



# Fit for the energy and climate challenges in the building sector

A roadmap for the education and training of professionals in Austria

## Final report

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# Summary

Drastically reducing greenhouse gas emissions is not only important to us, it is essential if we are to meet our climate targets by 2040. The construction sector therefore has a key role to play in delivering sustainable buildings. Buildings account for around 40% of energy consumption and 36% of greenhouse gas emissions in the EU.

Creating energy-efficient buildings is not easy. Cooperation between different trades in the construction industry and the qualification of skilled workers are particularly important. For this reason, the European Commission's "BUILD UP Skills" initiative was dedicated to the qualification of construction professionals in the European Union. The aim was to achieve an optimal level of training for skilled workers and professionals in the fields of building renovation and new construction.

Following on from the BUILD UP Skills initiative and its successful national and Europe-wide projects implemented between 2013 and 2023, the Reboot BUILD UP Skills (ReBUSk) project revisited the issue of the skills needed in the construction sector to ensure a low-carbon future. It also broadened the focus to include education and training across all professions, particularly those involved in the design and delivery of new buildings and refurbishments (so-called "white-collar professionals"). The aim was to develop a national education and training roadmap for the building sector, in line with both the European climate change targets for 2050 and the national climate change targets for 2040.

The national education and training roadmap developed as part of the Reboot BUILD UP Skills Austria (ReBUSk) project represents an important milestone on the way to achieving Austria's energy and climate targets in the building sector by 2030 and beyond. In close cooperation with relevant stakeholders from the knowledge triangle - education, economy and politics - a comprehensive analysis of the Austrian status quo was carried out and the strengths, weaknesses, opportunities and threats in relation to the status quo of the building sector were identified. On this basis, and with the intensive involvement of the relevant stakeholders, a roadmap for education and training was developed, leading to five strategic fields of action.

The identified areas not only address existing gaps and barriers in education and training, but also present concrete measures to overcome these barriers. These fields of action range from reaching out to new target groups with educational opportunities and integrating climate-relevant skills into education and training programmes, to promoting participation in further education initiatives and improving the interface between planning and implementation. They also aim to increase the attractiveness of apprenticeships and skilled trades. Finally, each measure in the identified fields of action should serve as a guideline for the further development of education and training and contribute to the creation of a future-oriented educational landscape in the Austrian building sector.

The sustainable success of the Roadmap depends, of course, on committed implementation and continuous adaptation to the constantly evolving needs of the Austrian building sector.

Continuous dialogue with relevant stakeholders and flexible adaptation to new challenges are therefore crucial. The numerous declarations of support - more than 65 national organisations have expressed their support in writing - and the many committed stakeholders have made the development of the Austrian Education and Training Roadmap 2030 possible. This continues to be a highly advantageous starting point for the overall success of the European BUILD UP Skills initiative and the achievement of the national and European energy and climate targets.

This broad support from relevant stakeholders not only strengthens the legitimacy of the education and training roadmap developed, but also creates a close-knit network of actors who can pool their resources, expertise and experience and contribute to the implementation of the training actions.

The successful implementation of the strategic measures developed in the coming years should not only strengthen Austria's economic performance and increase the employability of skilled workers, but also promote the qualification for the implementation of sustainable refurbishment of existing buildings.

# Content

Introduction.....	7
Starting point in Austria.....	8
Energy and greenhouse gas emissions in the building sector.....	8
Austria's energy and climate goals .....	9
Austrian legal framework for achieving the energy and climate targets.....	9
Implementation of the Energy Performance of Buildings Directive (EPBD) in Austria .....	10
Other instruments and initiatives in the building sector .....	10
National implementation of the BUILD UP Skills Initiative .....	12
Results of previous BUILD UP Skills projects in Austria.....	12
Aims of the ReBUSk project.....	14
The road to the Roadmap.....	15
Qualification platform.....	15
Internal project workshops and exchanges with project teams from EU Member States .....	16
Status Quo Analysis .....	16
Professionals in the Austrian construction industry .....	16
Skills and qualification needs .....	17
SWOT Analysis .....	17
Development of the roadmap .....	18
Methodology of the development of the roadmap .....	18
Identified areas for action and derived actions .....	19
Stakeholder engagement and approval process.....	20
Communication strategy to engage relevant stakeholders.....	20
Communication activities .....	21
1. Kick-Off Event.....	21
2. Stakeholder Workshop .....	22
3. Final event .....	23
Conclusion and outlook .....	25
Literature .....	26
List of figures .....	29
List of abbreviations .....	30



# Introduction

BUILD UP Skills is a strategic initiative launched by the European Commission in 2011 as part of the Intelligent Energy Europe programme. It aims to promote high energy efficiency renovation and construction of Nearly Zero Energy Buildings (nZEB). The qualification of the craftsmen, the so-called "blue-collar professionals", has a direct impact on the quality and professional construction of nearly-zero energy buildings. As part of this initiative, the "BUILD UP Skills Austria" project has developed a roadmap for the period 2011-2013, which focuses on the education and training of craftsmen (so-called "blue-collar" professionals). Based on this roadmap, a number of projects have been carried out at national and European level to develop courses and training modules with different concepts and to implement pilot training programmes.

The "Reboot BUILD UP Skills Austria" ("ReBUSk") project presented in this report aims to build on the National Education and Training Roadmap 2020 (developed as part of the first phase of the initiative) and to develop a national education and training roadmap for the building sector for 2030 (and beyond). This is in line with European and national energy and climate targets in the building sector.

High quality and professional execution of zero emission buildings (as foreseen in the revision of the Energy Performance of Buildings Directive in 2024) requires that all actors in the construction value chain have the necessary skills. For this reason, the ReBUSk project looked not only at the skills required by craftspeople ("blue-collar" professionals), but also at the skills required by so-called "white-collar" professionals (such as architects, planners, engineers, building managers, et cetera).

