



H2020-LC-SC3-EE-2019

HEAT PUMPS SKILLS FOR NZEB  
CONSTRUCTION (HP4ALL)

D5.4 – Legislation and Policy  
Recommendations

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## Executive summary

Labour and skills shortages in the building energy renovation sector are one of the main obstacles that need to be seriously addressed to successfully implement the REPowerEU Initiative and related ones such as the Fit-for-55 Package, the Green Deal and the Renovation Wave.

Although it was launched in a rather different geopolitical context, the EU funded HP4ALL project scope and goals intends to help cover these shortcomings, with a view to ensure a more robust skills and labour market domain in the Heat Pump (HP) value chain. As a result, *legislation and policy recommendations* stemming from HP4ALL are timely by means of this report.

This group of mutually reinforcing measures encompasses proposals for legislative and administrative adjustments to foster labour market consolidation schemes (e.g., updated competency frameworks and requirements for skilled workers in procurement and dedicated training schemes for installation & maintenance professionals), incentives (based on success stories) and ambitious private and officially supported dissemination & communication packages.

Main **recommendations** coming out of the HP4ALL implementation are:

1. Carry out an intensive EU-wide *marketing and awareness raising campaign* to ensure social recognition and visibility of energy & building renovation professionals with increasing and more complex skills. Put *installers* at the heart of it, due to their strategic role, without neglecting other stakeholders.
2. Adopt legal and market measures to improve *labour conditions*, avoiding temporality and fostering long lasting careers, gender balance, attractiveness to youth and workers from other declining sectors, and integration of vulnerable collectives to labour market niches and talent pools.
3. Address an overarching EU scheme for the *legal reinforcement of energy rehabilitation training & skills curricula*, with Member states and Regions addressing the optimal implementation specialization scheme and roadmap.
4. Draw-up EU-wide *minimum content guidelines* for specialised *training programmes* contents, either formal or informal, to avoid gaps. Continuous training for upskilling workers that are already in the sector must be made compulsory alongside providing opportunities for people outside of the sector to re-skill and join the sector workforce.
5. Advance and favour more agile VET *certification schemes that can be mutually recognised and repeated by other member states*, with simplified procedures for application and certification all the while using common reference frameworks so that good quality of HP workers is ensured.

6. Reinforce sustainable energy skills in *school curricula* (Apprenticeships, Secondary Level Education and Primary Education) ensuring that the opportunities for employment in the sustainability, energy and climate sectors are clearly presented to the future generations.
7. Boost *installation service quality assurance* mechanisms
8. Introduce more strict manufacturing & installation *solvency and implementation criteria* in related public procurement, as well as more demanding *quality/price ratio<sup>1</sup> targets*.
9. Promote *energy advice* and *energy renovation project management* as a job enrichment opportunity / new market niche / specialization itinerary, with appropriate financial support. One-Stop-Shops, clearinghouses and call centres can be used for this purpose, with appropriate and coordinated support from EU, national and regional funds, and private investment. This service would include training and signposting to certified, trusted professionals as is currently the case in some Member States.
10. Reinforce and provide *specific visibility and prioritisation* to energy rehabilitation education and training schemes and packages within the *Structural Funds* Regulations, particularly the European Social Fund ESF+.
11. Put in place adequate *coordination mechanisms* (e.g., a Heat Pump Accelerator or an EU wide Public Private Partnership) to ensure complementarities and synergies at all administrative levels (EU, state, regional, local) and bringing in all stakeholders throughout the whole value chain, implementing fully or partially these recommendations depending on the context<sup>2</sup>

These recommendations take stock of two complementary situations:

- The situation of skills training for renovation in the EU level and best practice examples that could be scaled-up or replicated to boost the workforce for renovation across the EU as described in REPowerEU, May 2022.
- The interactive dialogue between the HP4ALL project and the entire HP value chain throughout the project duration (Sep-21 to present), both the supply side (manufacturers, engineers, designers, installers, trainers) and the demand side (building owners and end users from all sectors -residential, industry and tertiary).

Finally, this document intends to act as a **practical handbook** aiming at widespread dissemination of HP4ALL outputs through different channels, including events, social networks, marketing campaigns and the HP4ALL website wherein it will be made accessible and downloadable materials.

<sup>1</sup> This ratio is explicitly mentioned in the EU Directives on public procurement; it is a very good opportunity to pre-empt quality versus price-only driven contracts

<sup>2</sup> Following for instance the example of the energy savings obligation private funded French *national training network for energy renovation* or several public-private partnerships for energy renovation education in different Member States (The Netherlands, Denmark, Germany). Training centres and programmes are recommended by relevant ministries and industry associations.

