THE VOICE OF THE REFRIGERATION, AIR-CONDITIONING AND HEAT-PUMP INDUSTRY IN EUROPE

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EPEE's Position Paper on the revision of the Renewable Energy Directive - Decarbonizing the heating and cooling sector through renewables and energy system integration

Executive summary

- EPEE, the voice of the Refrigeration, Air-Conditioning and Heat Pump Industry in Europe, welcomes the proposal for a revised Renewable Energy Directive published by the European Commission on 14 July 2021. We call on EU policymakers to retain the ambition of the proposal and to improve on it along the lines described in this paper.
- Decarbonisation of the heating and cooling sectors depends on a rapid deployment of renewable heating and cooling solutions. This needs to be enabled by an increased, binding target for renewables in heating and cooling.
- Measures to increase the share of renewables in heating and cooling need to put an emphasis on reducing the investment and operating costs of renewable heating and cooling solutions, which are often put at a disadvantage compared to fossil fuel – based systems.
- The accounting framework for renewables in heating and cooling should favour the most efficient and sustainable solutions, such as heat pumps.
- In light of the increased ambition, it is crucial to enable the cooling sector to contribute to the renewable energy transition. Cooling technologies powered by renewable energy should be integrated in the calculation of the RES target through an inclusive renewable cooling definition and calculation methodology.
- District heating and cooling (DHC) represents one of the most cost-effective solution for facilitating the overall decarbonisation of the H&C sector. Furthermore, DHC fulfils a crucial role in energy system integration by enabling the uptake of waste heat and cold. Feeding waste heat and cold into DHC systems, as well as its uptake on-site, should therefore be further promoted.
- The 2030 target for renewable use in buildings needs to be set higher to be fit for purpose to provide a clear trajectory towards a carbon-neutral building stock.

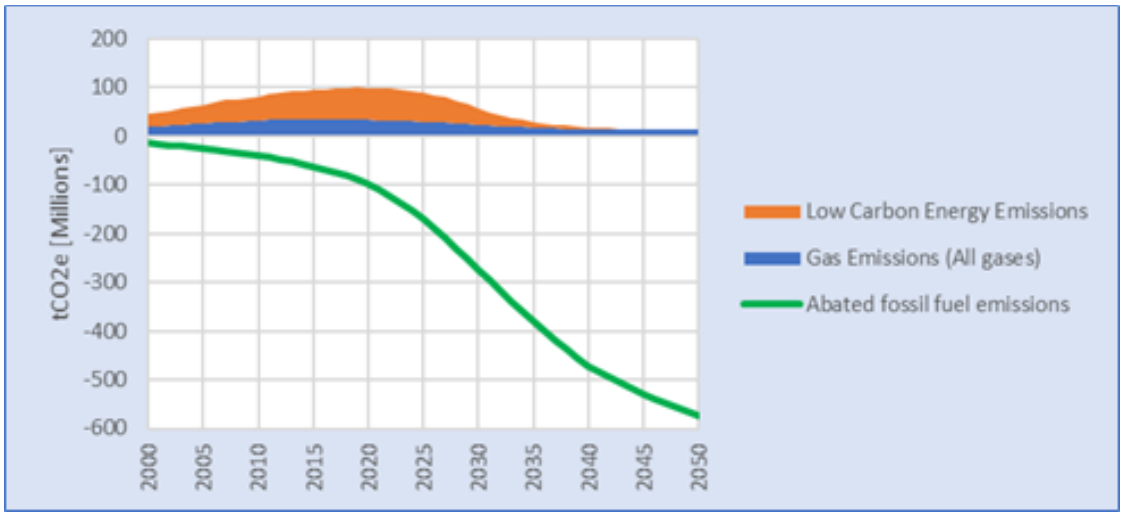
Introduction

The Commission's impact assessment on raising the 2030 GHG reduction target and the subsequent publication of the 'Fit for 55 package' have affirmed the key role of heating and cooling (H&C) in meeting EU climate goals, as a sector with a particularly high potential for decarbonisation. EPEE fully supports the higher climate ambition in the 2030 Climate Target Plan and believes that the supporting targets on renewable energy and energy efficiency need to be

increased in a coherent manner and in a mutually supportive fashion. Heating and cooling (H&C), as well as the building sector more broadly, offer a large cost-effective potential to reduce emissions through the integration of renewable energy. This potential is not reflected in the current targets and measures for renewable energy in H&C, as well as district heating and cooling (DHC).