The project was carried out by a consortium consisting of the Austrian Energy Agency (AEA), the University for Continuing Education Krems (UWK), the Energy Agency Styria GmbH (EASt), the Austrian Institute for Research on Vocational Training (öibf) and the Graz University of Technology (TU Graz). This report provides an overview of the objectives, methods and results of the project and concludes with an outlook on future developments.

# Starting point in Austria

The initial situation in Austria with regard to energy and greenhouse gas emissions in the building sector, energy policy and the legal framework is summarised in the following sections.

## Energy and greenhouse gas emissions in the building sector

The building sector in Austria, more specifically heating and hot water preparation in buildings (residential and commercial buildings), currently accounts for about 17% of Austria's greenhouse gas emissions in sectors outside the emissions trading scheme (Figure 1, right). In addition, heating, hot water and cooling in buildings accounts for about 27% of Austria's total final energy demand (mission#2030, 2018). Thanks to efforts to improve the energy efficiency of buildings, increase renovation activities and switch the energy supply from fossil fuels to renewables, emissions in the building sector are expected to fall by 36% in 2022 compared to 1990. However, households still account for 29% of final energy consumption in Austria (Figure 1, left). More than a third of them still use fossil fuels as their main heating fuel. The oil and gas heating systems are the most common.

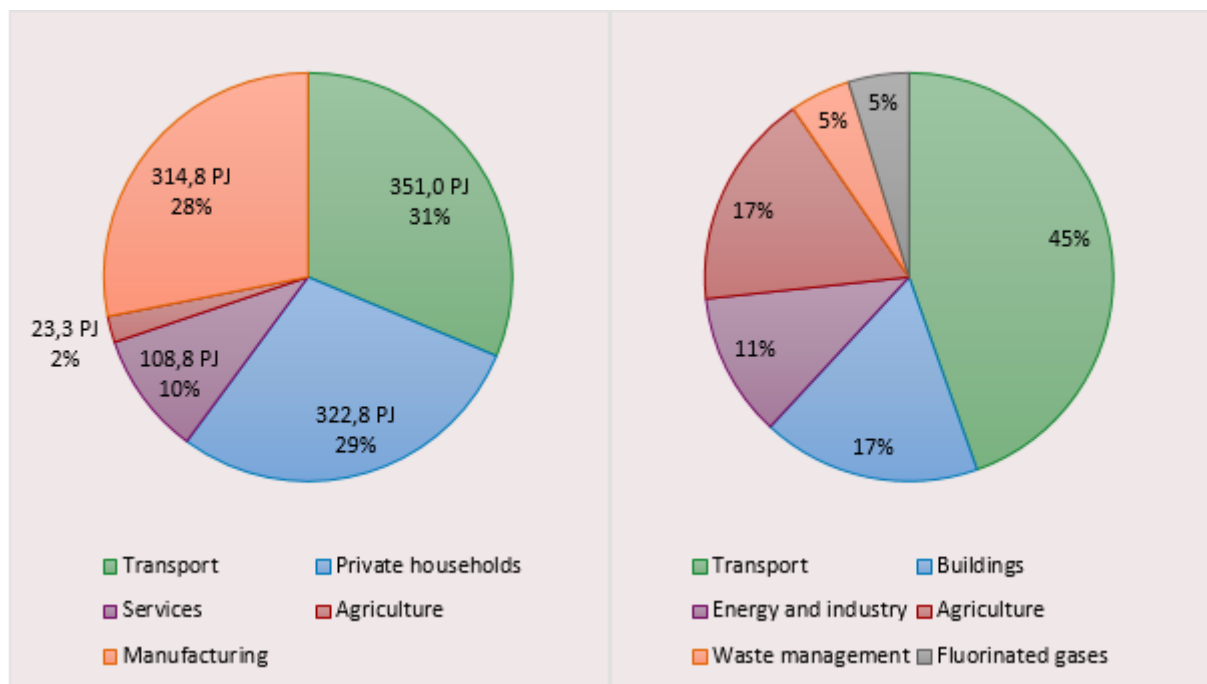


Figure 1: left: Energy final consumption in Austria in peta joule 2021 and share of the sectors; right: Share of sectors in Green Gas Emissions 2020 (without ETS).

Source: Own illustration based on data from Anderl et al (2022)

However, the increase in living space per capita, the growing demand for comfort and the associated increase in heating energy consumption are counteracting the successes achieved in other areas, such as the improvement of building envelopes and the use of



modern heating technology. This has led to a stabilisation in recent years, but not to the desired further reduction in emissions.

## Austria's energy and climate goals

Austria aims to achieve climate neutrality by 2040. A key objective of the Austrian government's climate policy is to reduce greenhouse gas emissions by a further 36% by 2030 compared to 2005, with the greatest potential for savings identified in the space heating sector alongside transport.

The legal framework is provided by the Austrian Climate Protection Act (KSG), which was adopted in 2011 and amended in 2017. The government's 2020-2024 programme envisages a revision of the CPA to define the path towards climate neutrality by 2040 and to implement the stricter EU targets at national level. A draft bill is currently being prepared (as of March 2024). The Austrian National Energy and Climate Plan (NECP), which is currently being revised, sees significant potential for CO<sub>2</sub> savings in the deep thermal renovation of existing buildings and the conversion of heating systems to renewable energy sources, as well as in avoiding the use of fossil fuels in new buildings. This should be increased in order to meet the targets.