## Acronyms and abbreviations

<b>AC/DC</b>	Alternate Current /Direct Current
<b>CEEAG</b>	Climate, Energy and Environmental protection State Aid Guidelines
<b>CSRD</b>	Corporate Sustainability Reporting Directive
<b>DNSH</b>	Do No Significance Harm
<b>EC</b>	European Commission
<b>EAFA</b>	European Alliance for Apprenticeship
<b>EE</b>	Energy Efficiency
<b>EED</b>	Energy Efficiency Directive
<b>EHI</b>	European Heating Industry
<b>ESIF</b>	European Structural and Investment Funds
<b>ESF</b>	European Social Fund
<b>ETS</b>	Emissions Trading System
<b>EPBD</b>	Energy Performance of Buildings Directive
<b>EU</b>	European Union
<b>HP</b>	Heat Pump
<b>IEA</b>	International Energy Agency
<b>MEPS</b>	Minimum Energy Performance Standards
<b>MFF</b>	Multiannual Financial Framework
<b>MS</b>	Member States
<b>OEM</b>	Original Equipment Manufacturer
<b>OSS</b>	One-Stop-Shop
<b>PPA</b>	Power Purchase Agreement
<b>RED</b>	Renewable Energy Directive
<b>RES</b>	Renewable Energies
<b>RPEU</b>	REPowerEU Initiative
<b>RRF</b>	Recovery & Resilience Facility
<b>RRP</b>	Recovery & Resilience Plan
<b>RW</b>	Renovation Wave

# 1. Introduction. Skills & training, at the core of Heat Pump EU wide deployment

Against the backdrop of the hardships and global energy market disruption caused by Russia's invasion of Ukraine and in order to curb the climate crisis, the EC presented on the 18<sup>th</sup> May 2022 the REPowerEU (RPEU) Plan Communication, a comprehensive package of measures to address massive *energy savings*, wide diversification of *energy supplies*, and accelerated roll-out of *renewable energy* in households, industry and power generation, particularly HPs<sup>3</sup>.

The ambitious objectives set forth by the RPEU Plan mean that by 2030 that the number of HP related workers in the EU (manufacturing, installation, maintenance) be increased by 50%, and that out of the existing workers, at least 50% will also need to be reskilled to work with HP technologies (electric, hybrid, thermal). Already today, with about 1.5 million installers in the EU -most of them small companies- the employment rate in installation and maintenance is significant. This is an enormous challenge as HP installation requires twice as much time as boilers, according to the European Heating Industry (EHI).

On the other hand, installers play an additional and crucial prescribing role as consumers rely above all on their advice as last mile contact for periodic checks and maintenance beyond installation. According to EHI close to 80% of consumers buying new heating systems receive advice from an installer and about 96% of them follow that advice either completely or to a great extent<sup>4</sup>.

For this reason, the RPEU initiative deserves particular attention to establish a *Large-scale Skills Partnership* to maintain and regain technological and industrial leadership in key areas and to support the workforce.

The RPEU Plan is therefore the primary and overarching reference framework, and background for this document as it is the most extensive and wide-ranging revision of all the legal, administrative, and financial measures adopted by the EU in the energy sector, including skills and training, while also considering inputs from the Renewable Energy Directive and Energy Efficiency Directive in particular the training and certification requirements. It must be noted that at the time of writing the expected revised versions of Renewable Energy Directive (RED), Energy Efficiency Directive (EED), and Energy Performance of Buildings Directive (EPBD) were still not adopted.

The HP4ALL proposed legislation and policy recommendations featured in section 3 have been consequently put in this context.

<sup>3</sup> Doubling of the rate of deployment of heat pumps over the next 5 years resulting in a cumulative ten million units

<sup>4</sup> EHI- Centerdata (2021): Consumer study on purchase decisions regarding heating appliances



## 2. The HP4ALL project, an enabler for HP skills enhancement

HP4ALL aims to support the existing increase in market for heat pumps (HPs) technologies and systems for residential and non-residential applications by **boosting related skilled workforce demand and provision** by:

- Providing HP related tailored, sound, key information to all relevant stakeholders and users, thereby facilitating their decision-making process
- Paving the way for a more robust level of skills in the HP value chain, ensuring high quality and reliability from the supply side

To this end HP4ALL has developed a set of tools and resources -the so-called **HP4ALL package**-:

-A **HP Competency Framework** to facilitate Mutual Recognition of HP Skills. It will allow manufacturers, designers, and installers to benchmark their knowledge and skills to determine if they are meeting the needs of the market. Such a framework could also facilitate a dialogue between EU member states that could eventually lead to mutual recognition of skills or an adoption of a common training across the EU.

