



ReferNet Deutschland

Green skills anticipation

Germany

ReferNet Deutschland
25.9.2023

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Introduction

In Germany, the concept of green skills tends to focus on overarching competences that are continuously being taken up in the dual VET occupations within the framework of the recently modernised standard vocational training position "Environmental protection and sustainability" and also around the efforts to embed sustainability in VET and are being strongly taken up by the economy, especially in industry, in the context of the transformation process. However, work and business process orientation, supply and value chains and occupation-specific competences also play an important role. Depending on the sector, there are different actors, different levels of concern and thus a different understanding of green skills requirements. Most green skills identification and anticipation projects in Germany build on the BIBB-IAB Qualification and Occupation Projections (QuBe). The macroeconomic forecast and simulation model used in the QuBe project can be used via alternative scenarios to analyse the consequences of ecological transformation and national responding strategies (e.g. national hydrogen strategy, climate adaptation, greenhouse gas neutrality or electromobility) on economic development, the labour market, as well as on sectors, occupations, qualifications and skills requirements. Some projects are developing new data-based and AI-supported analysis procedures that derives future qualification and competence requirements, e.g. from online job advertisements on the job exchange of the Federal Employment Agency (BA).

A. Green skills anticipation activities using QuBe projection

A.1 QuBe project - qualifications and occupations in the future

Long-term qualification and occupational field projection - Further development of model calculations up to 2050

The BIBB-IAB QuBe project, which is carried out in cooperation with the Gesellschaft für Wirtschaftliche Strukturforchung (GWS), use model calculations to show how the supply of and demand for qualifications and occupations can develop in the long term. With the QuBe project, an empirically based concept is pursued in the basic projection: Only behaviour that can be proven so far is projected into the future. Behavioural changes that were not detectable in the past are therefore not part of the baseline projection. Future shocks and/or trend breaks (e.g. Ukraine war) are analysed and considered in the form of alternative scenarios (see projects below, e.g. for the hydrogen value chain, for climate adaptation and for greenhouse gas neutrality). In order to continue this cooperative project and to remain meaningful in the future, the QINFORGE model network used for the project must always be kept up to date with the latest data. As part of the further development of the model, the topic of **ecological transformation and its consequences** will also be addressed.

Project websites: BIBB - [BIBB / QuBe - Qualifikation und Beruf in der Zukunft](https://www.bibb.de/QuBe) and IAB - <https://iab.de/projekt/?id=12470488>

Project duration: 01.01.2023 to 31.12.2026

Methods: [BIBB / Das QuBe-Projekt: Modelle, Module, Methoden](https://www.wbv.de/shop/Das-QuBe-Projekt-Modelle-Module-Methoden-173712?pk_campaign=SoMe&pk_kwd=173712)
https://www.wbv.de/shop/Das-QuBe-Projekt-Modelle-Module-Methoden-173712?pk_campaign=SoMe&pk_kwd=173712

Publication (German): article on the effects of the socio-ecological transformation on jobs - delimitations and reflections on the indicator "transformation focus jobs"
Wolter, M. I., Helmrich, R., Maier, T. & Zika, G. (2023): Auswirkungen der sozial-ökologischen Transformation auf Arbeitsplätze – Abgrenzungen und Überlegungen zu dem Indikator „Arbeitsplätze im Transformationsfokus“ (ATF). GWS-Kurzmitteilung, QuBe-Essay 1/2023, Osnabrück. [Auswirkungen der sozial-ökologischen Transformation auf Arbeitsplätze - GWS \(gws-os.com\)](https://www.gws-os.com/Auswirkungen-der-sozial-ökologischen-Transformation-auf-Arbeitsplaetze)

Presentation (German) on the ecological transformation and its impact on training demand and qualification: **Die ökologische Transformation und ihre Auswirkungen auf Ausbildungsnachfrage und Qualifizierung**. Tobias Maier, BIBB, Fachgespräch „Wissenschaft und Praxis im Dialog: Überbetriebliche Berufsbildungsstätten im Fokus von Megatrends“ Bonn, 20. September 2022 https://www.bibb.de/dokumente/pdf/Maier_Fachgespr%c3%a4ch_20220920_online.pdf