This is to be achieved by increasing the renovation rate from less than 1% today to an average of 3% between 2020 and 2030 through a combination of funding programmes, changes to building regulations, such as the consistent implementation of the EU Buildings Directive in the area of building renovation, and changes to civil law. (mission#2030, 2018)

## Austrian legal framework for achieving the energy and climate targets

The Austrian legal framework for the reduction of greenhouse gas emissions and energy consumption in the building sector mainly covers aspects of building quality (new construction and renovation), heating and cooling strategy, and the use and generation of renewable energy, and is based on the requirements and directives of the European Union.

The European Climate Change Act (Regulation (EU) 2021/1119) sets out the requirements for the EU and its Member States to meet the two main objectives of the EU Green Deal: to achieve climate neutrality by 2050 and to reduce greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels (European Commission, 2019). The European Energy Performance of Buildings Directive 2010/31/EU (EPBD, as amended in 2018 and currently under revision) sets out the basic measures for achieving a highly energy-efficient and decarbonised building stock. In addition, the Energy Efficiency Directive (Directive (EU) 2023/1791 on energy efficiency, EED III) complements important aspects of the EPBD for the buildings sector. Finally, the European regularity framework for the development of renewable energy sources is set out in the Renewable Energy Directive 2009/28/EC (RED, the revised Directive EU/2023/2413 entered into force on 20 November 2023).

## Implementation of the Energy Performance of Buildings Directive (EPBD) in Austria

The current European Energy Performance of Buildings Directive 2010/31/EU (EPBD) defines, among other things, the requirements for Nearly Zero Energy Buildings (nZEB). In Austria, this Directive has been transposed into national law by the nine federal provinces (in Austria's federal structure, legislation in the area of building regulations is the responsibility of the federal provinces). In 2006, the Austrian Institute for Civil Engineering (OIB) was commissioned to lead the harmonisation process for the implementation of the EPBD with the federal provinces. For this purpose, the OIB Guidelines were introduced.

OIB Guideline 6, Energy Conservation and Thermal Insulation, was created to implement the EU Buildings Directive and was last updated in May 2023. This guideline defines, among other things, the format of the Energy Performance Certificate for Buildings (EPC) and the requirements for the thermal performance of the building envelope, hot water production and parts of the technical heating and cooling systems, as well as the minimum use of renewable energy.

Other federal and state laws implementing the EPBD include the Energy Performance Certificate Act (Energieausweis-Vorlage Gesetz, EAVG), the National Long-Term Renovation Strategy (LTRS), the Renewable Energies Heat Act (Erneuerbare-Wärme-Gesetz, EWG) and the Renewable Energies Expansion Act (Erneuerbare-Ausbau-Gesetz, EAG).

The current revision of the EU Buildings Directive will lead to new and stricter requirements for buildings by 2030. In particular, the current draft of the revised Directive requires all new buildings constructed from 2030 to be Zero Emission Buildings (ZEB). The revised EPBD, which is expected to come into force in 2024, is also expected to lead to stricter requirements for major renovations of existing buildings as a result of national implementation.

### Other instruments and initiatives in the building sector

In recent years, various measures in the form of federal and state subsidies have been taken to support the renovation campaign in Austria. These include the financing of the thermal refurbishment of residential buildings through housing subsidies (state subsidies) and the promotion of thermal refurbishment through a refurbishment incentive (federal subsidies), as well as the increase in financial subsidies for the replacement of a fossil heating system (oil, gas, coal/coke all-burners and electricity-operated night or direct storage heaters) with a new climate-friendly heating system in existing buildings (Renovation Campaign NEW 2024, BMK). (Sanierungsoffensive NEU 2024, 2024)

Many different climate protection initiatives in Austria support the transformation of the Austrian building stock. One of them for example is the building rating system "klima**aktiv** Bauen und Sanieren" (building standards for new building and renovation) of the Federal Ministry for Climate Protection (BMK). This initiative has been setting strict requirements for sustainable buildings since 2004. These requirements are stricter than the building regulations of the Austrian federal states. Incentive instruments have been adapted and increasingly linked to these requirements. For example, if a multi-family house is thermally renovated

according to the klimaaktiv criteria, the incentive is tripled. (Renovation bonus for multi-storey residential buildings 2023/2024, 2024)

The Austrian Action Plan for Sustainable Public Procurement (naBe Action Plan) contains criteria to be taken into account when tendering for public contracts. The application of these procurement guidelines, which came into force in 2021, is mandatory for federal contracting authorities. For the building sector, it was decided to harmonise the relevant naBe criteria with the must-have criteria (basic criteria) of the klimaaktiv building standard. Construction services awarded according to the naBe criteria for the new construction or renovation of public service buildings (office buildings, educational buildings, sports and event facilities as well as health care buildings and hospitals) thus result in a klimaaktiv bronze rating for the buildings in question. (naBe-Aktionsplan, 2021)

The following figure (Figure 2) shows the number of the buildings with klimaaktiv standards in gold, silver or bronze in Austria.

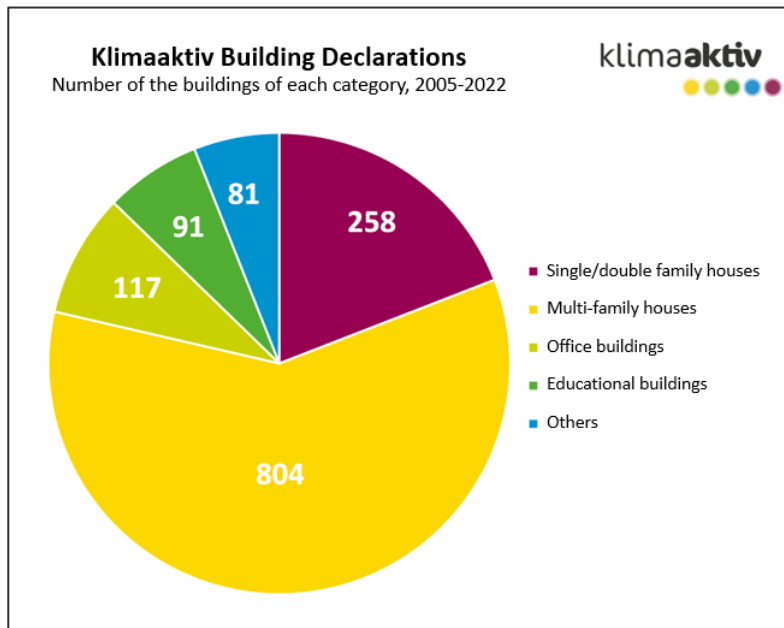


Figure 2: Number of klimaaktiv buildings in Austria 2005 to 2022;

