

PowerUp NetZero Training activities and materials on Net-Zero Technologies and business mapping

Abstract

As part of the EU Project “PowerUp NetZero”, bwcon research is taking over the planning and conduction of the “Training activities and materials on Net-Zero Technologies and business mapping”. Small and medium-sized enterprises (SMEs) are central to Europe’s green and digital transition, yet they often lack targeted support to translate Net-Zero technologies into viable business models and cross-sector solutions. Within the EU-funded PowerUp NetZero project, bwcon research and its partners have developed a structured training programme that responds directly to empirically identified challenges and competency gaps among European SMEs. This article presents the design rationale, methodology and core elements of this training programme, which focuses on five Net-Zero technology domains: battery and energy storage, clean hydrogen, carbon capture and storage (CCS), sustainable biogas and biomethane, and solar energy. It outlines how a four-method stakeholder analysis informed the training content, describes the learning architecture and monitoring approach, and discusses how the programme aims to convert technological and regulatory complexity into concrete innovation pathways and market opportunities for SMEs.

"Europe already has a strong pipeline of Net-zero Technologies and innovative solutions, and a steadily growing market interest in their adoption. The key challenge is enabling SMEs to turn these innovations into scalable, market-ready businesses. EU initiatives and projects developed by clusters and other support organisations are essential in this process, supporting SMEs with access to technology, funding, and markets, while fostering collaboration across regional and national ecosystems to accelerate deployment and reach the broader European market."

Silvana Sanfeliu Giaimo

Head of EU projects and internationalisation at Fondazione Piemonte Innova



Co-funded by
the European Union

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Methodology and Inputs

The training programme was designed based on previous work the PowerUp NetZero Consortium has done, namely a four-method stakeholder analysis to identify innovation potential, competency gaps and training needs among European SMEs and start-ups in Net-Zero technologies:

1. **Pre-proposal survey:** Identified and prioritised the most relevant Net-Zero domains for SMEs, leading to the selection of the five focus areas used in PowerUp NetZero.
2. **Survey of challenges:** Provided a detailed view of technology-specific obstacles, from which the most frequently cited and impactful challenges were extracted.
3. **Mentimeter questionnaire:** Enabled real-time validation and prioritization of challenges during cluster assemblies.
4. **Internal consortium analysis:** All six cluster partners assessed each challenge against project funding instruments, and identified additional challenges not fully captured by external surveys.

“The five technology domains share a common contribution to climate neutrality, but they do not face identical barriers. Effective support must recognise the specific technical, regulatory and market conditions of each domain while also identifying where valuable connections can be made.”

Ilaria Schiavi

Senior Project Manager and Business Developer at Environment Park S.p.A.

We came to the conclusion to the following cross-cutting strategic requirements for the programme design:

1. The need for a shared understanding of Net-Zero technologies, including regulation and financing mechanisms.
2. Recognition that each Net-Zero technology faces distinct, domain-specific hurdles.
3. The importance of stronger interconnection between digital SMEs and Net-Zero sectors.
4. The strategic advantage of sector coupling – combining multiple Net-Zero technologies with digital solutions and new business models.

“For SMEs, the transition is not only about mastering a specific technology. They also need to understand how that technology interacts with energy systems, industrial value chains and emerging markets.”

Alenka Zelenič
Senior Project Manager at TECES

Learning Principles for the target audience

We defined three learning objectives (LO), which collectively reflect the journey the audience can reach:

LO1 - Participants can identify the connection between a given Net-Zero technology and business scenarios in various industries.

LO2 - Participants can define new business scenarios that link a Net-Zero technology to a single industry (apply knowledge).

LO3 - Participants can define new business scenarios that link a Net-Zero technology to multiple industries simultaneously (apply knowledge).

“Companies adopt Net-Zero solutions when they solve real operational challenges. Training should therefore connect technological possibilities with concrete use cases, such as fleet management, charging, logistics hubs and low-emission transport corridors.”

