The European Heat Pump Association (EHPA) enthusiastically welcomes the upcoming “Renovation Wave” initiative from the European Commission. This should be the accelerator the EU needs to reach its Climate and Energy goals in 2030 and 2050 while ensuring sustainable economic recovery and meeting other policy goals. As stated in the EU Strategy for Energy System Integration, heat pump technologies play a central role in an integrated energy system and offer an opportunity to accelerate the energy transition. For the first time, the EC sets an ambitious target of quadrupling the current amount of residential heat pumps by 2030. In 2030, 40% of residential buildings should be heated by heat pumps and up to 70% in 2050. Moreover, the latest IEA report also suggests that heat pumps could even satisfy 90% of all heating needs at the global level.

Heating, Cooling & Domestic Hot Water (DHW) production account for nearly 80% of the energy consumption of buildings, with 83% of this energy currently produced from carbon-intensive fuels such as heating oil and fossil gas. To reach a quadrupling of heat pumps by 2030, a large-scale acceleration of heating and cooling renovation must be addressed in priority. Accelerated in-depth renovations will not happen based on the business as usual scenario.

EHPA makes the following recommendations to increase the scale and speed of renovations focusing on renovating the buildings’ heating and cooling systems with heat pump technologies.

1. **Acknowledging heat pump technologies as a no-regret solution for a successful renovation wave in existing and new policy**

   - Acknowledging the importance of heat pumps to implement the energy efficiency first principle: The EU Strategy for Energy System Integration recognizes heat pump as a key enabler for the energy efficiency first principle: “Replacing a fossil fuel-based boiler with a heat pump using renewable electricity saves two-thirds of primary energy”. For the renovation wave to correctly implement the energy efficiency first principle and be in accordance with the EU Strategy for Energy System Integration, it should acknowledge and promote the various heat pump technologies. The success of the “Renovation Wave” also depends on a coherent EU policy framework. With this regard, we recommend an explicit reference to heat pumps as a key enabler for energy efficiency also in other legislations such as the EED.

   - Strengthening synergies in existing policies: This year (by December 2020), Member States will have to submit their Comprehensive Assessments on heating and cooling (EED art.14 and ANNEX VIII). For consistency and efficiency purposes, the acceleration of the heating and cooling stock should be an essential aspect of these plans, linking them with other national obligations, such the long-term renovation strategies (LTRS) and the National Climate and Energy Plans (NECPs). Renovating buildings does usually not happen more than twice over a century. So, it is crucial to “make it right”, especially when it is supported by public (recovery) funding. For this reason, a successful “Renovation Wave” must go beyond “energy efficiency” and support additional policy goals for maximum societal benefits to citizens in the EU: GHG emissions reduction, uptake of renewable energy, flexible buildings, thermal comfort, indoor environmental quality, air pollution, energy security, digitalisation... The Renovation Wave initiative should strengthen these synergies in the implementation of the existing laws and specifically promote solutions that are facilitating this integration (“no regret” solutions).

   - Setting up a massive roll-out plan for heat pumps: Heat-pump technologies are “no-regret” solutions in renovations because they contribute not only to climate neutrality but also other policy goals (See below the “Quick facts about heat-pumps technologies”). To implement EU’s Industrialisation Strategy and benefit without delay from all the socio-economic advantages of heat pumps, a massive roll-out plan is needed to...
speed-up their deployment (in order to reach the necessary quadrupling of heat pumps by 2030). The European Commission has previously encouraged the development of the necessary solutions to speed-up the energy transition, such as for Wind offshore Strategy. Today, the Renovation Wave initiative should give a similar push to boost heat pump technologies.

- **Putting in place schemes with numeric targets to replace fossil fuel heating by sustainable alternatives:** The Renovation Wave should indicate that decarbonized heating and cooling solutions such as heat pumps are “no-regret” solutions for public spending that are most cost-effective to reach the 2050 targets, especially in the framework of Europe’s economic recovery. To accelerate the uptake of heat pump technologies, Member States should be encouraged to implement more ambitious measures with numeric targets such as scrapping schemes to replace inefficient systems with more efficient and decarbonized heating and cooling systems such as heat pumps. Ideally, this should be accompanied by a roadmap to phase out fossil fuels in heating and cooling by 2050 as part of the NECPs and/or the Comprehensive Assessments on heating and cooling.

2. **Addressing the up-front costs of a heating and cooling renovation through dedicated financial flows and removing barriers for new business models**

- **Funding the renovation of the heating and cooling stock:** The heating and cooling sector is a crucial aspect of an efficient renovated building stock. This is why at least an equal level of attention and funding (arising from EU’s recovery plans and the MFF) is required for the renovation of Europe’s heating and cooling stock as of today. This will be a key enabler for reaching the European Green Deal’s objectives for a green and digital industry and providing (local) employment opportunities across Europe.

- **Steering Member States’ support towards low carbon heating and cooling:** Since the investment costs for low-carbon heating and cooling systems such as heat pumps is still higher than for fossil fuel-based heating devices, financial support schemes are still necessary to remove the barriers to investment. These financial incentives can cover among others low-interest loans, grant programmes and tax rebates and should also specifically address energy poverty. At the same time, Member States should refrain from incentivizing the installation of inefficient fossil fuel-based heating. Because of the long lifetime of heating systems (around 20 years), a lock-in of inefficient systems using fossil fuels should be avoided.