Source: klimaaktiv Building Report 2022

# National implementation of the BUILD UP Skills Initiative

All of the above policies, measures, plans and requirements have contributed to a growing market for renewable energy systems (such as PV systems, heat pumps, et cetera) and to an increased demand for construction services in the field of thermal renovation. This has been accompanied by a growing need for suitably qualified professionals and tradespeople.

In addition, the implementation of the Energy Performance of Buildings Directive (EPBD) has led to increased requirements for the quality of buildings (e. g. the thermal building envelope, etc.) and the installed building services (e. g. heating systems, infrastructure for sustainable mobility, building automation, et cetera). The associated adaption of construction and installation services has led to a corresponding increase in the need for qualifications in the areas concerned.

Due to the increasing complexity of construction and installation services, the education and training of construction professionals is becoming more and more important in terms of imparting cross-trade knowledge and understanding.

Earlier BUILD UP Skills projects from previous phases of the BUILD UP Skills Initiative in Austria have contributed to the solution of the problem described here and are described in the following chapter.

## Results of previous BUILD UP Skills projects in Austria

The results of the national implementation of the first phase of the European BUILD UP Skills Initiative (BUILD UP Skills Austria project, running from 2011 to 2013) have shown that it is very important to improve cross-trade understanding on the building site with a focus on energy in the "total building system", to improve through appropriate training.

On the basis of this finding, it was recommended that a broadly coordinated modular qualification approach be developed in close cooperation with the business organisations. In order to improve the quality of construction, a new service "Construction Quality Assistant" was proposed. In addition, further qualification was recommended to ensure the implementation of inspections of heating, ventilation and air conditioning systems in accordance with the recommendations of the European Energy Performance of Buildings Directive (EPBD). A concept for the continuous training of teachers in vocational schools was also recommended.

In the follow-up project BUILD UP Skills CrossCraft (national implementation of the second phase of the BUILD UP Skills Initiative, running from 2013 to 2016), cross-sector training courses of varying length (from three hours to five days) were developed and piloted for different occupational groups. The aim was to test the market acceptance of such training. One of the key findings from these activities was that longer training courses were not well received

by tradespeople. On the other hand, the short on-site training courses (up to three hours) were well suited to the target group.

New training programmes for tradesmen have been developed as part of NEWCOM (running from 2017 to 2020), another follow-up project to develop urgently needed skills in the area of Nearly Zero Energy Buildings (NZEB). These have been designed as modular training courses so that they can be used both as stand-alone units and as a complement to existing courses, providing a high degree of flexibility. Specific training modules have been developed, tailored to the needs of partner countries for skilled workers, for example to teach high-quality flat roof and building sealing and water-proofing. It is important that the different trades work together as well as possible, that the building envelope is airtight and that the building services are installed correctly. On the other hand, the NEWCOM project has created the basis for the (European-wide) mutual recognition of qualifications (across Europe) by means of a database that allows the description and comparison of expert qualifications. Through this database, educational institutions can develop training courses on a mutually recognised basis, interested parties (professionals) can find these training courses online and, after passing an exam, can promote their newly gained skills in the market.

The BUSLeague project (running from 2020 to 2023) continued to build on the European and national projects mentioned above, and was also committed to the goal of developing skills and increasing the quality of construction work. In order to increase the number of and demand for qualified specialists professionals, the work in the project focused on the development of short (micro) training courses. The implementation of the European project was mainly carried out at national and regional level in order to take into account the specific situation of the partner countries. During the project period, three short (micro) training courses were developed and implemented in Austria to further train energy experts and consultants to support construction works in terms of energy efficiency and to support building owners in their demand for efficient buildings.

