Summary of proceedings

Concerted Action Joint Workshop on workforce shortages and upskilling for the clean energy transition

Madrid, 28-29 September 2023

Co-funded by the European Union

November 2023

Contents

1 Background

Meeting the 2030 targets for renewable energy and energy efficiency in the EU is dependent on the availability of qualified labour. However, as it stands there is a shortage of qualified workers in the renewable energy and energy efficiency sectors to make this happen. It is therefore essential to implement measures to address skills gaps and workforce shortages, make the sectors more attractive to work in and harmonise training requirements and skills across the EU. Cooperation between companies, public authorities, training providers and other stakeholders is essential in this endeavour.

On 28th and 29th September 2023, the three Concerted Actions for the Energy Performance of Buildings Directive (CA EPBD), Energy Efficiency Directive (CA EED) and Renewable Energy Sources Directives (CA RES) held a joint workshop in Madrid focusing on the common topic of workforce shortages and skills for the clean energy transition. The workshop was a contribution to the European Year of Skills 2023 and aimed to encourage cooperation and coordination between the institutions that implement the different Directives and to explore common challenges as well as opportunities.

The workshop brought together over 140 experts, policy makers and implementers from the EU Member States, mostly from the energy and climate sectors but also from the employment, skills and education sectors. This report provides a summary of the most important points and issues discussed.

2 Opening plenary session

The opening speeches from the Spanish Energy Agency (IDEA), the current holder of the EU presidency, the European Commission and the coordinators of the three Concerted Actions all expressed the importance of having a skilled workforce to enable the clean energy transition and the hope that the workshop would stimulate conversation and cooperation on the issue.

Joan Groizard, Director of the Institute for the Diversification and Saving of Energy (IDAE) gave the opening address and started by underlining that the clean energy transition is a key priority for the EU Presidency and the Spanish Government. While this transition is a major challenge, it also presents an opportunity to improve livelihoods and get people into employment. Millions of new jobs will need to be filled and training is crucial. We need more young people choosing this sector and embarking in the training, and there are also other age, gender, socio-economic and territorial gaps that need to be identified and addressed.

Anne Weidenbach, Member of the Cabinet of Ms Kadri Simson, the EU Commissioner for Energy, emphasised the commitment and support of the Commission through various initiatives and policies including a large-scale partnership for digitalisation[1], the Net Zero Industry Act[2], the Skills Academy

[1] large-scale partnership for digitalisation
[2] Net Zero Industry Act

for the European Bauhaus[3], the Heat Pump Action Plan[4] and the NECP (National Energy and Climate Plans) Framework.

Aneta Willems, Head of Department for Natural Resources, Climate, Sustainable Blue Economy and Clean Energy, CINEA, highlighted the importance of joining forces and integrating policy. Working closely with the Commission, CINEA is supporting the implementation of the European Green Deal, through managing seven relevant EU funding programmes (e.g. Life Clean Energy Transition, Horizon Europe Cluster 5, Innovation Fund, and Connecting Europe Facility for Energy) with a total budget of EUR 65bn. In particular, she emphasised the direct support to Member States from initiatives such as Build Up Skills, helping to map the skills gaps and develop national road maps. With 94 projects to date, there are plenty of tools and materials available already, and Member States should use, promote and scale these up at national level.

In a Mentimeter survey, conducted during the opening session, the majority of the participants answered that workforce shortages are recognised as an issue in their country and that either a policy or plans were in development to address the issue. Only very few participants responded that the issue was not recognised or that a policy had already been implemented to address the issue in their country. Asked if they had a sufficient national network of stakeholders on the issue, the majority felt there was a need for improvement in this area. With regard to data on workforce needs, most answered that they had some idea but needed more data.

[3] Skills Academy for the European Bauhaus
[4] Heat Pump Action Plan

Delegates at the opening session

3 Introduction session

The aim of the introduction session was to present EU policies and programmes driving the skills agenda for building decarbonisation as well as to present innovative approaches in upskilling the building workforce, funded by the BUILD UP Skills initiative, and discuss the possibility of scaling them up at a national level.

The lack of a skilled workforce has been identified as a major bottleneck to ensure the decarbonisation of the EU building stock. Yet, despite ongoing efforts at national and EU level, we are far from having achieved the upskilling interventions needed to address this challenge.

