

Making heating and cooling fit for 55 – EPEE's Position Paper on the 'Fit for 55' Package

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The 'Fit for 55' Package is a gold opportunity to further extend the energy efficiency benefits and renewable energy contribution of the heating and cooling (H&C) sector, in line with the higher ambition of the 2030 Climate Target Plan and the EU Strategy on Energy System Integration. EPEE believes that supporting targets, such as the ones on energy efficiency and renewable energy should be increased in a coherent manner and designed in a mutually supportive fashion. The 'Fit for 55' Package represents the perfect opportunity to achieve this objective.

The aim of this paper is to outline the synergies between the existing legislation relevant to the decarbonisation of heating and cooling. EPEE considers that the following changes are necessary to support a more ambitious approach for decarbonising the heating and cooling sector:

- *Coherently increase the headline and supportive targets in both the Energy Efficiency Directive (EED) and Renewable Energy Directive (RED).*
- *Phase out fossil fuels in heating and cooling through all viable regulatory means.*
- *Enable smart sector integration by anchoring the crucial horizontal role of the 'Energy Efficiency First' (EE1) principle and boosting the uptake of waste heat.*
- *Integrate planning and assessment obligations across the policy framework.*
- *Ensure that carbon pricing works with new and existing regulatory measures in a mutually supportive fashion.*

Moreover, this paper highlights the interplay with the F-Gas Regulation and the options to facilitate the transition towards a climate neutrality by 2050, under the EU Green Deal and the European Climate Law.

Introduction

According to the European Commission, the building sector must reduce emissions by 60% to meet the 55% emissions-reduction goal by 2030. Space and hot water heating account for most of the energy used and emissions from buildings and overall heating and cooling (H&C) represent roughly half of the total final energy consumption in Europe. The sector must decarbonise rapidly, particularly heating which is still largely based on fossil fuels. The Impact Assessment accompanying the 2030 Climate Target Plan indicates that the share of coal, oil and fossil gas in

residential buildings final energy consumption will need to be reduced by 50% by 2030, projected to be achieved through energy savings, electricity use and ambient energy using heat pumps.

The decarbonization of the H&C sector therefore depends on an effective combination of policy enabling both reduction in energy demand through higher energy efficiency and mandating a fuel switch from fossil-based heat supply to clean, renewable sources¹.

The comprehensive revision of EU policies governing H&C decarbonization as part of the Fit for 55 legislative package offers the opportunity to integrate and reinforce the legal framework to achieve these goals.

Not many technologies can produce zero-carbon heat and cold but the solutions to support this green transition of H&C are ready and scalable today. As recognized by the European Commission in the Renovation Wave Strategy² and Energy System Integration Strategy³, the rapid deployment of electrical heat pumps (both individual and through district heating and cooling systems) is the most effective way to drive the decarbonisation of H&C. Along with decarbonisation, this transition offers additional benefits in the form of providing demand-side flexibility and thermal storage– which helps managing the variable nature of renewable energy sources - as well as delivering greater air quality.

Decarbonization through heat pumps can only be achieved with a combination of measures, which includes also the reduction of direct F-Gas emissions via the F-Gas Regulation, improved operation, regular inspection and maintenance, improved efficiency of new equipment, simultaneous and combined heating and cooling and decarbonisation of the grid. In addition, the regulatory framework must ensure the global competitiveness of companies in the sector, which is a prerequisite for the unprecedented amount of investment and innovation that will be needed. Given the proper framework, heat pumps can play a crucial role to decarbonise heating, potentially creating a large “negative emission offset”. To visualize this, EPEE has extended its on-going modelling work on refrigerants to include emissions related to energy use when operating H&C systems. Some preliminary results are presented below.

Realize the potential of electrifying H&C through ambitious targets and fossil fuel phase-outs

The below graph based on preliminary results of EPEE’s modelling work gives an indication of the trend as well as of the importance to reduce energy related emissions and the key role of heat pump technology to achieve carbon neutrality by 2050⁴.