-A user-oriented **HP Knowledge Hub** to provide guidance, support, and tools (e.g., technical information, case studies, procurement guidance) to increase the demand for HP skills and knowledge.

-A **HP Benchmarking Tool** enabling end users to consider options and performance of HP technologies within different building and application types

-A dossier of tested **Awareness Campaign materials** to underpin the EU-wide HP4ALL roll-out.

This group of mutually reinforcing measures encompasses proposals for legislative and administrative adjustments to foster demand for the correct skills to be offered, labour market consolidation schemes (e.g., updated competency frameworks and requirements for skilled workers in procurement and dedicated training schemes for installation & maintenance professionals), incentives (based on success stories), and ambitious private and publicly supported dissemination and communication packages targeting end users and market demand behavioural patterns changes and engagement, amongst others.

HP4ALL consortium has been interacting with the **entire HP value chain**, both the supply side (manufacturers, engineers, designers, installers) and the demand one (building owners and end users from all sectors -residential, industry and tertiary).



With a view to ensuring its widest adoption at EU scale the HP4All package has been disseminated, tested, validated, and fine-tuned by means of **three implementation plans** with different and complementary approaches in three partner regions with clearly differentiated scenarios: **Upper Austria, Andalusia, and Ireland**. The ultimate goal is that the HP4ALL package be tailored to different market conditions throughout the EU, raising awareness of and assuring commitment to the abovementioned objectives.

The impact of HP4ALL will be maximized through the involvement of the **Observer Countries** (Croatia, Portugal, and Romania), following closely the development and validation of the HP4All package, and acting as early adopters thereof even before the project ends.

The implementation plans have been informed by **extensive stakeholder engagement** to spot and map current and future barriers to HP market exploitation and skills development.

**Leading experts** in the HP and energy sector have provided feedback for and participated in the preparation and deployment of these implementation plans through a set of consultations, workshops, and events.

HP4ALL long-term EU-wide outreach will be guaranteed by a dedicated **Replication Plan** including train-the-trainer actions, a roadmap for the HP4All package extended usage and an outward-looking awareness campaign.

In parallel to the above, a coherent set of framework supportive **Legislation & Policy Recommendations** has been drawn up, which is the subject of the present document

## 3. Legislation and policy recommendations.

### Setting the scene

Although it should assist with the promotion and uptake of HPs and HP skills, the development and deployment of the HP4ALL package alone will not be enough to guarantee the achievement of the ambitious goals set for this sector and some background, framing political, legislative, and administrative measures will have to be adopted to underpin it.

This document intends to act as a **practical handbook** aiming at a widespread dissemination thereof through different channels, including events, social networks, marketing campaigns and the HP4ALL website wherein it will be made accessible and downloadable.

The HP4All consortium is aware of and has spotted throughout the project implementation several *external factors and barriers* that may affect implementation of these policy recommendations which may include:

- Imbalanced enforcement of EU related legislation, particularly Renewable Energy Directive (RED), Energy Efficiency Directive (EED), and Energy Performance of Buildings Directive (EPBD).

- The effects (positive or negative) of introducing supports and incentives on the labour market or the value chain can be very difficult to comprehend or envisage and it is difficult to make comparisons between differing supports and incentives and their effectiveness.
- Procurement regulations and systems rigidities hampering the uptake of recommendations on specifications/procurement guidelines on skills
- Lack of long-lasting, far-reaching Dissemination & Communication (D&C) strategies aimed at ensuring high visibility and social recognition of the workforce related to HVAC design, manufacturing, installation, and maintenance<sup>5</sup>
- Disconnection between the different nodes throughout the value chain. Education and training and upskilling /reskilling activities are performed in silos, with most efforts relying on manufacturers<sup>6</sup>
- Cultural patterns influencing end user decisions:
  - Attachment to proven long-time fossil fuel solutions
  - Lack of confidence in HPs operation, maintenance, and support
  - Inadequate/underperformed choice / usage by customers (e.g., not benefiting for Domestic Hot Water Supply, using only in cooling mode, inadequate choice of technology etc.)
  - Perception of unavailability of qualified professionals
  - Vicious circle: insufficient market deployment triggers reluctance and vice versa

All these factors and some more have been considered when drafting this document, especially through the feedback provided by the following HP4ALL project reports that are available on the HP4ALL knowledge Hub documents section (<https://hp4all.eu/documents/>):

- Report of best practice initiatives to increase skills in the energy sector
- Report on findings from heat pump expert surveys & focus groups
- Policy and legislation Review Report
- Training Providers Survey
- National and European Union training frameworks analysis

<sup>5</sup> In a recent study published by RENOVATE Europe (Speeding up the delivery for Renovation: Investing in skills; October 2022) this aspect stood out dramatically, since nearly no Member States have addressed it so far.

