating green skills to meet the demands of a climate-neutral economy.

The main location of the PLA was the [Higher Technical College Graz-Gösting BULME \(Höhere Technische Bundeslehranstalt Graz-Gösting\)](#). Besides HTL BULME, the PLA also included one on-site visit to the [AVL](#) headquarters for the presentation of the best practice on the e-mobility technology sector. The first day of the PLA commenced in HTL BULME with a warm welcome to Graz by the Austrian hosts and a *tour de table*, allowing participants to introduce themselves and their respective institutions. The event was moderated by Axel Zafoschnig, former Chief Inspector for Technical Colleges in Carinthia, Austria.

Tim Van Rie (European Commission) emphasised the importance of in-person meetings and collaboration, such as this PLA, for the Working Group. He thanked the Austrian delegates for having organised such a rich programme. He thanked HTL BULME for hosting the event, highlighting the added value of meeting in a VET college among pupils, teachers and trainers.

Günther Greier, headmaster of HTL BULME, provided an overview of the institution, noting its substantial student body and diverse technical divisions. He noted the school's adaptation of curricula to meet local business and industry demands, particularly focusing on green transition and energy solutions.

Doris Wagner, General Director of the [Austrian Federal Ministry of Education, Science and Research](#), emphasised the pivotal role of VET in Austria's economic prosperity and its alignment with labour market requirements. In this context, she highlighted the need for international collaboration and quality assurance in VET, as well as the integration of innovation, entrepreneurship, and green skills to achieve climate targets.

Alexander Hölbl, from the [Austrian Federal Ministry of Labour and Economy](#), discussed the [European Year of Skills](#), stressing the importance of developing new competences in the green sector and fostering practical qualifications through upcoming legislation on higher VET.

Objectives of the Peer Learning Activity:

- Insights into the developments of the labour market and professional qualifications with regard to green skills.
- Experience and practical knowledge of occupational and competence requirements for sustainability-oriented skills in VET.
- Measures in vocational training and their environment that are intended to contribute to achieving climate neutrality (Austria's National Implementation Plan under the 2020 Council Recommendation on VET and the Osnabrück Declaration).
- Innovative projects on how vocational training conveys the spirit of green change

2 The VET system in Austria and National Implementation Plan

Bettina Spiess from the Austrian Federal Ministry of Labour and Economy (BMAW) introduced the **Austrian VET system**, which allows students who have completed nine years of schooling to opt for vocational education. In Austria, the dual system is prevalent, where around 80% of apprenticeship training occurs within companies, while 20% takes place part-time vocational schools. Apprenticeships can last up to four years, providing the apprentices with comprehensive VET and specific skills needed to match labour market demands. By 2024 in Austria, about 101,000 apprentices have been trained in more than 29,000 companies across 227 occupations, covering sectors such as trade & crafts, industry, or tourism.

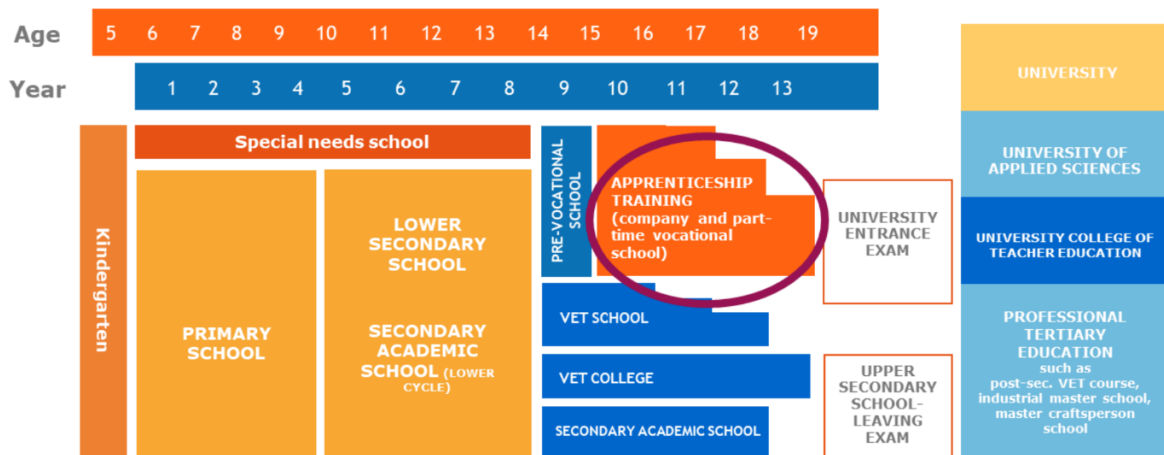


Figure 1. *The Austrian Education System*, from “VET System in Austria - How it works”, by Bettina Spiess