There are multiple reasons explaining this situation, including the ageing construction workforce, the lack of attractiveness of the sector, the fragmentation of the value chain, but above all the lack of time from companies to have their staff enrolled in training programmes. An added challenge is that professionals are too often trained "in silos", while a cross-crafts perspective is necessary to achieve truly energy efficient renovations. In a rapidly changing environment, a new and broader skills set is required from building professionals, covering not only traditional renovation skills but also e.g. digitalisation, indoor environment, comfort, or life-cycle approaches.

In October 2020 the European Commission adopted the Renovation Wave[5] with the objective to at least double the annual energy renovation rate of residential and non-residential buildings by 2030 and to foster deep energy renovations. At that time, the Commission also estimated that 3 to 4 million construction workers in Europe would need to develop their energy efficiency related skills.

The Commission has clearly committed to boosting workers' skills in the renovation sector inter alia by working with Member States and industry through the Skills Agenda[6], the Pact for Skills[7] and the Blueprint for sectoral cooperation on skills[8]. Funding is also available in the forms of grants for programmes through the Erasmus+ and the LIFE Clean Energy Transition programmes (in particular, the BUILD UP Skills initiative).

After an introduction by the European Commission, DG Energy, two presentations were made; the first highlighting the work by the European Centre for the Development of Vocational Training (CEDEFOP) to understand and address labour and skills needs, and the second presenting the work of the European Construction Blueprint under Erasmus+, addressing cross sectorial skills needs in construction.

The Build Up Skills initiative[9] has been supporting the development and testing of innovative approaches to increase skills for the green energy transition since 2011 and has a significant toolbox of resources, case studies and tools. Several examples from national and EU-funded projects (Horizon 202 and LIFE CET) were provided. The first showed how training can be delivered directly at the

[5] COM/2020/662 final, The Renovation Wave

[6] Skills Agenda

[7] Pact for Skills

[8] Construction Blueprint

[9] Build Up Skills initiative

renovation site, the second how digital tools can be to promote upskilling, and the third how to leverage the necessary skills for integrated home renovation services.

4 Parallel sessions

The workshop sessions were organised in two parallel streams. The first stream of sessions focused on Member State policy approaches and support programmes, while the second stream covered more diverse topics such as energy performance contracting, cross border recognition of workforce groups and skills and training demands for heat pumps. This section provides the key highlights and learnings from each of the parallel sessions.

4.1 Session 1 – Member States policy approaches and support programmes – Forecasting and needs assessment

In order to be able to respond to market needs, monitoring, understanding and insight into the evolution of our workforce is needed. Gathering and analysing this information helps Europe on its way to develop and quantify the green economy and bring to the foreground the labour market needs, where recruitment, mobility, training and skill development is needed.

Identification of the skills and the training needed to meet the requirements of both employers and the workforce are essential in order to be able to grow a well-founded and strong workforce enabling the clean energy transition.

The aim of this session was on the one hand to exchange information on Member States approaches and projects providing insight into the workforce needs in the move towards the clean energy transition and on the other facilitating discussion between participants on areas of particular concern.

During the session three ways of looking at identifying key occupations and competences in the field of energy efficiency were presented.

All three presentations in this session presented efforts to develop an initial mapping of the workforce needs in their country, especially with regards to the competencies that will be necessary to address the clean energy transition in the short term.

Common between all three cases was that work in energy-related fields is becoming more complex and interconnected, while the current workforce is older and influx from young, well-prepared graduates is low. Crucially, these studies also indicate that there will be an increasing need for competencies that are new to these fields, namely skills that enable a more interdisciplinary workforce.

Workers will need to be able to better understand and communicate where their field overlaps with others, as many areas in the energy transition are becoming strongly interconnected. In order to develop educational programs that better match these changing needs, a more adaptive, responsive approach could be beneficial.

A system where skill and competency needs in the workforce are continuously monitored and fed into the educational system, could potentially produce graduates that are better prepared to address coming challenges.