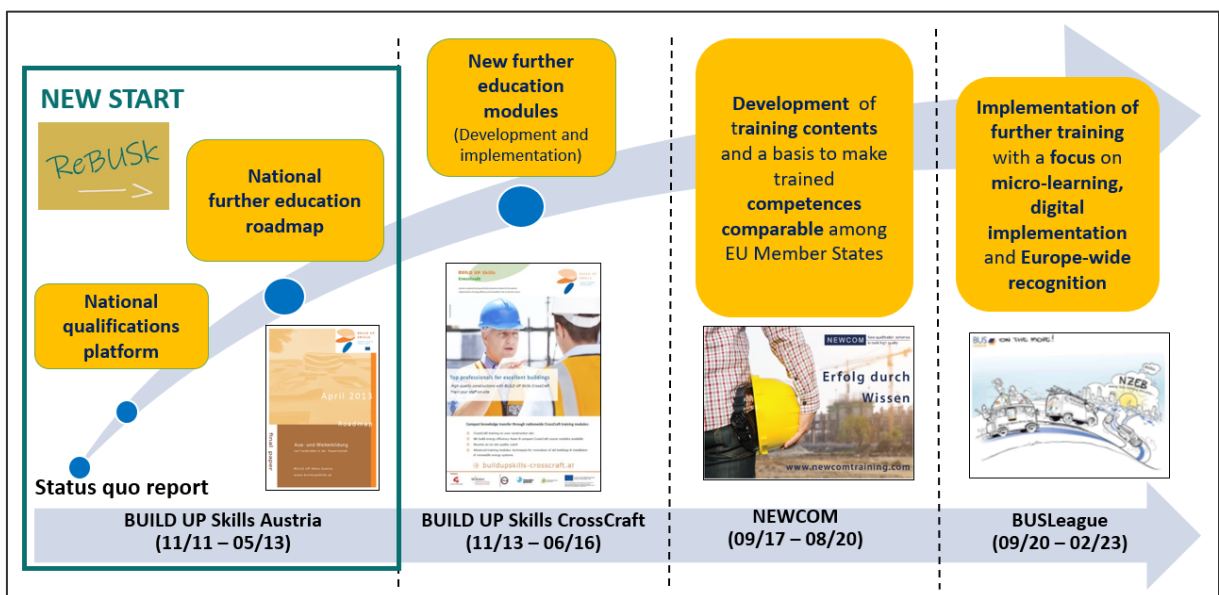


Figure 3: Phases of the BUILD UP Skills Initiative in Austria; Source: Austrian energy Agency

Source: Own illustration

## Aims of the ReBUSk project

Following on from the BUILD Up Skills initiative and successful national and Europe-wide projects carried out between 2013 and 2023, the ReBUSk project addresses the skills needed in the construction sector to ensure a low carbon future. In addition, this project extends the focus on education and training to all professions, particularly includes those involved in the planning and implementation of new buildings and renovations (so-called “white-collar professionals”). The aim is to develop a national education and training roadmap for the construction sector by 2030, in line with the European climate change targets by 2050 and the national climate change targets by 2040. This new education and training roadmap aims to ensure that all the necessary skills for the climate-neutral construction sector will be available in Austria by 2030.

In particular, the following specific objectives are linked to the implementation of the project:

- Analysing the current national status quo, specifying and quantifying the demand for skilled labour in the construction sector until 2030 (and beyond)
- Relaunch of the national skills platform, mobilising all relevant stakeholders
- Develop a national qualification plan to achieve the 2030 energy targets with a view to continuous lifelong learning leading to a well-educated and trained workforce in the buildings sector
- Support of the developed National Qualification Plan by the responsible and relevant authorities and stakeholders
- Active dissemination and communication of project results at national and European level

# The road to the Roadmap

Against the background described above, the work in the ReBUSk project began with the analysis and evaluation of those activities that were carried out in connection with the developed National Qualification Roadmap 2020 and the subsequent projects (BUILD UP Skills, CrossCraft, NEWCOM and BUSLeague).

The following figure illustrates the methodology for achieving the intermediate and final outcomes of the respective key phases, which was used in the development of the new Austrian roadmap for education and training up to 2030. The following chapters examine these methods in more detail and provide an overview of the main project results.

By involving as many relevant stakeholders as possible via a qualification platform, a detailed analysis of the status quo of the Austrian construction sector and a SWOT analysis based on this were carried out in order to identify strengths, weaknesses, opportunities and threats with regard to the qualification of Austrian skilled workers. The lessons learned formed the basis for the development of the new National Education and Training Roadmap 2030, which was finalised through further continuous stakeholder involvement as part of an endorsement process to achieve the broadest possible support from the relevant key actors.



Figure 4: Methodologies of the development of the Austrian education and further-education roadmap  
Source: Own illustration

## Qualification platform

In order to initiate a national strategy process, the National Qualifications Platform, which was created during the first phase of the BUILD UP Skills initiative (2011 to 2013), has been revived. The main objective of relaunching this platform is to bring together all the national stakeholders and key actors that are relevant for the issue. Through Letters of Intent (LOI) generated during the application phase of the project, PR activities, activation of communication channels, events and workshops, intensive exchange with the ReBUSk project consortium and mobilisation of stakeholders were achieved. Details on the stakeholder integration process within the ReBUSk project can be found in the chapter „Development of the roadmap.

## Internal project workshops and exchanges with project teams from EU Member States

During the project period, workshops were held with the project teams from other countries for mutual exchange and knowledge sharing, in particular to evaluate the effectiveness of the first implementation of the National Qualification Roadmap, and in relation to the design, completion and publication of the National Qualification Roadmap. In addition, the results of the various parallel national BUILD UP Skills implementation projects of the participating EU member states were presented by representatives of the project consortia and discussed in “exchange meetings”. Four of these meetings were organised by the European Climate, Infrastructure and Environment Executive Agency (CINEA) during the project period. A bilateral exchange meeting was also organised and held with the Hungarian BUILD UP Skills project consortium.

## Status Quo Analysis

As a basis for the development of the National Roadmap, a detailed analysis of the status quo of the Austrian education and training landscape was developed with a focus on the energy and climate targets of the national building sector as well as on building-related energy and greenhouse gas emissions, energy policy and the legal framework. Based on literature research and statistical analyses it provides information on the current energy policy situation and the applicable legal and policy framework. It also highlights the status of education and training in Austria and provides an assessment of the progress made so far in the previous national roadmap up to 2020. The focus was on identifying skills gaps and skills shortages in the construction sector (gap analysis). Barriers and opportunities that can influence the achievement of energy and climate goals were also analysed (SWOT analysis).

The aim of this was to identify the training and education needs in the construction sector until 2030 and thus provide the basis for the development of a national education and training roadmap to achieve the energy and climate targets in the building sector in Austria.

The study “BUILD UP Skills – Austria, Analysis of the National Status Quo” is available in English and German and can be downloaded free of charge in digital form from <https://rebusk.at/ergebnisse>

## Professionals in the Austrian construction industry

One particular aspect that was highlighted in the analysis of the status quo is the level of education and training of specialists in the Austrian building sector. More than 70 job profiles have been identified that are directly related to the design, construction or operation of buildings and are considered relevant to achieving energy and climate goals in the buildings sector.