Regarding the **structure** of the dual system in Austria, the system is governed at federal, regional, and educational levels, with strong stakeholder involvement, including social partners. Austria’s VET system offers a wide variety of educational profiles and focuses on adaptability to labour market requirements. The introduction of green skills and new occupational profiles, such as in electrical engineering, is a significant aspect of this system. Concerning the more specific issue of green skills and the digital transition in VET, every five years, the Austrian system undergoes a holistic review of occupational profiles – with 2024 being the year where the next review is planned. Additionally, transversal skills are implemented in all occupational profiles, as is the case of sustainable actions and resource saving techniques.

In this way, the Austrian system showcases several **advantages** thanks to the direct involvement of the private sector but also employees and the design of practical support for stakeholders. This involvement in the introduction or update of occupational profiles leads green, sustainable or digital competences being identified effectively. Additionally, the variety of occupational profiles meets the individual interests, together with a strong focus on permeability across the system.

Moreover, public subsidisation by the Federal Ministry of Labour and Economy supports training companies and apprentices, including direct financial support and creating alliances or mobility programmes for apprentices. For instance, the “**Leave no one behind**” integrative apprenticeship training system helps apprentices with special needs by extending training periods or offering partial qualifications. The “**Lehre statt Leere**” programme aims to reduce dropouts by providing coaching and support to apprentices and their families.

Wolfgang Pachatz, from the Austrian Federal Ministry of Education, Science and Research (BMBWF) started his presentation with the outlook of **VET schools in Austria**. Approximately 75% of young people in Austria participate in initial VET at the upper secondary level, which is one of the highest percentages of all European Union and OECD countries. The term "Austrian VET schools" covers Schools for Intermediate Vocational Education and Colleges for Higher Vocational Education:

- **Vocational Colleges** offer five-year programmes, finishing at around age 19, with EQF level 5 qualifications. Colleges encompass general education, vocational theory, and practice, including compulsory practical training. Matriculation examination in these Colleges grants access to universities and the labour market, with an enrolment rate of 26% of an age cohort. These institutions encompass Colleges of engineering, fashion, service industries & tourism, business administration, and agriculture & forestry.
- **Vocational Schools** last one to four years, with students finishing at age 18, with EQF level 4 qualifications. Schools offer general education, vocational theory and vocational practice, with focus on practical training as they offer compulsory practical training (internships) during the summer holidays. While school-leaving certificates do not grant access to universities, there is the option to follow "bridging courses" that lead to the matriculation examination. After some years of practical work, school leaving certificates provide access to regulated professions, with an overall enrolment of 14% of an age cohort.

After that he strongly focussed on the National Implementation plan (NIP), which is a joint action between the Ministry of Education, Science and Research and the Ministry of Labour and Economy. The National Implementation Plan (NIP) Austria focuses on six main topics – covering skills change, sustainability, digitalisation, social dimension, internationalisation, and institutional change. For instance, projects such as the establishment of competence centres for green skills and the **GREENOVET** project highlight Austria's commitment to integrating green skills into VET.

3 Green Transition at Vocational Schools – Part 1: Transversal greens skills in IVET curricula

Petra Ziegler, from the [Viennese Institute for Labour Market and Education Research \(WIAB\)](#), presented the process of formulating **learning outcomes for transversal green skills** within Initial Vocational Education and Training (IVET) curricula, a project commissioned by the Austrian Ministry of Education, Science and Research. The process involved three main steps: First, defining both green and transversal green skills as well as their interconnection; second, conducting desktop research on existing approaches in Austria, Germany, and Switzerland; and finally, deriving relevant learning outcomes for integration of transversal green skills into the Austrian IVET curricula.