<sup>6</sup> According to a recent report from EHI (European Heating Industry. Heating systems installers: Expanding and upscaling the workforce; July 2022) today most installers have been trained by manufacturers, mostly for free and in training centres that industry has invested in and developed.

- HP Skills and Competency Framework
- Mutual Recognition Agreements (MOUs)
- Public and Market Acceptance Report
- Awareness Campaign Report
- Regional Implementation Reports
- Monitoring & Evaluation Report

## 4. HP4ALL recommendations package

As commented above, this section brings in a set of tables with relevant skills & employment related recommendations in the light of HP4ALL findings, conclusions and outcomes, the inception of the RPEU Plan and other sources.

Many recommendations stemming from the HP4ALL project implementation coincide with those included in the RPEU Plan, often providing further details, clarifications, or nuances thereto. However, in some cases it has been detected that the RPEU recommendations should have more specifically mentioned their potential application to the HP segment; comments on reflect this situation whenever applicable.

01: Awareness raising, information & communication	
Target Group	Member states, regional and local authorities.
Description	Awareness & information campaigns (local, regional & state level). Trusted bodies (e.g., energy and/or labour agencies) in close cooperation with EU, national and regional industry associations (manufacturers, installers, designers) are recommended to lead specific, targeted, multimedia dissemination & communication actions (including videos, TV campaigns, social media, energy efficiency kits etc.); this is to be clearly reinforced to attract and retain professionals into the HP sector.
Comments	A strong, EU-wide and European Commission (EC) coordinated <i>communication &amp; awareness raising</i> campaign (in the line of the EC-International Energy Agency (IEA) <i>Play my part</i> or the EC- European Alliance for Apprenticeships (EACA) campaigns) with specific messages to targeted audiences (schools, youngsters, unemployed, labour market newcomers, families, social media, press, NGOs, trade unions, industry, public administrations etc.) and in close coordination with industry must be put in place to provide <i>visibility, social recognition, and attractiveness</i> to the installer

	profession: a local job, well trained and secure, with a key role in fighting climate change. Funding for such campaigns would be provided in a coordinated way at EU, state, and regional level (e.g., through the European Social Fund) whilst field work and specific messages would be conveyed by invested and trusted bodies in each country / region.
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02: Enhancement and improvement of labour and working conditions	
Target Group	Member states
Description	<p>Improved <i>salary and job long-term conditions</i> to attract people to the sector (e.g., through fiscal deductions, grants, premiums, supplementary contributions during trainee / reskilling stage, clearer career roadmaps, advanced working models and job enrichment including remote checking and maintenance and integrated installation and advice, productivity based rewarding schemes etc.).</p> <p>More proactive <i>unemployed, foreign, youth and gender-balanced measures</i> to facilitate delivery of untapped talent (e.g., by ensuring fair payment conditions and promotion schemes based on expertise and training, relocation packages, mutual recognition etc.), as well as some other vulnerable collectives<sup>7</sup> (e.g., in line with the IBERDROLA-UNICEF Alliance for young apprentices from vulnerable populations)<sup>8</sup></p> <p>Enhanced respect to <i>human and labour rights and health and safety requirements</i> through tougher reporting requirements in the Corporate Sustainability Reporting Directive (CSRD) and new legislation on EU placement prohibition of forced labour manufactured goods and services (respect to international standards and due diligence and transparency obligations).</p>
Comments	These measures aim at improving the existing workforce conditions, protect industry against low salary based unfair foreign competition and ensure fair opportunities for unemployed, women, youths and immigrants and vulnerable collectives, with a view to project these jobs as stable, safe, enriching, and well-paid.