Close to 80% of the final energy consumption related to H&C in the EU is currently still based on burning fossil fuels. An accelerated effort to integrate renewable energy sources through energy efficient electrification is therefore urgently necessary if the EU is to meet its ambitious decarbonization goals. A major driver of change will be the replacement of coal, fossil gas and oil heating systems with renewable heat supplied via individual heat pumps and district heating & cooling systems. In order to fulfil the EU's 2030 and 2050 decarbonisation targets, a massive replacement of fossil fuel heating with electric heat pumps needs to take place. It is very important that the roll-out of heat pumps can take place quickly and that the heat pumps installed have high levels of energy efficiency.

To better assess the energy related GHG emissions from the RACHP market and provide a better understanding of the balance of direct and indirect GHG emissions from RACHP systems, EPEE's HFC Outlook EU modelling has been extended over the past years. Our modelling suggests growth in heating demand delivered by heat pumps of more than 600% between 2020 and 2050. By 2050 we estimate that around 2,800 TWh of heat are delivered with heat pumps – making a very substantial contribution to decarbonisation of low temperature heating. The figure below from the model shows very clearly the importance of heat pumps in terms of their contribution to the net zero pathway. Heat pumps have the potential to reduce EU heating emissions by 575 million tonnes CO2 in 2050. In 2050 the abated fossil fuel emissions will be more than 40 times higher than the direct and indirect heat pump GHG emissions.



In addition, the actual electricity input needed to generate this massive heating capacity in 2050 could increase only marginally, compared to 2020. This is due to two reasons: Firstly, heat is produced much more efficiently in electric heat pumps than through burning of fossil fuels. Secondly, electrical heating & cooling equipment will become even more efficient, in line with current EU policies such as Ecodesign Regulations, the Energy Performance of Buildings Directive, or the Energy Efficiency Directive.

The Renewable Energy Directive (REDII) needs to provide the right targets, framework and signals to enable this fundamental transformation of the heating and cooling sector.

EPEE welcomes therefore the proposal by the European Commission to increase the ambition level of the RED and make it fit for the path to climate-neutrality. Nevertheless, we believe more can be done to promote the deployment of renewable heating solutions and renewable cooling should urgently be addressed as well. EPEE would recommend that the following points are taken into account in the further revision.

A strong target and support framework for renewables in heating and cooling (Article 23)

- **A binding target for RES share in H&C and mandatory renewable assessments**

To fulfil the updated ambitions of the 2030 Climate Target Plan, the share of renewable heating and cooling (RES-H&C) is expected to rise to 39%-41% by 2030. However, measures detailed in Member States' National Energy and Climate Plans (NECPs) to increase the share of renewables in the heating and cooling sector fall short on delivering even the EU's current goals, let alone the updated ambition.

EPEE therefore strongly supports a binding target for renewable heating and cooling and welcomes the Commission's proposal to introduce a binding baseline target of 1.1% (1.5% when using waste heat and cold). However, the 1.1% baseline is not ambitious enough to achieve the RES-H&C share by 2030. Neither is it sufficient to reach the target of 49% RES use in buildings by 2030. **The binding baseline should therefore be increased substantially to ensure overall consistency of the Directive.**

In addition, EPEE welcomes the newly introduced Article 23(1a) which will oblige Member States to assess their potential for renewable energy in the heating and cooling sector and report on it in the National Energy and Climate Plans (NECPs). EPEE has long been calling for the development of heating and cooling decarbonization strategies and we see this requirement as an important step in that direction.