4.2 Session 2 – Building public body competence for Energy Performance Contracting

Building renovation is a key priority in the European Green Deal addressing energy efficiency in the sector as well as objectives such as tackling energy poverty and creating green jobs. One of the instruments that can accelerate building renovation is Energy Performance Contracting (EnPC). In an EnPC project, the beneficiary of the energy service avoids investment costs by using part of the financial value of energy savings to repay the investment fully or partially carried out by a third party. That can help attract private capital, vital for increasing building renovation rates in the EU, bringing expertise into the market and creating innovative business models.

However, EnPCs in the public sector have proved to be difficult to implement for a variety of reasons. The main objective of session was therefore to discuss methods to promote the use of EnPC in the public sector. The discussions focused on the practical actions that Member States must undertake to fulfil their current and future EnPC obligations.

A common theme was the need for EnPC Facilitators to play a key role in developing the EnPC idea, motivating the client organisation and the ESCO, bringing them together and then staying with the process until at least the first few years of operation have elapsed so that confidence can be built that projected savings will be achieved.

In each presentation there were different examples of successes and challenges in relation to incentivising the parties and securing funding. Labour shortages play a role but the main focus in this regard was the need for training for public sector employees to assist them in seeing the benefits of EnPCs and also to find ways to train more EnPC Facilitators or people to work in EnPC Facilitation Teams.

4.3 Session 3 - Member States policy approaches and support programmes – Framework programmes

Workforce shortages and the need for upskilling is not unique to the clean energy transition and as such is likely to be dealt with as part of a larger entity. This is reflected in the approach at European level with the Skills Pact, REPowerEU amongst others. The challenges facing the workforce needed to support and facilitate the green economy is enormous given that the green economy grows and outperforms the overall economic growth and has been doing so for some time. As such tackling the demand for labour and upskilling is multi-facetted and multi sectoral.

The aim of this session was primarily to exchange information on how Member States are approaching the challenge of incorporating the clean energy transition into workforce policy programmes. How can workforce development and upskilling for the clean energy transition be put on the agenda and made part of an overall workforce policy approach?

The session provided insight into how two Member States have developed their approach into making energy efficiency and renewable energy workforce challenges and opportunities part of the larger workforce agenda.

Both studies underlined the proactive role that energy/climate departments and agencies can adopt to place workforce shortages in the energy transition on the political agenda. By conducting needs assessments, these parties can send a signal if a Member State's current climate agenda cannot be realistically implemented in the short term.

From this signalling role then comes the broader question of where the responsibility lies to address this workforce challenge. In many cases, no single responsible entity will likely be found that can adequately put measures into place and keep overview of the field. Instead, broad stakeholder participation, within government and between government and parties in the field is necessary to coordinate efforts, especially in view of the short time lines for climate targets.

4.4 Session 4 – Cross border mutual recognition of workforce groups

The revised Energy Efficiency Directive (EED) requires more enterprises to become certified in energy management systems and to undertake energy audits. The requirements for skilled energy specialists in these areas is expected to increase significantly.

The objective of this session was to explore the resource capacity needed in the future to meet the requirements of EED Article 11 related to energy audits and energy management systems. Specifically, to look at the need, potential and interest in the mutual recognition of relevant qualifications, accreditation and certification schemes across Member States. This includes mutual recognition of relevant standards, templates and systems to help undertake effective energy audits and Energy Management System certifications.

The discussion on mutual recognition of workforce groups was focused on Energy Audits and Energy Management Systems within the context of EED Article 11, which has set a level of 10TJ per year of energy consumption as the threshold above which an organisation must conduct an energy audit.

This is expected to lead to a six to tenfold increase in the number of organisations across the EU that will need to carry out mandatory energy audits. A cross-country survey was conducted which emphasised the importance of high quality audits and standardisation of minimum qualifications.

There is some transferability of energy auditing services across Member States in the context of large multinational companies whereas for smaller companies there is resistance to the application of the same level of auditing services. Also, differences in the requirements of Member States mean that there is a lot of work to do on mutual recognition and there is also the question of whether Member States actually want or need mutual recognition for this particular workforce.

4.5 Session 5 - Member States policy approaches and support programmes – Workforce development

Energy efficient solutions can require significant new skills, for example when new products are launched that combine existing capabilities with new requirements. This is particularly evident in connection with building automation and control systems or with complex products such as heat pumps or solar systems. As countries seek rapid increases in energy efficiency, the lack of some types of workers may create bottlenecks.