<sup>7</sup>Part of the EU Social Climate Fund (low-income, vulnerable groups) could be allocated for this sake

<sup>8</sup>Examples and guidance can be found in the EU funded Women Can Build project

03: EU Legal reinforcement of training & skills requirements	
Target Group	European Commission
Description	EU legislation should ensure that the training and upskilling of installers is tackled EU-wide. The EU should urgently and legally require Member States (MS) and regions to <i>map and assess yearly the gap</i> between available and needed installation professionals for the attainment of EU targets, particularly through the insertion of <i>appropriate provisions in the revision of the EU Directives</i> on Renewable Energy (RED), Energy Efficiency (EED) and Energy Performance of Buildings (EPBD) <sup>9</sup> . This should also include the EU wide enforcement of official state/regional registers as a necessary prerequisite to keep track of professionals and allow for this calculation.
Comments	<p>This exercise will enable MS to quantify and address shortcomings in availability of skilled personnel and the challenges. It will also encourage them to take appropriate action to <i>promote technical careers and set up state-of-the-art training facilities</i>.</p> <p>The EU could support MSs to update their national roadmaps for the training of the construction workforce, e.g., through the Build Up Skills Initiative and help implement the 2020 European Skills Agenda through monitoring and assistance from a dedicated Office. Long-term, forward looking specialization schemes and related continuous training must be included.</p>

04: Gap-filling, fit-for-purpose VET training programmes	
Target Group	European Commission, Member states
Description	Revise apprenticeships and traineeships schemes to include more specific HP contents, especially for HP installation, operation & maintenance. A more coordinated and consistent <i>training roadmap and upskilling guidance</i> is needed, with a staged approach from basics up to advanced. Continuous training for workers already in the sector must be compulsory <sup>10</sup> .
Comments	The EC should provide <i>guidance to Member States about design, implementation, and support to HP training programmes</i> <sup>11</sup> , by looking at

<sup>9</sup> This view, expressed in the 2022 #Skills4Climate campaign, is supported by 18 EU industry associations involved in the energy transition, including the European Heating Industry.

<sup>10</sup> According to the EU Construction Observatory in its publication Improving the human capital basis: Analytical report (2020), nearly four million workers across various occupations will need upskilling in energy efficiency and renewables

<sup>11</sup> Where appropriate, with the assistance of European Standardisation Organizations (ESOs)

	exemplar case studies from EU Member States / Regions <sup>12</sup> specifically addressing the contents of the HP Skills and Competence Framework and help rapidly include them in their certification schemes through an EC overseen <i>fast-track</i> procedure. Agreements with industry and VET providers must be favoured e.g., through dedicated financing to partnerships.
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05: Advanced VET certification schemes	
Target Group	European Commission ,Member states
Description	Advance and favour more agile VET certification schemes that can be mutually recognised and repeated by other member states, with simplified procedures for application and certification all the while using common reference frameworks so that good quality of HP workers is ensured
Comments	<p>New competences for installers must feature in the regional competence frameworks and must specifically include <i>digitalization (including smart metering, home automation and specific BIM tools for energy renovation for practitioners), hybridization, electrification, system optimization, refrigerants, and decarbonized gases</i><sup>13</sup>. EU regulation should provide, after consultation with industry, the blueprint<sup>14</sup> for MS to include in their certification schemes. The revised RED Article 18 (qualification and certification requirements and registration procedures and updates of installers) should delve into how to promote, require, monitor, and validate updated and reinforced skills and competences<sup>15</sup>.</p> <p>These renewed certification schemes should be made widely known and accessible to installers, highlighting a clear responsibility from their side on installation quality. An example of this is the Danish “<i>RES approval</i>” certificate for HP and PV installers. Denmark promotes high quality renewable energy installation by requiring companies to undergo specific training schemes in order to receive the ‘RES approval’ label. The government provides official endorsement to help consumers choose companies with the label for installations of heat pumps and solar panels. This is not exactly public procurement but definitely public support to procurement.</p>

<sup>12</sup> Like what is being done in the HP Skills and Competency framework within the frame of the HP4ALL project

<sup>13</sup> See also **recommendation 9** on additional, more traditional, job enriching, competences required for reskilling/upskilling and (HP design, installing, pipe sizing, emitters, balancing flows etc.)

<sup>14</sup> As addressed by the ERASMUS+ Construction Blueprint project, and the BUILD UP Skills and Pact for Skills Initiatives

<sup>15</sup> To date, certification is only required for grant funding or regulated professions. HP installers need to be able to apply to work anywhere in the EU, HP4ALL addresses this issue in its Deliverable D3.5 (Mutual Recognition Agreements)



06: Sustainable energy skills in school curricula	
Target Group	Member states, regional and local authorities.
Description	Sustainable energy skills in school curricula
Comments	Adapting school programmes is also crucial <sup>16</sup> . School curricula must emphasize the relationship between environmental sustainability and new technologies, as well as and information about green career pathways and appropriate interactions with industry (e.g., school visits, grants, short stages etc.) to ensure a thorough understanding of the urgency of the issue, boost further implication in finding solutions, and motivate to become an installer.