Fernando Zubillaga
Managing Director of the Basque Mobility and Logistics Cluster

To operationalise this progression, each training follows a two-part structure:

1. Part 1 – Insight

A knowledge-focused session that introduces the technology domain, its regulatory and market context, digital control aspects, and exemplary business opportunities. This part primarily supports LO1.

2. Part 2 – Application

A hands-on workshop built around case studies, interactive exercises and the Business Model Canvas, enabling participants to apply what they have learned to sector-specific and cross-sector business concepts. This part addresses LO2 and LO3.

A two-week interval between Part 1 and Part 2 is intentionally built into the concept. It allows participants to reflect on the input, conduct their own research and arrive at the application session with initial ideas that can be further refined during the workshop.

Target Audience

In order to understand the participants background we have distinguished three different profiles: SMEs and start-ups with extensive experience in one or more of the five Net-Zero technologies (primary audience), SMEs and start-ups with limited prior knowledge, but a strong interest in Net-Zero technologies and their market applications (secondary audience) as well as other stakeholders and entities interested in Net-Zero solutions (tertiary audience).

We aim to reach a heterogeneous audience through this training programme. That is also why we decided to split each training session in two parts, as described above. The Insight sessions (Part 1) are designed to be accessible entry points for newcomers while still introducing state-of-the-art perspectives for experts. The Application sessions (Part 2) then leverage this shared foundation to enable more advanced participants – particularly from the primary and secondary audience – to co-develop business models and cross-sector concepts.

“Our aim was not to create a conventional series of technology presentations. The training concept guides participants from understanding a technology and its market context to developing concrete business scenarios across sectors.”

Amelie Beutel

Expert on Sustainability and Innovation Processes at bwcon research gGmbH

Programme Structure

The training programme runs from fall 2026 onwards up until fall 2027. Each module focuses on one technology domain or cross-domain theme and follows the Insight/Application format as described.

The tentative training schedule is as follows, each consisting of an Insight and Application session around 90 minutes each):

- **T1 – Energy Storage: Electrical, Thermal & Hydrogen**

Focus: spectrum of storage technologies, digital control (Battery & Energy Management Systems, Artificial Intelligence (AI)), and cross-sector business cases.

- **T2 – Scaling Clean Hydrogen: Production, Control & Sector Coupling**

Focus: production pathways (electrolysis, reforming with CCS, biomass-based), digital optimisation of production and logistics, hydrogen as energy carrier and storage medium.

- **T3 – Carbon Capture & Storage: Regulation, Technologies & Innovative Storage Solutions**

Focus: EU regulatory frameworks, CCS vs. Carbon Capture Utilization (CCU), digital Measuring, Reporting and Verification (MRV) systems, and the business use of captured CO₂, including mineralisation.

- **T4 – Sustainable Biogas & Biomethane: Generation, Control & Stakeholder Collaboration**

Focus: the biogas and biomethane value chain, digital process control, and trust-building among diverse stakeholders in circular biogas projects.

- **T5 – Solar as the Engine of the Net-Zero Transition: Generation, Control, Sector Coupling & Business Models**

Focus: solar technologies, economics and regulation, digital optimisation (AI forecasting, digital twins, IoT, EMS), and solar as a hub connecting all other Net-Zero domains.

“Many digital SMEs already possess capabilities that the Net-Zero transition urgently needs, even if they do not yet see themselves as energy or climate-tech companies. The training programme can help them transfer those capabilities into new sectors and business models.”

Anna Naydenova
Executive Director of ICT Cluster

Learning Impacts

The programme actively drives broader learning impact and long-term capacity building beyond the individual training sessions. Pre- and post-training surveys, short check-in meetings and the PowerUp NetZero Reflection Summit systematically capture how SMEs transform training inputs into concrete projects, partnerships and market activities. Together, these elements create a dynamic feedback loop that strengthens organisational capabilities and fosters an ongoing learning culture within the participating companies and cluster ecosystem. At the same time, the insights generated are actively used to refine support instruments and to inform future policy and funding measures that accelerate Net-Zero innovation across Europe.