Presentation (German) on Green Economy - The impact of the ecological transformation on sectors, occupations, qualifications and professional requirements: **Green Economy – Die Wirkung der ökologischen Transformation auf Branchen, Berufe, Qualifikationen und berufliche Anforderungen**. Robert Helmrich, Ines Thobe, Marc Ingo Wolter, Gerd Zika. Beitrag zur Tagung der AGBFN Zum Konzept der Nachhaltigkeit in Arbeit, Beruf und Bildung, 27./28. April 2021 [PowerPoint-Präsentation \(agbfn.de\)](https://www.agbfn.de/PowerPoint-Präsentation)

Related reports:

This report estimates the effects of the Climate Protection Programme 2030, the Climate Protection Immediate Action Programme 2022 and the increase in federal funding for energy-efficient buildings of September 22, 2021 on the labour market and the economy for the period 2021 to 2025. [Die Auswirkungen der Klimaschutzmaßnahmen auf den Arbeitsmarkt und die Wirtschaft \(bmas.de\)](https://www.bmas.de/DE/Presse/Pressemitteilungen/2021/09/20210922_klimaschutzmaßnahmen.html)

Long-term projection of the demand for skilled workers in Germany (2021 – 2040) - “Progressive working world” scenario: [BMAS - Langfristprojektion des Fachkräftebedarfs in Deutschland, 2021 - 2040](https://www.bmas.de/DE/Presse/Pressemitteilungen/2021/09/20210922_klimaschutzmaßnahmen.html)

A.2 Labour demand and supply along the hydrogen value chain

In June 2020, the German government adopted the National Hydrogen Strategy (NWS). If hydrogen is produced using renewable energies, it is referred to as "green" hydrogen and classified as sustainable in the long term according to the NWS. The NWS aims to reduce CO₂ emissions in industry, transport and the energy sector on the basis of green hydrogen technologies and thus contribute to achieving the 2030 climate targets. At the same time, the competitiveness of the German economy and the development of new markets are to be promoted. The Coalition Agreement 2021 (KoaV) increased the production targets for domestic hydrogen production and also formulated the goal of developing Germany into a "lead market for hydrogen technologies" by 2030. With the development of a "hydrogen" value chain, the question arises as to what consequences this will have for the labour market of tomorrow. The aim of the project is to show at an early stage which professions, qualifications and competences are needed for the development of a "hydrogen" value chain. The aim is to map the changes for the national economy and the labour market that would result from the establishment of a hydrogen economy and hydrogen infrastructure.

What consequences does the development of a hydrogen value chain have for the labour market of tomorrow? What skilled workers will be needed for this? And can Germany meet this demand for skilled workers in quantitative and qualitative terms? A research project at BIBB funded by BMBF addresses these and other questions using scenario calculations.

The project builds on the BIBB-IAB Qualification and Occupation Projections (QuBe). The macroeconomic forecast and simulation model used in the QuBe project can be used to analyse the consequences of the National Hydrogen Strategy on economic development and the labour market. This illustrates which macroeconomic skilled labour requirements will result in the future from the implementation of the National Hydrogen Strategy.

Project duration: 01.10.2021 to 31.03.2025

Project websites: [BIBB /Arbeitskräftebedarf und Arbeitskräfteangebot entlang der Wertschöpfungskette „Wasserstoff“](#) and <https://iab.de/projekt/?id=11711579>

Publications:

Arbeitskräftebedarf und Arbeitskräfteangebot entlang der Wertschöpfungskette „Wasserstoff“: Abschlussbericht der ersten Projektphase. Schur, Alexander; Mönnig, Anke; Ronsiek, Linus; Schneemann, Christian; Schroer, Jan Philipp; Zenk, Johanna | 2023. BIBB Discussion Paper; 1 Online-Ressource (59 pages) [read more](#)