07: Installation service quality assurance	
Target Group	European Commission ,Member states
Description	<p>More robust HP installation &amp; maintenance quality assurance procedures:</p> <ul style="list-style-type: none"> <li>- Requirements for tenant/end-user handover for local authority housing tender</li> <li>- Guidance to all relevant actors on optimal combination of renewable technologies and the most up to date information on those renewable technologies.</li> <li>- Commissioning signed off by HP manufacturers / installers authorized staff.</li> <li>- Efficient certification system, with clear cut information on the scheme that is publicly available</li> <li>- Clearer after sales service plans (who, what, when and how)</li> </ul>
Comments	Quality assurance is closely linked to increased professional assistance recognition, market demand and attractiveness to new workers <sup>17</sup> .

<sup>16</sup> UNEP (2021) report “Global guidance for education on green jobs: connecting higher education and green opportunities for planetary health”

<sup>17</sup> In this sense, hand holding with new recruits at commissioning stage is crucial



	<p>This requires a publicly available and promoted list of certified installers with proven track record at a national level to provide guarantees for consumers. Another aspect of the register is to allow consumers to rate performance of installers and have the information open to the public.</p> <p>Common commissioning practices throughout the EU with the optimal levels of performance of Heat pumps to be discussed at national, regional, or local level. HP manufacturers should supervise the minimum qualification required for HP installers installing their equipment, and further their training and education with on-site training, masterclass sessions in installation and commissioning, and train installers to become the trainer.</p>
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08: More favourable public procurement specifications	
Target Group	Member states, regional and local authorities.
Description	Public procurement tendering requiring technical criteria / implementation conditions for selection
Comments	<p>Capitalise on the EU Public Procurement Directives provisions on <i>green procurement</i> and <i>environmental certifications</i> that require certified installers to install sustainable energy systems, either as a solvency prerequisite or as an implementation condition.</p> <p>Likewise, pre-empt tender awarding should be based on the best quality to price ratio, cost-benefit ratio, embodied carbon, or <i>product life cycle analysis</i> (fostering products / installations with the lowest life cycle environmental impact) instead of price alone (e.g., SCOP).</p> <p>An example of this is the ‘Circular 20/2019 : Promoting the use of Environmental and Social Considerations in Public Procurement’ in Ireland, where the publication instructs heads of Departments to consider including green criteria in public procurement processes<sup>18</sup>.</p>

09: Energy advice	
Target Group	Member states, regional and local authorities.
Description	Rolling out of initially subsidized / free-of charge <sup>19</sup> <i>easily accessible</i> advice and assessment services (i.e., by energy agencies), leading to increased

<sup>18</sup> The document is available at: <https://www.gov.ie/en/publication/efa12-green-public-procurement-gpp/>

<sup>19</sup>In the long term on-bill/on-tax recovery schemes may also apply to pay for these services



	<p>awareness and applicability of heat pumps. This could also include briefings on alternatives to heat pumps (technically and economically) and their potential benefits. As well as providing optimal performance and maintenance tips for all renewable technologies.</p>
<p><b>Comments</b></p>	<p>This is an opportunity to improve the current installation and maintenance services of all renewable technologies as a third party will be involved (with the installer and end-user). This recommendation will also create a new job niche as community/district/borough energy advisor, focused on renewable technologies and renewable HVAC systems<sup>20</sup>.</p> <p>It is also important to encourage deep renovation approaches, avoid lock-in prone minimum effort options leading to repeated renovations and demand higher skilled services<sup>21</sup>.</p> <p>Omnichannel services<sup>22</sup> and call centres / clearinghouses dedicated to all renewable technologies acting as entry points of one-stop shops (OSS) could be also thought out and deployed for this purpose, having in mind references such as the <u>EPREL Consumer Interface</u>. The revised EPBD addresses the issue focusing on its effect on the compliance with Minimum Energy Performance Standards (MEPS), but more emphasis is needed from the job creation side of it.</p> <p>Trusted bodies (or consortia thereof) such as Energy Agencies, Consumer organizations, Manufacturers / installers associations etc. would be in charge of omnichannel services / call centres / clearinghouses by addressing wide ranging preliminary technical, legal, and financial orientation, advice, and <i>signposting to certified, trusted craftspeople</i><sup>23</sup>.</p> <p>Information and orientation on grants / support mechanisms / training schemes, programmes, and courses for capacity building, re skilling and up skilling would be also provided (support to suppliers and workers).</p> <p>European Structural and Investment Fund (EISF) -notably the European Social Fund (ESF) and INTERREG-, as well as the European Local Energy Assistance (ELENA) Funds from the European Investment Bank (EIB) and LIFE Clean Energy programmes could be allocated for this purpose (see</p>