While there is a lack of a universally agreed definition on "**green skills**", these generally refer to both technical knowledge and skills that enable professionals to effectively use green technologies and processes, and transversal skills, knowledge, values and attitudes that help them take pro-environmental decisions in their work and lives. Additionally, the working definition of "**transversal skills**" encompasses those skills that can be encountered across subject areas and are therefore required in different professions, occupational fields and professional areas; they are acquired in specific situations and are transferable to other situations or contexts.

After defining the concepts, initiatives connecting both green and transversal skills presented using frameworks like [UNESCO's core competences for green sustainability \(Education for Sustainable Development Goals: learning objectives\)](#) and the [European Union's GreenComp](#). In order to better categorise the use of transversal green skills, a brief **desktop research** was carried out with the aim of identifying topics and keywords that are mentioned in connection with transversal green skills. To this end, international

and national initiatives, and their recommendations for the implementation of transversal green skills in curricula and training programmes were consulted – such as the EU, UNESCO, Austria, Germany and Switzerland. This research revealed a wealth of information and guidance materials already in place for sustainable development in VET. Once the desktop research was completed, the Austrian IVET curricula educational goal, as well as **learning and educational tasks** were developed – including environmental awareness, sustainability, circular economy and green innovation.

4 Green Future Jobs Radar

Nicole Velimirovic, from [Green Tech Valley Cluster](#), discussed the future impact of green jobs and skills through the presentation of the **Green Tech Radar: Green Jobs & Skills**. The Green Tech Valley Cluster, comprising over 300 green tech companies and 2,300 researchers, focuses on climate and circular solutions, facilitating collaboration among companies, research institutions, universities, and schools. They produce annual brochures on strategic topics, including green jobs and skills, and host the largest network for green startups in Austria.

The Green Jobs and Skills Radar projects the next ten years' **trends and regulations**. A key highlight noted by the radar is the need for educational reform in the coming years, with 50% of workers requiring upskilling or reskilling by 2025. More specifically, lifelong learning and the integration of digital tools and green skills into curricula are crucial. Additionally, Green Tech identified that government funding is deemed effective by 45% of companies, but that there is still a call for more comprehensive support, including removing barriers and enhancing cooperation between businesses and educational institutions. Sustainability is a priority for 90% of companies, but smaller enterprises face specific challenges and resource constraints.

For companies, making jobs appealing and involving employees in the transition is crucial. Precisely, labour market shifts predict that 25% of global jobs will transform within the next four years, with an increased demand for green skills. Additionally, a notable gender gap in green jobs exists, highlighting the need to involve more women in the green transition. AI and automation are reshaping green jobs, requiring a workforce skilled in interaction, communication, teamwork, empathy, creativity, and analytical thinking. Consequently, future roles will demand more expertise and, thus, integrating new tools and technologies into VET is essential to prepare students for evolving roles.

5 Green Village and Digitalisation Projects at the HTL BULME

Wilfried Weigend and Paul FÜRli, both from HTL BULME, led the explanations of the Green Village and different Digitalisation projects at HTL BULME. This section of the PLA allowed participants to hear directly from the HTL BULME students, who shared their experiences and insights regarding these projects. For instance, **Green Village** is part of an updated curriculum for industrial IT, automation and green energy solutions. This project allows HTL BULME students to adapt to new skill needs, with courses on e-mobility, renewable energies or system connectivity. Moreover, companies also finance the state-of-art products used by students, such as batteries – allowing students to get familiarised with products usually not available at such stages.

The **Digital Product Development** project (DIGIPRO) encompasses a vocational training thesis developed in collaboration with companies. Digital product development allows students and beneficiaries to improve their product design and delivery through the digital commissioning of machines. This virtual commissioning allows to create the digital twin of a machine before it is built. The benefits explained by the students developing this project include time savings, ensuring that everything works in a safe manner, error recognition at early stages, as well as cutting down on costs. This is achieved thanks to the usage of a digital 3D model controlled virtually, as well as

augmented reality tools and overall, the support of the companies and HTL BULME, which allows manufacturing of the models to be done and produced in the schools itself.

6 The Dual System and Green Transition in Austria

Birgit Wenninger-Jost, from the Austrian Federal Ministry of Labour and Economy (BMAW), introduced the next session of the PLA by outlining the structure of the Austrian National Implementation Plan (NIP) for the 2020 Council Recommendation on VET and the Osnabrück Declaration. The Austrian NIP focuses on three key segments: school-based VET, dual VET, and CVET. The measures within the NIP are categorised into six subject areas: Skills change, green transition, digitalisation, social dimension, internationalisation, and institutional change.