Exportpotenziale von Wasserstofftechnologien. Zenk, Johanna; Ronsiek, Linus; Schur, Alexander Christian; Hupp, Jonas; Schneemann, Christian; Mönnig, Anke; Schroer, Jan Philipp | Bonn; Bundesinstitut für Berufsbildung | 2023. BIBB Discussion Paper; 1 Online-Ressource (40 pages) [read more](#)

Erste Abschätzung möglicher Arbeitsmarkteffekte durch die Umsetzung der Nationalen Wasserstoffstrategie bis 2030. Zenk, Johanna; Mönnig, Anke; Ronsiek, Linus; Schneemann, Christian; Schur, Alexander Christian; Steeg, Stefanie | Bonn; Bundesinstitut für Berufsbildung | 2023. BIBB Discussion Paper; 1 Online-Ressource (55 pages) [read more](#)

A.3 H2PRO project on skills requirements along the hydrogen value chain

Applying an early skills detection approach, the research project H2PRO at BIBB examines how skills requirements in apprenticeship occupations are changing due to hydrogen technologies. By doing so, H2PRO fills a broad research gap, stresses the relevance of vocational education regarding hydrogen technologies and contributes to the further development of a demand-oriented training system. H2PRO is one of two research projects focusing on hydrogen at BIBB, funded by the Federal Ministry for Education and Research (BMBF).

Project duration: October 2021 – September 2024

Project goals:

- Identify relevant skilled occupations and further training strategies for the hydrogen economy
- Identify additionally emerging skills requirements and qualification needs due to hydrogen
- Check whether qualification needs are already covered by existing training regulations
- Derive recommendations for action for policy-makers and practitioners in vocational education and training

Methods: sectoral analysis, expert interviews, case studies, validation / recommendations for action

Research Field: Skills Requirements along the Hydrogen Value Chain

Responsibilities in skilled occupations along the hydrogen value chain are planning and developing, manufacturing and producing, operating and monitoring as well as repairing and maintenance of products, machines and processes. For each sector (green hydrogen production, transport, storage, chemical industry, steel industry, road & rail traffic/aviation/shipping, heat supply) H2PRO examines how work tasks and qualification requirements change due to the application of hydrogen technologies.

Project websites: [BIBB / Wasserstoff - Fachkräftebedarf - Berufsbildung](#) and [BIBB / Wasserstoff – ein Zukunftsthema der beruflichen Bildung im Kontext der Energiewende \(H2PRO\)](#)

Project factsheet (June 2022; English):

https://www.bibb.de/dokumente/pdf/bibb_H2Pro_fact_web_en.pdf

Factsheet on qualification needs in hydrogen production (December 2022; English):

[BIBB / Neues Factsheet beleuchtet Qualifikationsbedarfe im Kontext der Wasserstoffherzeugung](#)

[H2PRO factsheet hydrogen production \(bibb.de\)](#)

Publication on BIBB sector analysis for hydrogen production (BIBB Discussion Paper; December 2022; German). Interim conclusion: Existing training occupations largely cover the qualification requirements for skilled workers. In addition, safety-related qualifications are needed. Since hydrogen technologies have already been in use for many years existing regulations can be applied.

More information is available in the full version of the BIBB sector analysis 'Hydrogen Production' (German): https://www.bibb.de/dokumente/pdf/a24_zinke_sektoranalyse_wasserstoff_bdp.pdf

New sector analyses for chemicals, heat supply and transportation [BIBB / Neue Sektoranalysen für Chemie, Wärmeversorgung und Verkehr](#)

The sector analyses for the chemical and refinery industry, transport and heat supply each forecast different levels of qualification requirements. Initial results are available for four sectors:

- Hydrogen production, storage and transport [Sektoranalyse: Erzeugung, Speicherung und Transport von Wasserstoff](#)
- Hydrogen in the transport sector [Sektoranalyse: Wasserstoff im Verkehrssektor](#)
- Hydrogen for heat supply [Sektoranalyse: Wasserstoff für die Wärmeversorgung](#)
- Chemical and refinery industry [Sektoranalyse der Chemie- und Raffinerieindustrie](#)

A.4 Skills anticipated for climate adaptation

The Federal Climate Protection Act sets the goal of reducing greenhouse gas emissions in Germany to zero by 2050. The greenhouse gas-neutral economy requires considerable structural change, which affects the labour market and the requirements for vocational training in the various sectors. At the same time, adaptation measures are gaining in importance to counter the already unavoidable consequences of climate change. For their implementation, skilled workers are needed who have the relevant knowledge, skills and competences.

But which sectors or professions are particularly in focus in this regard? How does the implementation of climate adaptation measures affect occupations in the sector context? What role does structural change play by sector? **Which concrete knowledge as well as which skills and competences will be required (in the future) to ensure climate adaptation** in the best possible way? To what extent is climate adaptation knowledge already embedded in vocational training and higher education? What can be done to make progress in this area and to integrate the job-specific knowledge required for the implementation of adaptation measures into the education system? Which actors should be involved?

The research project "Analysis and use of climate services for capacity building, education and networking for climate change adaptation" addresses these and other questions. Education, knowledge transfer and capacity building on climate change impacts and adaptation are key foundations for building climate resilience in our society, environment and economy. Two dual VET occupations having an important impact on climate adaptation will be analysed: roofer and water supply specialist.

The project is part of the Research Plan 2021 of the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV), which is being implemented by the Federal Environment Agency (UBA). At the Federal Institute for Vocational Education and Training

(BIBB), interdepartmental cooperation is planned for the implementation of the project, bringing in expertise from the areas of qualification, vocational integration and employment (work area 1.2) as well as from the area of regulatory work (work area 2) and the area of vocational education and training for sustainable development (work area 4.2).

Project title: Analysis and use of climate services for capacity building, education and networking for climate change adaptation

Project duration: II/22 – IV/24

Methods: scenario calculations (alternatives to QuBe basis projection), OJA, expert interviews

Project websites: [BIBB / Sozial-ökologische Transformation](#); [BIBB / Klimawandelanpassung](#)

Factsheet: [Microsoft Word - 2209 Factsheet UBA Analyse und Einsatz von Klimadiensten \(bibb.de\)](#)

Presentation (German) on identifying climate adaptation competences and integrating them into vocational training: **Klimaanpassungskompetenzen identifizieren und in die berufliche Bildung integrieren**. Friederike Rausch-Berhie, Johanna Telieps, BIBB, Zukunftsforum Überbetriebliche Ausbildung, 27-28 June 2023, Berlin (pp16-40). [Zukunftsform Überbetriebliche Ausbildung Digital. Exzellent. Nachhaltig. \(bibb.de\)](#)

A.5 Skills anticipated for greenhouse gas emissions neutrality

The project teams at GWS, BIBB, IAB and iit focus on the survey of quantitative and qualitative employment effects on the path to greenhouse gas emissions neutrality, with special consideration of skilled labour and qualification needs. The aim of the research project is to identify and evaluate concrete qualification needs in the respective transformation fields, sectors and regions. The project not only looks at the quantitative conditions of the labour market today and tomorrow on the basis of historical data and projections, but also enters into dialogue with the experts and actors in order to explore possibilities for removing obstacles.

Project title: Work and qualification in the socio-ecological transformation: greenhouse gas neutrality

Project duration: I/2022 - IV/2024

Project website: <https://gws-os.com/de/wirtschaft-soziales/projekte/detail/arbeit-und-qualifizierung-in-der-sozial-oekologischen-transformation>

A.6 Qualifications for electromobility

The Electromobility Qualification Network (NQuE) analysed electromobility-related education and training in the vocational and academic sectors and conducted accompanying research on the education projects in the Electromobility Showcases. The results are intended to contribute to an assessment of the extent to which the educational landscape in Germany is prepared for the upcoming challenges posed by electromobility. The topic was examined along the process chain and in the relevant fields of action, as defined in the Competence Roadmap.