The building sector is dominated by small companies (around half of the employees here work in companies with fewer than 50 employees). In 2022, around 305,000 employed people worked in the construction sector. Most of these are assigned to building construction,



electrical installation, gas, water, heating and ventilation and air conditioning installation, roofing and carpentry, road construction and painting and glazing (AMS, 2022).

In terms of educational qualifications, the apprenticeship qualification dominates in the construction industry, with 57% of employees holding this qualification. 16 % have a completed compulsory education. 14% and 8% of employees have respectively completed secondary education. 5% have a tertiary degree. Women are severely under-represented in the construction industry, with only 13% of employees being female.

## Skills and qualification needs

Another relevant result of the status quo analysis is the quantification of the demand for skilled workers and qualifications in Austria. In the construction industry, as in other sectors, there is currently a shortage of skilled workers in Austria. Occupational groups particularly affected include tradespeople in general, but also electronics and electrical engineering, and installation and building services. At the end of October 2022, 8,595 immediately available construction jobs were registered with the Public Employment Service Austria throughout Austria (AMS). Bottlenecks in the supply of skilled labour are seen in the design and installation of photovoltaic systems, for example. However, the existing shortage of skilled workers is expected to worsen massively, especially if the rate of renovation is increased to the extent required by energy policy.

Depending on developments in the new construction sector and other sectors of the building industry, there may be shifts in the economic activity of companies. Therefore, there is a particularly high demand for qualifications in this area, both in initial and continuing training at all NQF levels. However, the transfer skills to carry out major building renovations and decarbonise the energy supply in existing buildings is only partially embedded in most educational sectors.

Skills and competences related to increasing circularity and resource efficiency are also under-represented. Another important issue in achieving energy and climate targets in the building sector, is the provision of and participation in education and training for different target groups.

## SWOT Analysis

A SWOT analysis was carried out to identify strengths, weaknesses, opportunities and threats in relation to the status quo report on the building sector, which could help or hinder the achievement of the energy and climate targets. In addition, the results of workshops with experts, practitioners and stakeholders from the construction and property sectors, education and training, and labor market research were incorporated into the overall assessment. The main topics were initially identified in consortium workshops.

The project consortium first collected strengths and weaknesses (influencing factors within the system under consideration) and opportunities and risks (external influencing factors and developments in the environment of the system under consideration) of the building sector in a tabular template. In total, over two hundred entries were created. These were then

clustered and sorted thematically. This helped to identify key areas for potential barriers and opportunities.

Possible strategies were then developed for each of the areas identified, relating strengths and weaknesses to opportunities and risks. This process resulted in a total of 53 strategies, which were ranked in order of importance in an online stakeholder survey. On this basis, five specific fields of action for achieving the energy and climate goals were defined and concrete measures were developed from them (see the following chapter Development of the roadmap).

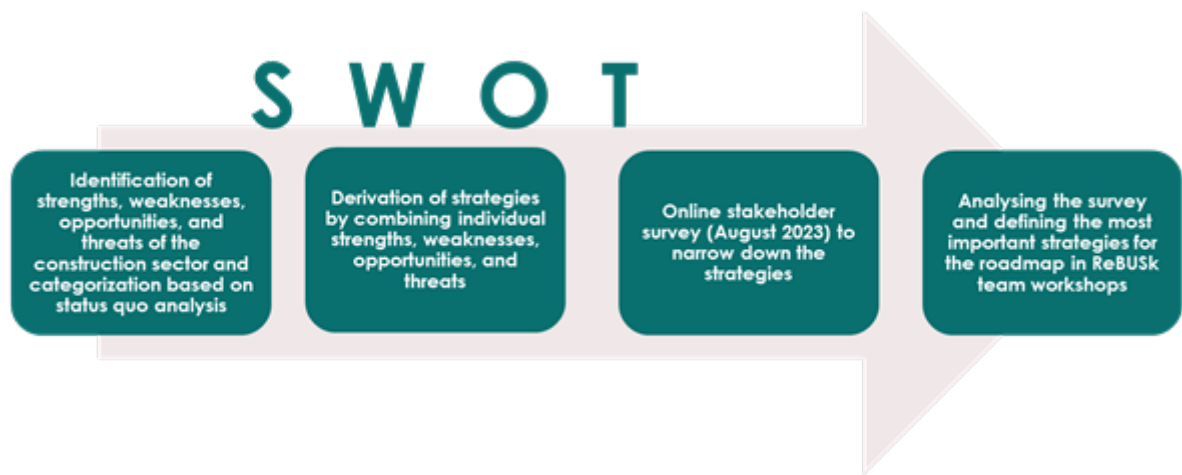


Figure 5: Working steps in the framework of the SWOT Analysis; Source: Own illustration

## Development of the roadmap

Optimal qualification of all workers and professionals working in the construction sector is crucial in order to increase the existing energy efficiency potential in the building sector and thus to achieve both European and national energy and climate targets. The successful implementation of the developed strategic measures in the coming years will not only strengthen Austria's economic performance and increase the employability of skilled workers and professionals, but also accelerate the qualification for the implementation of Zero-Emission Buildings (ZEB) for the sustainable renovation of the building stock.

The Education and Training Roadmap 2030 for Austria takes into account all related fields of activity in planning and execution as well as in operation and building management, as a holistic view of the entire value chain in construction is fundamental to effectively implement the energy transition, resource efficiency and circular economy in the building sector.

## Methodology of the development of the roadmap

As shown in the graphic below, the development process comprised five main steps, which included the derivation of measures and the development, revision and completion of the training and further education roadmap.