- **Enabling industrialised renovations:** New business models that industrialise renovations can significantly reduce the investment costs of energy-efficient renovations in general and heat pump technologies in specific. The economy of scale advantages of large-scale industrialised modules for energy-efficient renovation should be unlocked. This can be done through an ambitious EU Industrial Strategy that enables growth for pioneering companies in integrated energy solutions for buildings.

3. **Designing energy prices to guide customers towards the most energy-efficient and cheapest decarbonization options**

- **Balancing taxation of different energy carriers:** To unlock a high degree of decarbonization in building’s renovations, balancing the taxation of the different energy carriers should be a priority. As stated in the **EU Strategy for Energy System Integration:** “trustworthy and efficient markets should guide customers towards the most energy-efficient and cheapest decarbonization option on the basis of prices that properly reflect all the costs of the energy carrier used”1. The planned revision of the Energy Taxation Directive should aim at balancing the taxation of the different energy carriers.

- **Internalise carbon pricing:** As stated in the **EU Strategy for Energy System Integration:** “carbon costs are only partially internalized, or not internalized at all, in some sectors (e.g. road and maritime transport or space heating) or in some Member States”. By internalizing carbon costs, the most energy-efficient and sustainable heating and cooling options will become cheaper, making it natural to switch to these solutions when renovating.

- **Design tariffs that valorise demand-side flexibility:** Heat pumps have a large potential for contributing to the flexibility of the energy system, load shifting from peak to off-peak hours enables to make better use of the available renewable energy, thereby reducing emissions and increasing efficiency. Heat pumps today are smart grid ready meaning they can unlock this load shifting through smart and automated controls. For the consumers to fully benefit from this flexibility, tariffs must be designed so that they reward consumption in periods with more renewables, lower prices and lower emissions. This can be done through time of use tariffs with different periods during one day and seasonal differentiation.

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1 EU Strategy for Energy System Integration, p. 14
4. Informing consumers and facilitating energy renovations

- **Informing consumers about benefits from heat pumps:** For consumers to change their behaviour as a way to reduce carbon footprint, and to adopt highly efficient and renewable-based heating such as heat pumps, they should be informed about the all the benefits of these technologies. A Delta-EE study concludes the following: “We have seen in our customer research that once end-users learn of the high-efficiency heating options available to them, there is good interest in taking these up, particularly among younger people who tend to be more motivated by living a sustainable lifestyle.”

- **Educating the construction sector:** Qualitative education and training of installers, engineers and architects contribute to decarbonized heating and cooling. Currently, consumers in many Member States are often not getting the advice to install energy-efficient and decarbonized heating and cooling such as heat pumps. Construction professionals should be sufficiently educated about the energy efficiency benefits of heat pump technologies specifically in renovations. Increasing these skills should be addressed through the updated Skills Agenda for Europe in 2030, the European Pact for Skills and the Sector Skills Alliances.

- **Simplifying and facilitating renovation through industrialization and digitalisation:** Energy-efficient and sustainable renovations should be made easily accessible and quick. Part of the solution for smooth and accessible renovations lies in the industrialization of integrated renovation solutions as referred to in point 2. Secondly, the digitalization of the heating market can help overcome some retrofit barriers. It can among others “enable easier, cheaper production and installation through e.g. 3D building scanning, which can enable prefabrication of building and heating system elements to better fit the building and it can enable better visibility of performance and running costs for the end-user through remote control and monitoring –which may reduce the lack of trust in the “new” technology.”

Quick facts about heat-pump technologies:

- Heat pumps offer already today a variety of solutions for heating, cooling, and domestic hot water production, which are ready-to-use for the large majority of the residential and commercial building stock in Europe, as well as for industrial processes. Heat pumps use **renewable thermal energy from air, water, ground or sewage water.** They apply circular economy principles when recovering energy and waste heat. They create “**circular energy**”.

- Heat pumps are **mature technologies**, among the most efficient to provide heating and cooling while reducing total CO₂ emissions. They also contribute to **indoor and outdoor air quality**.

- When using electricity, heat pumps can provide heating and cooling, even in parallel. So, heat pumps are not only among the most efficient solutions, but they also embed the “**efficiency first**” principle by allowing for “**dual thermal generation**”. They expand the benefits of growing shares of decarbonised electricity in the European energy mix.

- Heat pumps also make **very efficient use of gas** through thermally driven systems (gas heat pumps). Hybrid systems using renewable and low-carbon gases during peak demand of electricity contribute to **system efficiency**.

- Industrial and commercial heat pumps improve the energy efficiency and contribute to the **decarbonisation of district heating, and cooling systems and industrial processes.**

- Heat pumps are part of **new business models and digital systems** that boost the use of electric vehicles, renewable electricity and smart home appliances. They facilitate **sector integration** and thermal storage.

- Heat pumps contribute to the **stabilisation of electrical grids** increasingly powered by energy from fluctuating renewable sources, by acting as Thermal Batteries which can be charged at times of high availability of (renewable) electricity and from which (thermal) energy can be withdrawn at times when electricity is scarce. It will optimise and maximise the use of the existing electrical grid without overloading it, facilitating decarbonization.

- The **heat-pump industry is growing every year** (by more than 10%) across Europe and is creating dozens of thousands of jobs.

- To ensure perfect competition, policy makers should provide **perfect information to investors on the multiple benefits of heat pumps and their potential to fulfilling several EU climate and energy targets.** They should assess technologies based on all their merits.

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2 Delta-EE “The 2020s is the decade to decarbonize heat”, 07/09/2020 p. 11
3 Delta-EE “The 2020s is the decade to decarbonize heat”, 07/09/2020 p. 9