- **Encourage measures that lower the investment and operating costs of renewable heating and cooling systems**

More detailed measures offer more sectoral guidance to Member States and help to define the boundaries of normative, financial and technical support schemes. Increased guidance on how

to promote the roll out of renewable heating and cooling solutions, e.g. for waste heat and cold utilization or heat pump technologies, furthermore help speeding up deployment.

As one of the main disadvantages of using renewable heat lies in the short-term investment needed to install heating/cooling systems, financial support measures should be particularly encouraged. In this context, the Commission should also support the sharing of 'Best Practices' among Member States, based on the recent National Energy and Climate Plans (NECPs) and Long-Term Renovation Strategies (LTRS). Examples of such practices include subsidy schemes and tax breaks for renewables, district heating systems and heat pumps, as introduced by Finland, Denmark, Germany, Poland and others.

In addition, pricing instruments should be considered as a policy priority and, in order to strengthen the cost competitiveness of renewable electricity, the adjustment of the taxation of energy carriers (i.e. taking account of their carbon costs) is urgently required. As pointed out in the Energy System Integration strategy, carbon costs are currently not at all internalized in the space heating/cooling sector and this needs to be urgently addressed to incentivize a switch to energy-efficient and sustainable H&C options. Furthermore, despite the significant energy savings, the operating costs of renewable heating and cooling systems can still be higher compared to fossil energy solutions. This is the result of an imbalance in taxation levels and levies often favouring fossil energy and giving a disadvantage to electricity-based solutions. This needs to be urgently addressed across the Fit for 55 package and the RED should emphasize the importance of fiscal measures to correct this imbalance.

- **Adjust the accounting methodology for the target to promote the most sustainable heating and cooling solutions**

The current accounting methodology towards the RES-H&C target under Article 23 needs to be improved to better promote heating and cooling electrification. Electricity serves an increasingly important role in heating and cooling which currently is not reflected in the accounting under REDII. Electrically powered heat pumps are disadvantaged by the current RES-H&C accounting framework, which does not allow for the renewable portion of electricity consumption to be counted towards the target.

EPEE recommends, therefore, that the accounting methodology be revised to allow renewable electricity to count towards the RES-H&C target. This should further be accompanied by a multiplier for technologies that transfer ambient heat/cold to buildings, similar to what is already implemented for renewable electricity counting towards the RES transport target. This would ensure a relative advantage to renewables such as ambient heat/cold and help to overcome the barriers these solutions face in their broad deployment. These adjustments would enable reversible heat pumps to deliver a higher proportion of the RES-H&C target and fulfil their fundamental role in the decarbonization of the sector as envisaged by the EU's 2030 Climate Target Plan.

While accounting for electricity in H&C can give a more accurate representation of the increasingly electrified H&C sector, it will be important to balance incentives for electrification and decarbonization of the grid with measures to promote energy efficiency. It is important to ensure that the Energy Efficiency First principle always applies in order not to incentivize less efficient heating solutions (e.g. direct electric heating) over the most efficient ones (e.g. heat pumps).

Finally, the need for cooling is expected to grow and play an even more significant role in the future. As a result, a solution to incorporate space cooling in the calculation of the share of renewable for heating and cooling is required. This will require the adoption of a separate delegated act under REDII. EPEE considers that the increase in the renewable targets across the RED, combined with the expected expansion in the need for space and process cooling, makes it imperative that all cooling technologies powered by renewable energy are considered. Renewable cooling can be an important contributor to decarbonization provided the definition is formulated in an inclusive, technology-neutral way.

Renewables in district heating and cooling (Art. 24)

District heating and cooling (DHC) represents one of the most cost-effective solution for facilitating the overall decarbonisation of the H&C sector and should be promoted accordingly. EPEE welcomes the increased target of 2.1% for annual renewable energy share increase in DHC proposed by the Commission.