The development of a draft National Qualifications Plan was based primarily on the results of internal project workshops. In addition, the project consortium was supported by key actors,

such as relevant authorities and stakeholders, in the further development of the roadmap throughout the project. The expertise of relevant stakeholders has been used on several occasions. Integration took place through the communication of interim results, interviews and invitations to participate, offering participants the opportunity to comment on the draft National Education and Training Roadmap so that adjustments could be made if necessary. The subsequent project results were finally presented and discussed at the final event.

Quality assurance was ensured through two workshops using feedback loops to develop the identified measures and a revised version of the preliminary roadmap in collaboration with the identified key actors from various sectors, such as industry, research, science, NGOs and politics.

As described in the chapter "Stakeholder engagement and approval process", broad support for the measures developed was achieved by a large number of key actors in the national qualifications platform.

### Identified areas for action and derived actions

The new National Education and Training Roadmap 2030, which was developed as described in the following chapter in close coordination with relevant actors from the knowledge triangle - education, economy and politics - identifies five strategic areas of action (see following Figure 6):

1. Reach new audiences with educational offers
2. Embedding climate-related skills in education and training
3. Encourage participation in training
4. Improving the interface between design and implementation
5. Making apprenticeships and skilled trades more attractive



Figure 6: Strategical fields of action of the Austrian education and further-education roadmap

Source: Own illustration

These fields of action address existing gaps and barriers in Austrian education and training with regard to achieving energy and climate goals in the building sector, and identify measures to overcome them.

Concrete measures have been developed for each of these five fields of action, which should serve as a guideline for the further development education and training for the Austrian building sector. A detailed description of the specific objectives of the measures has been presented in detail in the Education and Training Roadmap. For each action, the possible options for action and the key actors for implementing the action were identified, as well as the timeframe for implementation and monitoring indicators to check the effectiveness of the action.

The report "BUILD UP Skills - National Roadmap 2030" is available in English and German and can be downloaded free of charge in digital form from <https://rebusk.at/ergebnisse>.

## Stakeholder engagement and approval process

The following chapters provide an overview of the communication strategy developed to involve relevant stakeholders and to actively disseminate and communicate the project results at national and European level, as well as the activities that were necessary for its implementation.

### Communication strategy to engage relevant stakeholders

The stakeholder endorsement process began with the analysis of the previous endorsement strategy of the National Education and Training Roadmap 2020, which was developed ten years ago (Fechner & Selinger, 2013). Strengths, weaknesses and opportunities for improvement were identified in the measures used to gain support for the roadmap and its aims. In addition, the endorsement process of the "Construction Blueprint" project was analysed in order to derive suitable principles and methods for the endorsement process of ReBUSk from the two projects studied.

Once the project consortium had a consolidated overview of all the relevant actors, a communication strategy was developed for coordinated outreach and a strategy for exploiting the results obtained as part of the planned communication activities. Based on these principles, the composition of the qualification platform was developed and endorsement documents were created and used in the process of stakeholder integration.

The process of stakeholder involvement (organisational representatives, experts, et cetera) in the construction sector was crucial both for the content development of the National Education and Training Roadmap and for gaining broad support for its further implementation. In order to bring together all national stakeholders relevant to the current project, the National Qualifications Platform was reactivated and maintained during the project period. The results of the activities of the qualification platform will be used to obtain information and feedback for the development of the main results of the project (analysis of the Austrian status quo and creation of a national qualification roadmap 2030).

Stakeholders were involved in content issues through a wide range of methods including interviews, workshops, conferences, et cetera to gather and process different expertise and feedback.

## Communication activities

The intensive interaction with the identified, relevant stakeholders through conferences, workshops, target-group specific interviews and surveys led to an optimal integration of stakeholders and other actors in the project implementation. In the course of the ReBUSk project, more than 85 interviews and surveys were conducted and more than 260 participants were reached in workshops and conferences. In total, more than 345 stakeholder interactions took place in the context of the reactivated national qualification platform.

The following sections describe the related activities in detail.

### 1. Kick-Off Event

The kick-off event on March 29, 2023 marked the official start of the qualification platform and gave all participants the opportunity to discuss the qualification needs in Austria until 2030 and the future of the construction sector. The focus of this event was to raise awareness among key stakeholders of the challenges ahead, to qualify construction professionals for major renovations and new nZEBs, and to provide digital skills to support the energy transition in existing buildings.

The event took place at the Vienna University of Technology and was entitled "From the status quo to a common strategy for climate-friendly skilled workers in the building sector". Members of educational institutions, chambers, guilds as well as political decision-makers, project developers and housing associations came together to discuss future scenarios and the qualification needs in Austria. More than 70 participants were counted.

The opening event of the National Qualification Platform featured keynote speeches on sustainability in the Austrian construction industry. An interactive workshop focused on transforming the construction sector and developing clear ideas and action plans (this workshop provided valuable content on analysing the status quo).



Figure 7: Project presentation at the national qualification platform kick-off event on 29 March 2023  
Source: AEA

Another workshop discussed the necessary qualifications and skills for “climate-fit” skilled workers (this workshop contributed to the analysis of future scenarios in the Austrian construction sector).

## 2. Stakeholder Workshop

An expert workshop entitled “From visions to actions: Development of concrete measures for the national training and further education roadmap in the building sector until 2030” was held in Graz on 17 October, 2023. The workshop, which was organised in cooperation with RENOWAVE (Innovation Laboratory for Climate Neutral Building and Neighbourhood Renovation in Austria), brought together representatives from education and research, non-profit organisations, business organisations, professional associations and experts from the building and architecture sectors. Measures were taken on the strategies identified as important in the online stakeholder survey: “Addressing new target groups with training offers”, “Encouraging participation in training”, “Improving the interface between planning and implementation” and “Making apprenticeship and the craft sector more attractive”.