NQuE was divided into several work packages. First, the current academic and vocational eMob-related education and training in Germany were surveyed via an online questionnaire. The aim was to identify best practices using a system of criteria. These are documented in the databases and serve in particular to describe good educational practice. In a second step, educational needs in the context of electromobility were to be identified in topic-related workshops. The findings were used to derive recommendations for action in the area of training and qualification that can contribute to the further development of an innovative mobility concept in Germany. The transfer of the results took place within the framework of a final congress.

Project website: [NQuE / Startseite](#)

Project duration: IV/2013 - I/2017

B. Data- und AI-based analyses of future green skills requirements

B.1 Project Berufe-Kompetenz-Radar (RADAR)

The Occupation and Competence Radar is a data-based information portal. It processes and provides information on vocational education and training and labour market developments. It is a reliable knowledge base and has the goal to give orientation for actors from labour market and VET politics, research and companies, employees and apprentices. The project is located at BIBB and is funded by the Federal Ministry of Education and Research (BMBF).

Stakeholders are constantly faced with new challenges as the labour market is transformed by digital, socio-ecological and demographic changes. To be able to make scientifically legitimate decisions, reliable information is indispensable. This is where the Occupation and Competence Radar comes in, as it reflects the dynamic changes in VET and labour market developments and assists in information search and decision making. It makes use of available data sources and innovative data collection methods. Different topics are covered depending on the region, occupation and sector.

The Occupation and Competence Radar covers broad topics (e.g. further training, digitisation, green economy, labour shortage) and also offers combination options at sector and occupation level. It also increases the visibility of changes in competences, qualifications and work requirements. By linking retrospective (since 2000) and prospective data (until 2040), the Occupation and Competence Radar provides well-founded analyses of the evolution of occupations, competences, vocational education and training and labour markets.

The development of the Occupation and Competence Radar is divided into two phases: By the end of 2023, the data will be collected, processed, harmonised and documented in order to process the existing base and then continuously develop it further. Parallel to this and building on it, the online portal for users will be created, tested and put into trial operation by the end of 2024. At the end of 2025, the online portal will be put into continuous operation. From 2026 onwards and after successful evaluation, the database will be made available to the research community on a larger scale and will be continuously updated and expanded.

Project website: [BIBB / Berufe- und Kompetenzradar](#)

Project duration: IV-21 bis I-26

Meet the researchers: [BIBB / Meet the Researchers](#)

B.2 BMAS/IAB project Kompetenzkompass (Skills Compass)

The Federal Ministry of Labour and Social Affairs (BMAS) commissioned the Institute for Employment Research (IAB) with the research project "Skills Compass". It investigated the change in qualification and competence requirements in the sectors of mechanical engineering, information services and health and social services. Representatives of various companies and the social partners were also specifically involved. The result shows that the change in competence requirements is progressing rapidly and is strongly sector- and occupation-specific. The research project complements existing initiatives to survey future competence requirements and thus makes an important contribution to the implementation of the National CET Strategy. The "Skills Compass" underlines the importance of sound knowledge about changing skills requirements in order to enable employees and job seekers for the work of tomorrow. The project consists of two sub-projects.

Sub-project 1 sensitises companies and works councils to sector-specific developments. Future skills requirements are highly occupation- and job-specific. Consequently, it is important that companies integrate the effects of the digital and ecological transformation into their individual business and human resources strategies. The result of a first sub-project is three brochures that initially highlight digitisation-driven trends and future qualification and skills requirements for each sector and clearly explain the change in occupational and job profiles using concrete examples.