Josef Hochwald, from the Austrian Federal Ministry of Labour and Economy, facilitated a discussion on the NIP, encouraging participating PLA countries and stakeholders to share their insights on similar initiatives.

Sub-segments of vocational training			
	dual vocational education and training	school-based VET	continuing VET
Skills Change	Development of apprenticeships		Career guidance
Green transition/ sustainability	Sustainability as a cross-cutting issue New "green" apprenticeships		Greenovet Projekt
Digitalisation	DigiComp-CERT Digitalisation in apprenticeships Digital learning paths		Digital Career guidance
Social dimension	Equal opportunities in VET Lehre statt Leere (coaching for apprentices and training companies)		
Internationalisation	International mobility of apprentices		Participation in international skills competitions
Institutional change	Dual academy		Higher Vocational training
	Making apprenticeship more attractive		Quality assurance Master craftsman and qualification examinations
	Validation - summative		Educational paths Validation - formative

Figure 2. NIP sub-segments of VET and their detailed measures, from "The Dual System and Green Transition: National Implementation Plan (NIP)", by Birgit Wenninger-Jost.

7 AVL site-visit, green transition in the mobility technology sector

At the end of the first PLA day, the hosts led the group to the on-site visit of AVL, where participants got familiarised with the company's Apprentice Training project and a tour of the facilities on Electromobility and Battery Development. Regarding the **Apprentice Training** in AVL, the vision of the company is to focus on greener, safer, and better mobility, with climate neutrality being one of the highest priorities as 80% of the product development is focused on electromobility, hydrogen and batteries. AVL has been training apprentices since 1961, with 10% of the company's turnover invested in research and development. The offered apprenticeships include commercial professions (office, IT, logistics, HR) and technical profiles (vehicle development, mechanics, engineers), and offer vocational training for 10 different professions. After the training years are completed, there is a 75% takeover rate of the apprentice, who can also afterwards start university studies with the certification received. AVL has a comprehensive development programme for apprentices, its main pillars being integration, training and development, career development, health and fitness. Due to the difficulties finding experts in the market, the company invests substantial resources to train and retain staff within the company.

8 GREENOVET: Skills for a green Europe

At the start of the second and last PLA day, Bojan Jovanovski, from the University of Applied Sciences Joanneum Graz, provided an overview of the **GREENOVET** project, a collaborative effort among regions in Austria (Styria), Finland (Vaasa), Portugal (Leiria), and North Macedonia (Skopje) aimed at advancing VET excellence with a focus on green innovation. The project, initiated in 2020, has involved extensive research to define concepts such as VET excellence, green innovation, and green skills. Through this foundational work, GREENOVET has developed and implemented activities for VET learners, engaging a diverse consortium of schools and stakeholders. The project aims to foster development through sustainable and green innovation processes, to empower VET graduates' employability, and to develop functional Centres of Vocational Excellence in Green Innovation.

GREENOVET's skills ecosystem comprises 18 full partners and 12 associated partners, including companies, industry representatives, VET institutions, governmental and non-governmental organisations involved in innovation. Each partner region established a regional committee of 10 to 30 stakeholders to provide insights and serve as the primary dissemination platform. This approach enabled the testing of mechanisms proposed by the platform and ensured stakeholder engagement and information flow. Additionally, the project has also developed the **Community of Practice of Centres of Vocational Excellence (CoVEs)**, which is a growing community of around 100 members, fostering learning and addressing regional challenges. GREENOVET established four Centres of Vocational Excellence, each tailored to the specific needs and contexts of its region. These centres developed and tested methodologies collaboratively before implementing region-specific mechanisms.

In Austria, the "**Educational Network for Energy Transition**" (*Bildungsnetzwerk Energiewende Steiermark*) led by HTL BULME, focused on young learners. They developed teacher training programmes in cooperation with the University of Styria, covering technical and digital skills and innovation. A micro-credential course, "Sustainability Coordinator at School", was also created for schoolteachers and administrators, as well as the [Green Transformation Cards](#). Additionally, regional competitions on green skills and international challenge-based learning competitions were organised, promoting VET through events like the "Green Science Station" at the European Research Night. Looking ahead, GREENOVET plans to continue fostering peer learning activities and collaboration within and outside the consortium, inviting collaboration and support for its vision of developing skills for a green Europe and recognising the green transition as a societal challenge.