Figure 8: Participants of the second stakeholder event in break-out sessions on 17 October 2023 in Graz

Source: TU Graz

The results obtained formed the basis of the consortium's development work in creating the preliminary National Education and Training Roadmap. Stakeholders were involved in the finalisation process through further bilateral discussions. It became clear that for many of the actions developed in the National Education and Training Roadmap specific initiatives already exist. These serve as important starting points for the implementation of the measures and are considered to be key reference points.

### 3. Final event

A final draft of the roadmap was presented at the final conference entitled “Climate-friendly building experts shape the future: A National Education and Training Roadmap for Austria – from vision to implementation” (4 March, 2024). In addition to the presentation of these and other project results, bilateral talks and discussions took place on the future implementation of the education and training roadmap. The conference also provided an opportunity for participants to further explain their support for the roadmap. In total, more than 65 national organisations have expressed their support in writing.



Figure 9: The final event of the project on 4 March 2024 in Vienna

Source: EAST



Figure 10: Participants of the final event of the project on 4. March 2024 in Vienna

Source: EAST



# Conclusion and outlook

The National Education and Training Roadmap developed as part of the “Reboot BUILD UP Skills Austria” (ReBUSk) project is an important milestone on the way to achieving the Austrian energy and climate goals in the building sector by 2030 and beyond. In close cooperation with relevant actors from the knowledge triangle - education, economy and politics - a comprehensive analysis of the Austrian status quo was carried out and the strengths, weaknesses, opportunities and threats were identified in relation to the presented status quo of the building sector. The resulting education and training roadmap, which was developed with the intensive involvement of relevant stakeholders, resulted in five strategic areas for action.

The identified areas for action not only address existing gaps and barriers in education and training, but also present concrete measures to overcome these barriers. These areas of action range from targeting new audiences with educational opportunities, integrating climate-related skills into education and training programmes, encouraging participation in training initiatives, and improving the interface between planning and implementation. They also aim to increase the attractiveness of apprenticeships and skilled trades. Ultimately, each measure in the identified fields of action should serve as a guideline for the further development of education and training and contribute to the creation of a future-oriented education landscape in the Austrian construction sector.

However, the sustainable success of the roadmap depends on committed implementation and continuous adaptation to the constantly evolving needs of the Austrian building sector. Continuous dialogue with all stakeholders and flexible adaptation to new challenges are therefore essential. Many declarations of support - more than 65 national organisations have expressed their support in writing. The development of the new Austrian education and training roadmap has been made possible by a large number of committed actors and is a highly advantageous starting point for the overall success of the European BUILD UP Skills Initiative in achieving national and European energy and climate goals.

This broad support from relevant stakeholders not only strengthens the legitimacy of the education and training roadmap developed, but also creates a tight network of actors who can pool their resources, professional knowledge and experience and contribute them to the implementation of education and training measures.

The successful implementation of the developed strategic measures in the coming years should not only strengthen Austria's economic performance and increase the employability of skilled workers and professionals, but also promote qualifications for the implementation of zero-emission buildings for the sustainable renovation of the existing building stock.

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## List of figures

Figure 1: left: Energy final consumption in Austria in peta joule 2021 and share of the sectors; right: Share of sectors in Green Gas Emissions 2020 (without ETS). .....	8
Figure 2: Number of klima <b>aktiv</b> buildings in Austria 2005 to 2022;.....	11
Figure 3: Phases of the BUILD UP Skills Initiative in Austria; Source: Austrian energy Agency .....	13
Figure 4: Methodologies of the development of the Austrian education and further-education roadmap .....	15
Figure 5: Working steps in the framework of the SWOT Analysis; Source: Own illustration .....	18
Figure 7: Strategical fields of action of the Austrian education and further-education roadmap .....	19
Figure 8: Project presentation at the national qualification platform kick-off event on 29 March 2023 .....	22
Figure 9: Participants of the second stakeholder event in break-out sessions on 17 October 2023 in Graz .....	23
Figure 10: The final event of the project on 4 March 2024 in Vienna .....	24
Figure 11: Participants of the final event of the project on 4. March 2024 in Vienna .....	24

## List of abbreviations

AEA	Austrian Energy Agency
AMS	Labour Market Service
BMK	Federal Ministry for Climate Protection, environment, Energy, Mobility, Innovation and Technology
EAG	Renewable Energies Expansion Act
EASt	Energy Agency Styria
EAVG	Energy Performance Certificate Act
EWG	Renewable Energies Heat Act
KSG	Austrian Climate Protection Act
LTRS	Long Term Renovation Strategy
öibf	Austrian Institute for Research on Vocational Training
naBe	Sustainable Public Procurement
NQF	National Qualification Framework
nZEB	Nearly-zero Energy Building
TU Graz	Technical University Graz
UWK	University for Continuing Education Krems
ZEB	Zero Emission Building

## About the Austrian Energy Agency

The Austrian Energy Agency provides answers for a climate-neutral future: the aim is to organise our lives and economic activities in such a way that they no longer have any impact on our climate. New technologies, efficiency and the use of natural resources such as sun, water, wind and forests are at the centre of the solutions. This will ensure that we and our children can live in an intact environment and preserve ecological diversity without being dependent on coal, oil, natural gas or nuclear power.

This is the missionzero of the Austrian Energy Agency.

More than 110 employees from a wide range of disciplines provide scientific advice to politicians, businesses, public authorities and international organisations. They support them in restructuring the energy system and implementing measures to tackle the climate crisis.

The Austrian Energy Agency also manages the klima**aktiv** climate protection initiative on behalf of the federal government.

The federal government, all federal states, major companies in the energy and transport sectors, interest groups and scientific organisations are members of this agency.

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