<sup>20</sup> This may require some insurance, feedback, support, and warranty commitments from HP suppliers, which usually have a backlog of service call outs and maintenances and try to make it as simple as possible to service their machine

<sup>21</sup> These services could be backed up by dedicated financial frameworks pre-empting holistic/ bundled and/or longer payback renovations

<sup>22</sup> In this sense, the HP4ALL package can be further developed at the replication stage to include additional SW to calculate online investment needs, payback time and consult financing databases

<sup>23</sup> Many OSS (e.g., the Danish Betterhome network) use compulsory training as a means of assuring a standard level of quality for renovation from the contractors that they work with. Training is given either by the OSS itself or in cooperation with training institutions or industry associations.

	<p>recommendation 10)<sup>24</sup>, comprising <i>deployment, scale-up</i> or <i>replication</i> stages. The allocated EU Funds could help leverage long-lasting national and regional public support and private investment.</p> <p>For existing OSS incorporating heat pumps into their services will require training of staff (advisors, admin, etc) and contractors can be used to improve their skills and increase their opportunities in the Energy sector.</p> <p>One-stop-shops can be set up according to three main models:</p> <ul style="list-style-type: none"> <li>-Orientation, basic project assistance and signposting (facilitation model)</li> <li>-Intermediate project assistance and oversight (coordination model).</li> <li>-Full assistance throughout the renovation journey, from information and project design through to contact with suppliers and financial institutions, realisation of the work itself and quality assurance after the work is done (turnkey, all-inclusive model, either one-shot or step-by-step). In this case the one stop-shop is a contractor and as such bears direct responsibility for the quality of the contracted work<sup>25</sup>.</li> </ul> <p>It is up to MS / regions to decide which scheme better suits the demand needs and how to tailor them to the local context. Proximity is essential to allow for presence meetings and visits.</p> <p>Public intervention in the set-up of OSS is important as a means of ensuring the independence and non-bias of the advice and gaining trust from citizens. It is also helpful to ensure their stability and development, including the potential adaptation of regulatory frameworks and investment in skills and capacity.</p> <p>Information on supports, certification/qualification schemes and relevant actors (installers, designers, OSS, manufacturers) to be openly available to the public.</p>
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10: Coordinated & reinforced funding	
Target Group	European Commission ,Member states

<sup>24</sup> As an example, the Horizon Europe project *Turnkey Retrofit* aims to replicate two French all-inclusive industry-led OSS in Ireland and Spain. Learnings on OSS features were easy to transfer, and replicate were found and published.

<sup>25</sup> As an example, it can be cited the RenovÓccitanie programme with thirty-one local one-stop-shops providing varying levels of assistance

<p><b>Description</b></p>	<p>Specific <i>upskilling and training</i> chapters/windows in EU, particularly the ESF+ and Member State’s (MS) funds<sup>26</sup> and EU wide coordinated programming.</p> <p>Eligible activities would include lifelong learning, VET schemes, train the trainers programmes and early and intermediate stage training &amp; mobility regional grants, stages, or internships<sup>27</sup> in close collaboration with the private sector throughout the whole HP value chain<sup>28</sup>.</p>
<p><b>Comments</b></p>	<p>Specific windows or chapters for sustainable energy skills training and an overarching coordination strategy are needed between the EU Multiannual Financial Framework (MFF), and national and regional funding sources, having account of regional needs and specialization strategies. This multilevel approach must be streamlined to avoid lengthy authorization procedures within the ESIF Regulations.</p> <p>This should include combined public and private investment; so far ESIFs provisions for multi-stakeholder public-private partnerships have not been fully exploited, as well as synergies amongst different EU Funds (recent EC communication).</p> <p>Direct EU funding for training and upskilling flagship initiatives<sup>29</sup> should be also continued.</p> <p>National and regional public authorities must clearly reinforce and support in a coordinated way the reskilling and upskilling of installers and training economic and staff effort made by manufacturers, e.g., by granting subsidies to training centres to increase the learning capacity and to compensate for opportunity costs to installers, as the cost of training can be a barrier for them to undertake continuing education.</p> <p>Private, local, and national funds can support the Large-scale skills partnership under the Pact for Skills (see below) objectives and be complemented by EU funding, from the European Social Fund to Erasmus+ and Marie Skłodowska-Curie Actions.</p>

**11: Coordination, collaboration, and scale of action**

<sup>26</sup>Horizon Europe, Erasmus+, LIFE, Innovation Fund, InvestEU, ESIFs -notably the ESF+-Just Transition Fund (JTF), Recovery & Resilience Facility (RRF), Modernisation Fund, and EU Renewable Energy Financing

<sup>27</sup>Mobility support has been spotted as a key issue by industry, so as to curb regional imbalances between job offers & demands

<sup>28</sup> According EHI, today, most installers have been trained by manufacturers, mostly for free and in training centres that industry has invested in and developed

<sup>29</sup> Such as the Construction Blueprint project or the BUILD UP Skills Initiative.