The aim of this session was to share lessons from successful initiatives and identify areas where support is needed for Member States to address workforce development effectively.

Three Member State initiatives were presented. One involved a comprehensive multi-tiered approach, stressing the importance of understanding and considering the problem of workforce development from many angles. Workforce needs must be continuously analysed (skills and heads), monitored and addressed, the mind-set of the professionals and would-be-professionals must be right and frameworks and technologies must be optimised and simplified to make upskilling easier.

The second initiative emphasised the need for patience and cooperation between public and private parties. The initiative highlighted the importance of strong involvement of employers and improving the societal recognition of the workforce in order to solve the issues of workforce shortage.

The final initiative used existing structures to create a long-term skills programme with a low entrance barrier as well as to green existing jobs together with the stakeholders. Here the point was that the long-term perspective is very important and selecting focus areas can add quality.

The session also highlighted the need to recognise skills properly and the need for a cultural change to see crafts as important roles. Finally, it was discussed that when developing a technical regulation, it should also be considered how it impacts training and qualifications.

4.6 Session 6 – Heat pumps – Member State approaches to installation, deployment and financing mechanisms

Heat pumps are an energy-efficient alternative for space heating and cooling as well as domestic hot water in buildings. However, significant challenges exist in scaling up the use of heat pumps. One of the main obstacles is the lack of a qualified workforce (designers, planners and installers). Other barriers are low consumer awareness, the perceived complexity of the systems, technical barriers, such as physical space for setting up the new equipment, and high upfront costs of installation.

Heat pump policy packages are needed to drive heat pump deployment at the levels required by REPowerEU. This session examined the approaches taken by three Member States to facilitate uptake of heat pumps by providing financial assistance, increasing consumer confidence and training installers.

Each of the approaches involved funding for the installation of heat pumps, but the funding took different forms. In one example, two strands of funding was made available for dwellings, one at up to 50% funding and the second providing 100% funding for low-income houses. In another example, funding was available through a tiered system with up to € 21k available for an individual dwelling.

Great emphasis was placed on certifying heat pump installers. One speaker also highlighted a project where in addition to facilitating the supply chain, a big focus was placed on the end user to help them appreciate what they should expect from their heat pump providers.

Common to them all was the need to increase the number of heat pump installations rapidly. It was emphasised that heat pump systems need to be more carefully designed and installed to ensure optimum performance and it is not feasible to do this in an emergency situation such as when a boiler breaks down. Other issues such as obtaining grid connections and noise limits need to be tackled to make the process easier for installers.

4.7 Session 7 - Member States policy approaches and support programmes – Training and education

Some specific green skills programmes require training of a large amount of workers or engineers and architects. For example energy performance contracting, installation of heat pumps or solar systems, building automation and control systems. As many are often employed in small or medium size companies, it can be a challenge to train and re-educate workers and experts due to the cost and time investment required.

When new initiatives are launched, it is important that training and education needs are included in the planning and sufficient time is allocated to it. Lack of training can lead to less efficient solutions or other issues, potentially reducing their impact or even creating a negative view of the new solutions or products.

At national level, countries are looking to promote green skills and develop programmes that address these challenges, especially in the construction sector. The aim of session 7 was to look at the lessons of three such programmes.

The first programme was specifically designed to identify and analyse new sources of employment, skills and competencies required for the ecological transition. The discussion centred on the importance of different forms of training, including both formal and informal training and the need for vocational training in particular. Wider dissemination of the training and new methodologies were also considered important.

The second programme highlighted the importance of social energy advice as a new concept to complement traditional energy advice. Low income households are not addressed in the traditional training and this approach, combing social work and energy advice, empowers disadvantaged groups with regard to energy use and energy bills.

The third and final presentation was specifically focused on the hidden knowledge gap in academic education on energy efficiency. Efficiency should be taught at the academic level for several reasons. Firstly, energy efficiency plays a significant role in mitigating climate change by reducing energy consumption and the associated carbon footprint. Secondly, teaching energy efficiency at the academic level can help create a more sustainable future by promoting responsible energy use and conservation. It can empower students to make informed decisions regarding energy consumption in their personal and professional lives. Lastly, energy efficiency education can also contribute to economic benefits by reducing energy costs for individuals, businesses, and governments.