- **Fully exploit the potential of waste heat and cold uptake and facilitate energy system integration**

REDII Article 24(4) should ensure that waste heat and cold owners have access to district heating & cooling networks (DHC) to make sure this underutilized resource is taken up more broadly. The value of waste heat & cold is often insufficiently visible for the owner, for instance in data centers or supermarkets. EPEE believes the proposed obligation for DHC operators to connect and purchase renewable and waste heat and cold can help to support the uptake of this resource but provisions in the Energy Efficiency Directive (EED) need to ensure that eligible industrial, service and tertiary installations perform the assessments and measures required to use their waste heat off- or on-site.

In this vein, EPEE also welcomes the newly proposed requirement to put in place a coordination framework between DHC operators, public authorities and industrial/tertiary waste heat suppliers. The explicit inclusion of commercial buildings could help to incentivize waste heat and cold uptake for a wider range of sectors (e.g. supermarkets), however, it is noteworthy that the 'Fit for 55' proposal to amend the EED would not require these actors to perform for instance cost-benefit analyses for the use of waste heat and cold, which may hamper its uptake. EPEE recommends to address this shortcoming in the revised EED.

Whilst recognising the multiple benefits of waste heat and cold fed into DHC networks, the policy framework should also promote direct use of waste heat/cold on-site. Facilities like supermarkets – that are in need of both H&C – can efficiently utilize the waste heat generated from the cooling systems to heat other parts of the premises.

At the same time, a large, untapped potential for waste heat and cold uptake also exists in the residential sector, and it should be possible for consumers to feed renewable heat and cold or waste heat and cold into the network by providing for the appropriate prosumer rights in the RED. Clear and straightforward provisions on access to the DHC network can help owners of waste heat and cold to correctly value the heat and assess the amortization time for their investments. Access can be given directly or through different forms of collaboration and mixed ownership between DHC operators and waste heat/cold owners. In this regard, EPEE recommends that existing best practices among Member States should be better promoted.

In parallel, it is imperative that district heating and cooling systems are better integrated in EU, national and local energy infrastructure planning. The relevant national and local authorities should be obliged and enabled to prepare the necessary plans (heat & cold plans, energy plans, energy infrastructures plans, spatial plans, etc.) and be better informed about the benefits of renewable DHC. Planning cooperation between local authorities, DHC system operators and waste heat/cold generating sectors should be ensured as well.

Renewable energy in buildings (Art. 15a)

- **A renewable building benchmark with a clear trajectory to carbon-neutrality**

Buildings account for 40% of energy use in the EU, and heating and cooling is responsible for around 50- 80% of that energy consumption. Three quarters of heating and cooling in buildings is still supplied from fossil fuels. However, according to the higher climate targets the EU building stock should be carbon-neutral by 2050, which will require ambitious measures to promote the use of renewable energy in buildings to be introduced now.

EPEE welcomes the Commission's proposal to introduce a new Article 15a in the RED, which will introduce an indicative 2030 Union target of 49% renewable energy use in the building sector. The indicative nature of this target will necessitate effective monitoring and enforcement action, and we welcome therefore the proposal to include this target in the National Energy and Climate Plans (NECPs). The requirement to translate this benchmark into building codes should furthermore be reinforced in the parallel revision of the Energy Performance of Buildings Directive (EPBD), where a minimum level of renewable energy use should be included as part of Minimum Energy Performance Standards (MEPS).

EPEE considers that the renewables benchmark should be designed in a way that new buildings and buildings undergoing major renovation should eventually be powered entirely by renewables, provided that this is feasible, and in line with technological development. The 2030

benchmark should therefore be extended to provide a clear trajectory and milestones to a building sector fully heated and cooled by highly efficient, renewable systems, at least by 2050.

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About EPEE:

EPEE represents the Refrigeration, Air-Conditioning and Heat Pump industry in Europe. Founded in the year 2000, EPEE's membership is composed of over 50 member companies as well as national and international associations from three continents (Europe, North America, Asia). With manufacturing sites and research and development facilities across the EU, which innovate for the global market, EPEE member companies realize a turnover of over 30 billion Euros, employ more than 200,000 people in Europe and also create indirect employment through a vast network of small and medium-sized enterprises such as contractors who install, service and maintain equipment. Please see our website (https://www.epeeglobal.org/) for further information.