9 Green Transition at Vocational Schools (part 2): Green skills in construction engineering

Ernst Kreuzer, from [Green Tech Academy Austria](#) (GRETA), presented the portfolio of services offered by GRETA as well as the Green Skills Catalogue Project. As a key player in promoting green skills within the VET sector, GRETA aims to empower and motivate companies and individuals to **acquire green and digital skills** through targeted qualification and further training in order to successfully master the transition to a green economy. Based on the Erasmus+ project GREENOVET, GRETA's strategy is to become the number one education hub and leading open education ecosystem for green innovation and green transition in the Austrian target market by the end of 2025. Consequently, the goals of GRETA and GREENOVET include closing the skills gap, networking with companies, and promoting teachers' training.

GRETA's current portfolio is structured around four pillars: Professional field research, targeted training, a comprehensive catalogue of green and digital education, and awareness and information initiatives. Different notable initiatives where GRETA participates include the "Sustainability Coordinator at School" course, the [Green](#)

Transformation Cards, or the Zero Carbon Day, aimed at raising awareness and disseminating information. Overall, the aim of GRETA is creating a **lifelong learning educational ecosystem** in the context of the green transformation throughout Austria. Thus, GRETA serves as a partner network open to members and contributing to strengthening cooperation between education providers, companies and the public sector.

A key project under GRETA's portfolio is the ongoing development of a **Green Skills Catalogue** for the civil engineering sector at Austrian Higher Technical Colleges. This project began with a thorough analysis of the Sustainable Development Goals (SDGs), GreenComp, GREENOVET support, and the ReBUSk project findings. The construction industry, identified as crucial to green transition, necessitates equipping the labour market with the required green skills. Hence, the research focused on understanding the current curriculum and integrating climate-relevant initiatives and green skills. The project aims to establish between 80 and 90 learning outcomes that will serve as a foundation for the public institutions and schools to adapt their curricula to incorporate both green and transversal skills.

10 Best practice school projects in the area of green transition

During the next presentation of the PLA, students taking part in the "E2MILY GT", "Magna Zero Emission Challenge" and the "E-Boat: Monaco Energy Boat Challenge" presented their best practices in green transition.

The **E2MILY GT** project at the **Higher technical Colleges in Weiz** showcased significant advancements in green technology with the successful development of a zero-emissions electric car. This project was a collaborative effort involving students and the mechanical engineering department, where the car's construction utilised sustainable materials. This interdisciplinary project marked a milestone as the first electric car fully developed by a school, demonstrating the integration of various engineering disciplines. Similar projects were started at other Higher Technical Colleges. To support and highlight these projects the **HTL Zero Emission Challenge**, an annual competition was launched in 2019. This competition encourages students of Higher technical colleges from across Austria to compete with their self-developed electric cars using sustainable materials – evaluating structural design, innovation, cost-effectiveness, and performance. The challenge aims to emphasise interdisciplinary automotive engineering in education, allowing students to apply theoretical knowledge in practical settings and develop future mobility solutions, as well as highlighting the innovative potential and environmental awareness of students. Precisely, the students participating in this challenge designed and built a sustainable electric go-kart using natural fibres that are 100% biodegradable, demonstrating their commitment to green innovation.

Another notable initiative presented by Students of the Higher technical College TGM in Vienna was the **Monaco Energy Boat Challenge, where students design** sustainable boats using renewable materials and propulsion systems. These students' entry is unique as it was the only team not representing a university this year, highlighting the relevance and capability of VET in Austria. Their boat was named "Seegurke" designed with natural fibres for a low carbon footprint, has undergone successful testing of its components, including solar panels and engines. The project exemplifies the innovative spirit and technical expertise of VET students in contributing to sustainable solutions in the field of renewable energy and green transportation.