4.8 Session 8 – Heat pumps – Action plans and training programmes

The lack of skilled installers is hampering a faster uptake of heat pumps. Developing the installer base is essential to increase the deployment of energy-efficient, renewable-based heat pumps and reduce dependence on fossil fuel heat. Session 8 examined the training needs and training programmes for heat pumps in different countries as well as accompanying measures and joint activities with installers and manufacturers.

One of the issues discussed in the session was that installation companies are already busy and may not be motivated to work with heat pumps or find it a challenge to release staff for training. To address worker shortages and ensure high quality installations, one presenter explained how they had developed a heat pump training course which is freely available online and following completion of a test, leads to a Heat Pump Licence. Companies are financially supported by Government when their employees take the time to complete the course.

Another important issue raised was the need to focus on helping the end user perceive greater value in heat pump systems and that installer training should therefore focus both on the soft as well as the technical aspects.

Installers are a vital part of the heat pump value chain and represent an important ally for policymakers in achieving the clean energy transition. From ensuring that end users select the correct system through proper installation, handover and after sales monitoring, installers are best placed to ensure that heat pumps deliver fully on their climate action potential. To this end, according to one presenter, you need a carrot approach for example a bonus scheme that incentivises installers for verifiably well performing heat pump systems.

The Hybrid HP action plan of the Netherlands was presented. With 90% of households fitted with gas boilers, national gas fields depleting and driven also by policy, decarbonisation of heating is planned in a phased way. Rather than time consuming and costly deep retrofit, individual solutions are provided for buildings keeping in mind possible future connection to District Heating systems or if the house will end up in the long term as a heat pump house. The scheme is on track to achieve 125,000 installations by 2024. Impact on the electricity grid if of utmost importance as is monitoring of performance to ensure that savings are delivered. A new initiative TNI500 is driven by installation companies focused on improving business processes for heat pump installation companies.

Cooperation between governments, heat pump manufacturers and distributors and technical vocational education and training (TVET) institutions is necessary to make sure that the trainees acquire skills that are needed in the market and increase their employability. A sufficient number of well-trained educators is also essential to ensuring the quality of training for heat pump installers. 'Train the trainer' courses should also make sure that training is standardised across the industry. A network of skilled, certified installers across countries would also be useful to exchange experience and best practices.

5 Closing plenary session

The closing plenary session included concluding remarks from Miriam Bueno, Deputy Director General for Energy Foresight, Strategy and Regulation - Ministry for Ecological Transition and the Demographic Challenge, and Aneta Willems, Head of Department for Natural Resources, Climate, Sustainable Blue Economy and Clean Energy, CINEA. The three Concerted Action Coordinators also shared their highlights from the two days.

It was felt that the workshop had succeeded in bringing people together from different ministries and Members States and had encouraged communication and collaboration across the three Concerted Actions. This is important as the topic calls for a holistic approach and a coordinated effort by people

responsible for employment, education, social, energy, and climate policy. It was also encouraging to hear all the good things happening already that can be leveraged further by Member States. Finally, it was considered important to continue the discussions on skills and workforce for the clean energy transition, with a particular focus on promoting a gender-balanced approach.

6 Presentations

At the workshop, the speakers provided valuable insights and compelling solutions to address skills and workforce shortages in the clean energy and energy efficiency sectors. You can find many of their presentations on the CA EED, CA EPBD and CA RES websites – see the links below.