Sub-project 2 develops new AI-supported analysis procedure that derives future qualification and competence requirements from online job advertisements of the job exchange of the Federal Employment Agency (BA). The new procedure makes it possible to track changes in both technical and interdisciplinary competence requirements. In addition, competence requirements can be broken down by individual occupations, regions and requirement levels with a high degree of topicality and validity. The report on the results illustrates the potential of the procedure, which can also be applied to other sectors.

BMAS websites with more information on the project:

<https://www.bmas.de/DE/Service/Presse/Pressemitteilungen/2021/neue-erkenntnisse-zu-den-kompetenzen-der-zukunft.html>

Publications:

Machbarkeitsstudie Kompetenz-Kompass. Teilprojekt 2: **Beobachtung von Kompetenzanforderungen in Stellenangeboten (Extracting Skill Requirements from Job Ads – the 'Machbarkeitsstudie Kompetenz-Kompass')**

<https://www.bmas.de/DE/Service/Publikationen/Forschungsberichte/fb-553-machbarkeitsstudie-kompetenz-kompass.html>

Using vacancy data to study skills dynamics (Author's abstract; IAB-Doku):

Knowing what skills are required by employers when recruiting new workers is an important basis for the work of all labour market actors. The project “Machbarkeitsstudie Kompetenz-Kompass” has developed a methodology to identify recent hard and soft skill requirements in job ads published on the “BA-Jobbörse” employment website provided by the Federal Employment Agency (Germany). “We focus on three broad occupational sets with job contents that comprise economic activities such as mechanical engineering, information services, and human health and social work activities. Based on example analyses, we show that our methodology potentially allows us to identify the development of up-to-date skill requirements in job advertisements broken down to job titles, skill levels, and regions. We also developed a methodology for the completion of skill dictionaries with new skill categories and new search terms. Our methodology is also able to support the selection of specific skills according to their relevance in job ads for education providers and training institutions. We conclude this report with a short description of the most relevant measures to provide general access to the detailed results, access to the further analysis potential, and further improvement of our methodology.”

[EconPapers: Extracting Skill Requirements from Job Ads – the “Machbarkeitsstudie Kompetenz-Kompass” \(repec.org\)](https://repec.org/)

B.3 Job advertisements and ecological / digital transformation

For the labour market, it is to be expected that, on the one hand, skills and knowledge in the use of digital technologies will gain in importance. On the other hand, sustainability-related job content is also playing an increasingly important role. Therefore, it can be assumed that companies will adapt their requirements to competences related to digital technologies or climate and environmental protection when filling new positions. The project will test this assumption on the basis of job data

from the job exchange of the Federal Employment Agency. In the first step, the project will describe the extent to which companies demand these specific competences at all on a regional and occupational level. In the second step, the project will examine the developments more closely to see whether there is actually a spread of these specific competences, to what extent patterns are recognisable and how these developments can be explained in general.

Project title: Job advertisements in the light of the ecological and digital transformation - adjustment processes in occupational and regional labour demand

Project website: <https://iab.de/projekt/?id=10725990>

Project duration: 01.07.2020 - 30.06.2024

Aim / methods: The project will use text mining of online job advertisements and quantitative analyses based on them to show how occupational and regional labour demand is changing against the background of the digital and ecological transformation.

C. Sustainability and VET

C.1 Sustainability in VET: BBNE initiative

Vocational education and training are key to sustainable development. BIBB has a long-lasting tradition of promoting VETSD-pilot projects in order to embed sustainability in vocational education and training. Pilot projects are supported by BIBB in the field of extracurricular vocational education and training (practical pilot projects) and funded by the German Federal Ministry of Education and Research (BMBF). Practical pilot projects pursue the objective of transferring innovations and insights to the fields of practical application, research and politics.