11 New interactive digital tools for career orientation and vocational and adult education

In this section of the PLA, participants were encouraged to test the different interactive digital tools presented by Nikolaus Schrümpf and Lukas Zlattinger from **Room466** by the **Styrian Chamber of Commerce (WKO Steiermark)**. These tools included **augmented reality glasses (AR), virtual reality (VR) and mixed reality tools (MR)**. The

Styrian Chamber of Commerce is an economic development institution, offering 3,800 courses, with 900 trainers and a focus on EQF levels 4 to 6. The Interactive digital tools allow for the development of green skills and new ways of learning. These tools are used in courses such as health and safety at work, or training for electricians. For instance, through mixed reality tools, they can simulate a flat where the student must use electricity related safety rules to fix any potential danger sources. Overall, digital tools can support the green transition by using fewer resources, offering trial and error learning paths for students, as well as remote learning.

12 In-service teacher training for the green transition

Anna Purkarthofer from the [University of Teacher Training Styria](#) presented the work of its "Institute for Secondary Vocational Teacher Education" and its efforts in preparing teachers for the green transition. The institute offers both initial teacher education and continuous professional development, including a university course for **Sustainability Managers in Schools**. Further education for teachers offered by the institute includes **individual seminars on sustainability topics** including green business, finance for the future, and plant-based sustainability.

Further in-depth, the 'Sustainability Managers in Schools' course is part of a collaboration between GRETA and the university, which began in the 2022-2023 academic year. The course programme was first developed as a group of five "GREENOVET Seminars", which focused on different aspects of green innovation in vocational teaching, such as sustainable mobility, energy, and general sustainability. Through these seminars, it became apparent that, while teachers were individually engaged in various sustainability projects, there was a lack of coordination at the school level. To address this, the institute developed the university course for teachers "Sustainability Managers in Schools" – which is structured in three modules over two semesters and allows students to receive a university course certificate. The first module provides foundational knowledge on sustainability and initiating change processes; the second module focuses on bringing about change, with seminars on communication and conflict management; and the final module requires participants to develop and fully implement a sustainability project.

13 Project "Green Skills & Green Transition"

Martin Urban, from [Jugend am Werk Steiermark](#), presented the "**Lehre statt Leere**" programme, developed by the Austria Federal Ministry of Labour and Economy, supporting young people aspiring to become apprentices. This programme has been operational in Styria since 2016. Lehre statt Leere is facilitated by coaches from Jugend am Werk and [SozKom](#), who provide coaching in regions where apprentices are located. Overall, the programme offers coaching and support for both apprentices and training companies, which provides a point of contact for interested individuals without any age restrictions. Both companies and apprentices receive these services free of charge. The coaching process starts by an initial consultation, followed by individual coaching, providing around one year of support to help apprentices manage conflicts. Topics covered in coaching include motivation, learning objectives, and managing performance pressure, especially towards the end of the apprenticeship.

Francesco Corradini, from the Austrian Federal Ministry of Labour and Economy, presented the project "**ÖKO Booster**", which makes a valuable contribution to successfully address both climate change and unemployment. The target group for ÖKO Booster includes individuals aged 18 to 24, who are yet to complete their education and are registered with the Austrian Public Employment Service. The project particularly targets youth entitled to asylum or eligible for subsidiary protection who have German language proficiency and interest in technical and craft-based tasks. The programme supports trainees not only with education-related content, focusing on literacy and overall motivation, but also with legal questions. The course structure of ÖKO Booster includes an information event, followed by a preparatory-module, intensive training

courses and follow-up support. The programme lasts 26 weeks, with 37 hours per week, and each participant receives an accompanying programme with socio-pedagogical support, cultural and sports activities, and placements in active cooperation with leading companies.

14 Concluding remarks

Overall, the PLA provided a comprehensive and insightful exploration into the intersection of VET and the green transition in Austria. The event delivered valuable insights into labour market developments and green skills needs, sharing practical knowledge stemming from the Austrian context, discussing measures to achieve climate neutrality in place at the national and regional level, as well as highlighting innovative projects within the Austrian VET sector.

The feedback from various participants highlighted the success of the event, with participants expressing their gratitude for the organisation and the valuable insights gained. The event facilitated a meaningful exchange of ideas and best practices, fostering a collaborative approach across participating countries and stakeholders to enhance VET for a greener future. The well-balanced programme, including on-site visits and the showcasing of practical examples, highlighted the importance of continuous learning and adaptation, ensuring that VET remains responsive to the evolving demands of sustainability and green transition.