<b>Target Group</b>	European Commission ,Member states, regional and Local authorities
<b>Description</b>	<p><b>EU level</b> oriented to:</p> <ul style="list-style-type: none"> <li>-Defining the overarching strategic, legal &amp; financial framework and realistic objectives and timetables for the National Plans</li> <li>-Define skills taxonomy within the frame of the European Skills, Competences, Qualifications and Occupations reference (ESCO) to be used by employment services, business, and VET providers to guide, invest in, and develop optimal career paths</li> <li>-Adopting (large scale) flagship initiatives of common interest</li> <li>-Reinforcing Member States, Regions, and local entities budgetary effort</li> <li>-Sharing best practices and mutual learning EU wide</li> <li>-Ensuring coordination, complementarity, and synergies at MS / Interregional level</li> </ul> <p><b>State, Regional and, particularly, local level</b> (75% of EU population) “last mile” approach (optimal, swift, outreach potential and tailored, hands-on combination of measures), including the <i>reinforcement of local and regional networks</i> and an <i>integrated approach</i> throughout the whole value chain, involving all stakeholders and Departments of Energy, Environment, Employment and Education (Action 4E)</p> <p>Combined approach: <i>Sticks, carrots &amp; tambourines</i> (standards, financial and technical measures, information campaigns).</p> <p>Focus on develop coordinated <i>green skills and competences</i> national/regional/local (sub)programmes/lines dealing with:</p> <ul style="list-style-type: none"> <li>-Gaps and shortages mapping,</li> <li>-Attractiveness boosting,</li> <li>-Upskilling/reskilling and training actions for the different career stages (early, intermediate, specialised)</li> <li>-Labour market uptake measures agreed by industry and the Employment Department to facilitate work placement, employability, and technological competence leadership.</li> <li>-Promotion &amp; monitoring measures</li> </ul>
<b>Comments</b>	At EU level this approach should rely as far as possible through existing structures in close collaboration with an EU HP Accelerator (e.g.):



	<ul style="list-style-type: none"><li>-EED and EPBD Concerted Actions</li><li>-RPEU Technical Support Instrument</li><li>-Covenant of Mayors</li><li>-Committee of the Regions</li><li>-100 Climate Neutral &amp; Smart Cities Missions</li><li>-European Smart Cities Marketplace</li><li>-European Urban Initiative</li><li>-(Cross) sectoral energy savings partnerships</li><li>-European Local Energy Assistance (ELENA)</li><li>-European Partnership for Clean Energy Transition</li><li>-Large-scale skills partnership under the Pact for Skills</li></ul>
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## Annex: State of play at national level

(Source: RENOVATE EUROPE - 2022)

The table below depicts different labour market and Education & Training measures adopted by Member States. More detailed information can be found in the publication referred to (see references).

It is worth noting the overall absence of sector attractiveness related measures, continuous training, online learning, and to a lesser extent, occupation profiles.

	 Crafts-person training programmes	 White-collar training programmes	 Certification system	 Continuous training	 Online learning / MOOC	 Attractiveness of sector	 Facilitation of access to upskilling / coalitions	 Creation of occupation profiles
Austria		✓	✓	✓			✓	
Belgium	✓						✓	
Bulgaria	✓	✓						
Croatia	✓	✓					✓	✓
Czechia	✓		✓	✓	✓			✓
Denmark	✓	✓	✓	✓	✓		✓	
France	✓	✓	✓		✓		✓	
Germany	✓	✓	✓	✓			✓	✓
Greece								
Hungary	✓	✓			✓		✓	✓
Ireland	✓	✓	✓		✓		✓	✓
Italy	✓	✓	✓					✓
Latvia			✓					
Netherlands	✓						✓	✓
Poland			✓					
Romania	✓	✓	✓					
Slovakia	✓	✓			✓			✓
Slovenia	✓	✓	✓	✓			✓	
Spain		✓						



## References

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