In six pilot projects, domain-specific sustainability-oriented concepts for skills development in commercial professions, i.e. retail, wholesale and foreign trade, logistics services, were developed. A sustainable learning venue supports the development of sustainability-related skills among employees. To promote this, six projects for the creation and development of a sustainable venue of learning in dual vocational training at training companies, inter-company vocational training centres, vocational schools, and other educational institutions of dual vocational training were funded. The processes of producing, processing and consuming food have a substantial influence on the sustainable development of our society. Thus, six pilot projects for sustainable competence development in the food sector (food-craft and food-industry) were funded. The funding programme Vocational training for sustainable development in transfer for training personnel 2020-2022 aims to bring selected proven results and products of the previous BBNE pilot projects (2015-2019) from project to structure and thereby generate practical as well as scientific knowledge and insights about innovation transfer.

As result of the various pilot projects, a range of materials has been made available to support education and training practice: Besides general recommendations on education and training design this includes teaching and learning materials as well as tools for specific occupations. Some of the results are also available in English.

Project websites: [BIBB / Nachhaltigkeit](#) and [BIBB / Sustainability in VET](#)

Networks: [BIBB / Netzwerke und Vernetzung](#)

Publications:

Berufliche Handlungskompetenz für nachhaltige Entwicklung. Die Modellversuche in Lebensmittelhandwerk und -industrie / Ansmann, Moritz; Kastrup, Julia; Kuhlmeier, Werner (Hrsg.) Bonn 2023. [BIBB / Berufliche Handlungskompetenz für nachhaltige Entwicklung](#)

Lernprozesse in der Berufsausbildung nachhaltigkeitsorientiert gestalten. Ein Praxisleitfaden für Ausbilder/-innen lebensmittelproduzierender Berufe / Kähler, Anna-Franziska; Kastrup, Julia; Kuhlmeier, Werner; Nölle-Krug, Marie; Strotmann, Christian; Casper, Marc. Bonn 2023. [BIBB / Lernprozesse in der Berufsausbildung nachhaltigkeitsorientiert gestalten](#)

Handlungsorientierung in der Beruflichen Bildung - Potenziale für BNE: Positionspapier des BNE-Forums Berufliche Bildung, Beschluss vom 20. April 2023. [Handlungsorientierung in der Beruflichen Bildung - Potenziale für BNE - BNE-Portal Kampagne](#)

Berufsbildung für nachhaltige Entwicklung: was ist das und wie kann sie gelingen? / Melzig, Christian, 2022. - 1 Online-Ressource (8 Seiten) <https://www.ueberaus.de/wws/berufsbildung-fuer-nachhaltige-entwicklung.php>

C.2 Follow-up programme: Sustainable occupations - future-oriented training (NIB)

With the funding programme "Nachhaltig im Beruf - zukunftsorientiert ausbilden" (NIB), the Federal Ministry of Education and Research (BMBF) is strengthening sustainability-oriented VET in companies as well as external and inter-company vocational training centres. The programme is co-financed by ESF Plus. Sustainability is a compulsory component of future-oriented VET with the recently modernised standard vocational training position "Environmental protection and sustainability". NIB supports the implementation of this standard, so that the skilled workers of tomorrow already learn to act in an ecologically, socially and economically responsible manner today.

Project website: [BIBB / NIB - Nachhaltig im Beruf](#)

Project duration: 2023-25

D. BIBB qualification panel and sustainability

The establishment panel on qualification and competence development by the Federal Institute for Vocational Education and Training (short: BIBB qualification panel) is a representative annual survey among 3,500 companies in Germany. The focus is on studies of the structures, developments, framework conditions and interrelationships of in-company qualification activities. The survey was conducted for the first time in 2011 and is supported by the Federal Ministry of Education and Research (BMBF). The 13th survey wave of the BIBB Qualification Panel started in Spring 2023. **One of the focal points of this year's survey is the importance of sustainability:** In which areas of companies does the topic of sustainability play a role and how does this affect company practice?

The research project examines the need for qualifications and the qualification process in companies. This year, too, the core of the survey is made up of questions about in-company training and further education, the personnel structure and the recruitment and departure of employees. The aim is to monitor companies over many years in order to be able to map developments over time.