Introduction session: European policies and programmes & Skills for a holistic approach to the building renovation process

- Session lead presentation - Amandine De Coster-Lacourt, CINEA
- Skills in transition: the importance of skills intelligence – Stelina Chatzichristou, CEDEFOP
- The European Construction Blueprint under Erasmus+ - Javier Gonzalez, Fundación Laboral de la Construcción
- The FIT onsite training programme – Henri Le Marois, Alliance Ville Emplois (AVE)
- The BUILD UP Skills Advisor App - Jan Cromwijk, Dutch Knowledge Centre for the building and building services sector (ISSO)
- The HousEEnvest project - Daniel Encinas, Consorcio Agencia Extremeña de la Energía

Session 1: Member States policy approaches and support programmes - forecasting and needs assessment

- Key occupations and key competences in energy efficiency - BAFA, Germany
- Educational and qualification needs - Paweł Gilewski, The Polish National Energy Conservation Agency (KAPE) & Warsaw University of Technology
- Competence supply for electrification in Sweden, Marie Claesson, The Swedish Energy Agency
- Report: Summary of mapping and analysis of skills needs for electrification, Marie Claesson, The Swedish Energy Agency

Session 2: Building public body competence for Energy Performance Contracting

- EnPC in Ireland – Success, Challenges and Solutions - Joe Hayden, Codema, Dublin's Energy Agency
- Polish model of comprehensive support for public entities in the process of preparing, concluding and monitoring EPC contract - Marek Tobiacelli, KAPE/The Polish National Energy Conservation Agency
- Approaches to address the hesitance of municipal staff to engage in EnPC - Eva Athanasakou, EUDITI Energy and Environmental Design
- Energy Performance Contracting for Public Building Renovation: experience from Latvia - Marika Rošā, Riga Technical University

Session 3: Member States policy approaches and support programmes - incorporating the clean energy transition into workforce policy programmes

- Workforce to achieve climate and energy targets – Jan Kottman, Federal Energy Efficiency Center (BfEE), Germany
- Capacity and skills needed for the Renovation Strategy in Flanders – Sara Ochelen, Vlaams Energie- & Klimaatagentschap

Session 4: Cross border mutual recognition of workforce groups

- Energy Auditor Mutual Recognition Survey Results - Conor Molloy, Authentic Energy Management Services

Session 5: Member States policy approaches and support programmes - workforce development

- Germany's overarching approach towards workforce development – Tina Flegel, BMWK
- Actionplan Green and Digital Jobs - Houssam Boutaïbi, Ministerie van Economische Zaken en Klimaat, Netherlands
- Klimaaktiv - the Austrian Climate Protection Initiative – Barbara Alexander-Bittner, Austrian Energy Agency

Session 6: Heat pumps – Member State approaches to installation, deployment and financing mechanisms

- Session lead presentation - Leonardo Barreto & Eva Janechova, CA RES
- A regional heat pump market example Upper Austria – Christiane Egger, OÖ Energiesparverband
- Training of HP installers and „Green for Households" support scheme for small-scale RES in Slovakia - Jan Magyar, Slovak Innovation and Energy Agency
- Qualification initiative and support – Tina Flegel, BMWK

Session 7: Member States policy approaches and support programmes - training and education

- Session lead presentation - Rui Fragoso, CA EPBD
- Training for green transition: The Empleaverde Programme - Elena Pita, Biodiversity Foundation
- Social Energy Advice - a new concept to complement traditional energy advice – Anna Breuer, Austrian Energy Agency
- Hidden Knowledge Gap in Academic Education on Energy Efficiency - Tadeusz Skoczkowski KAPE, Warsaw University of Technology

Session 8: Heat pumps - action plans and training programmes

- Session lead presentation - Leonardo Barreto & Eva Janechova, CA RES
- Initiatives and challenges on green skills for heat pumps in Spain – Marta San Román, AFEC (Spanish Association of HVAC Equipment Manufacturers)
- Dutch hybrid heat pump action plan - Randall Hanegraaf, Dutch Enterprise Agency
- Heat pump ramp up in Germany – how to counter shortage of skilled workers – Katja Weinhold, German Heat Pump Association
- "Skills for heat-pumps – getting the carrots right! – Oliver Jung, GCP Europe

Disclaimer:

The Joint Workshop on workforce shortages and upskilling for the clean energy transition is an initiative of the three Concerted Actions with the support of DG ENER and CINEA.

For further information, please visit www.ca-eed.eu, epbd-ca.eu, www.ca-res.eu or contact the CA EED Coordinator at **lucinda.maclagan@rvo.nl**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement no. 101048703 (CA EED) and Grant Agreement no. 101035887 (CA RES). CA EPBD has received funding from the European Union's LIFE programme under Grant Agreement no. 101102078.