Project websites: [BIBB / BIBB-Betriebspanel zu Qualifizierung und Kompetenzentwicklung](#)

[BIBB Establishment Panel on Training and Competence Development. The longitudinal data set - Nomos eLibrary \(nomos-elibrary.de\)](#)

[BIBB / Start der 13. Erhebungswelle des BIBB-Betriebspanels zu Qualifizierung und Kompetenzentwicklung](#)

Selected presentations: [BIBB / Vorträge](#)

FAQ: [BIBB / Häufig gestellte Fragen](#)

E. Competence Centre for Skilled Labour (KOFA) and green skills

The Competence Centre for Skilled Labour (*Kompetenzzentrum Fachkräftesicherung*) KOFA is a project commissioned by the Federal Ministry of Economics and Climate Protection (BMWK). In a recent study (2023), KOFA analysed the connection between ecological sustainability and personnel policy measures. The results show that many companies already align their products, services and work processes with ecological sustainability. However, it is to be feared that the shortage of skilled workers is hampering ecological change: six out of ten companies see the general lack of personnel, lack of skilled workers and lack of knowledge as a challenge for more ecological sustainability. Another KOFA study in 2022 examines which professions are necessary for the expansion of solar and wind energy and how the skilled labour situation currently looks in these professions. The study identifies 190 occupations that are needed for the expansion of solar and wind energy. More than half of the occupations needed for the expansion are already tight on the labour market and are also urgently sought in other sectors. Overall, there is a shortage of 216,000 skilled workers in the relevant occupations. The largest gaps in skilled workers are in construction electricians, sanitary, heating and air conditioning technology, and information technology.

Project website: <https://www.kofa.de/daten-und-fakten/studien/oekologische-nachhaltigkeit/>

Publications:

Ökologische Nachhaltigkeit: Mit welchen Kompetenzbedarfen rechnen die Unternehmen? / Risius, Paula; Seyda, Susanne; Wendland, Finn; Monsef, Roschan. 2023. In: Studie / KOFA; 2/2023. 1 Online-Ressource (25 Seiten)

https://www.iwkoeln.de/fileadmin/user_upload/Studien/Kofa_kompakt/2023/KOFA_Studie_2-2023-Nachhaltigkeit.pdf

Energie aus Wind und Sonne: Welche Fachkräfte brauchen wir? / Koneberg, Filiz; Jansen, Anika; Kutz, Vico. 2022. In: Studie / KOFA; 3/2022. , 1 Online-Ressource (38 Seiten)

https://www.iwkoeln.de/fileadmin/user_upload/Studien/Kofa_kompakt/2022/KOFA_Studie_3-Solar-und-Windenergie.pdf

F. Other projects and links related to green skills anticipation

Surveys, FAQ on green skills and how sustainability is changing the occupations:

<https://www.arbeitswelt-portal.de/lebenslanges-lernen/artikel/wie-nachhaltigkeit-die-berufswelt-wandelt>

Green skills are becoming increasingly important in the workplace: In addition to a good basic technical education, (additional) green skills are often required in many sectors today - such as nature conservation, environmentally friendly building materials, recycling management, energy-saving technology or environmental regulations. A study by the Friedrich Ebert Foundation shows in which occupations labour demand will change particularly in the longer term. A joint analysis by the economic research company Prognos and ifeu (Institute for Energy and Environmental Research) provides indications of future shortages of skilled workers as well.

Regional surveys on ecological transformation and dual VET: <https://gruene-arbeitswelt.de/hintergrundwissen/wissenschaftliche-studien/>

Project „mach Grün“ Zukunft in Deiner Hand“: <https://machgruen.de/greening-der-berufe/>

With the project "mach Grün" Zukunft in Deiner Hand" (Make green - The future in your hands), young people were offered experimental spaces to explore the "greening of professions" in the years 2019

to 2022. In doing so, they were involved in the discourse on shaping the future world of work. Because the world of work is changing and climate protection must be considered in every profession today. This requires new knowledge and skills. At the same time, the change offers new fields of activity and business worldwide and concrete opportunities to help shape an ecological future.