¹ As early as by 2025 as is suggested by some recent studies, e.g. International Energy Agency (2021): [Net Zero by 2050: A Roadmap for the Global Energy Sector](#)

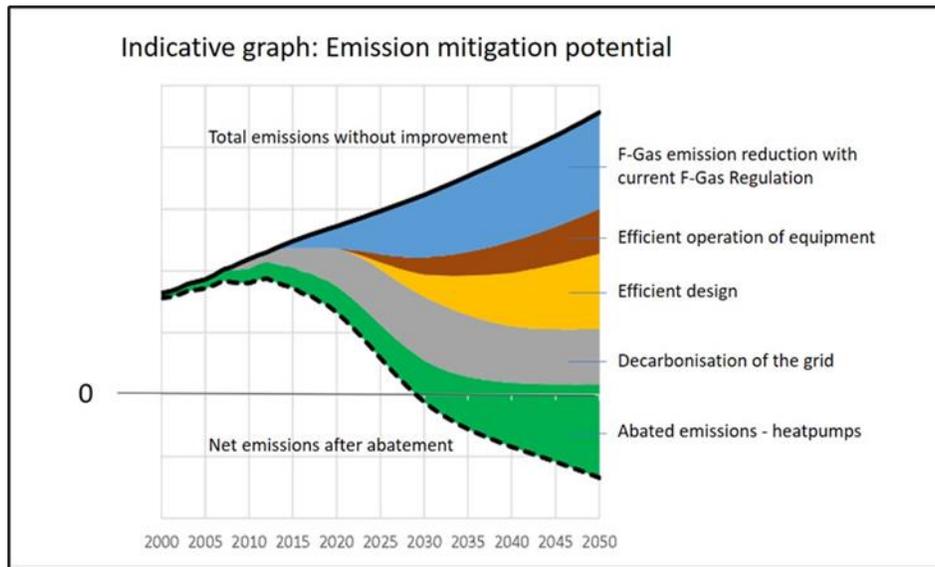
² European Commission (2020): [A Renovation Wave for Europe](#)

³ European Commission (2020): [An EU Strategy for Energy System Integration](#)

⁴ Please note that results of the modelling are not final at this stage

The wedges of the graph indicate the relative emission mitigation potential by abatement measure, including emissions related to refrigerants and emissions related to energy production and consumption. The solid upper line indicates how total emissions would evolve without efficiency improvements, grid decarbonization and the F-Gas Regulation.

The dotted lower line shows the total abatement potential. The negative emission offset (green wedge) is generated by heat pumps as they will facilitate a move away from fossil fuel-based heating technologies.



To realize this potential, EPEE calls on policy-makers **to align the ambitions** of the relevant policies in the context of 'Fit for 55' Package with the EU's climate ambitions and the goal of a net-zero economy by 2050.

- The Renewable Energy Directive (RED) and Energy Efficiency Directive (EED) must increase their headline targets to at least align with the levels set out in the 2030 Climate Target Plan⁵. Both the headline targets should be binding and underpinned by binding contributions at Member State level, which would present the most effective achievement of increased energy efficiency and RES share.
- The RED's separate target for the renewable share in H&C (Article 23) needs to be increased and made binding. At the very least, the RES H&C target needs to include a binding baseline. The same should be done for the RES target for district heating and

⁵ The [2030 Climate Target Plan](#) outlines that the 2030 target for energy efficiency should be increased to at least 36-37%, and the renewable energy share target to 38-40%.

cooling (DHC) in RED Article 24, since DHC presents one of the most cost-effective solution for facilitating the overall decarbonisation of the H&C sector.

- The Energy Savings Obligation (ESO) in EED Article 7 must be coherently increased to meet the ambitions of the updated 2030 and 2050 climate targets. The current annual energy savings requirement of 0.8 % for the period up to 2030 should at least be doubled.

In support of the above, the EU policy framework needs to be adjusted to **accelerate the phase-out of fossil fuels in heating.**

- Currently, Member States can support the installation of efficient fossil-gas boilers and count it towards their Energy Savings Obligation (ESO) under the EED. Subsidies for fossil fuels should be made ineligible under EED Article 7.
- Ecodesign standards for new heating systems should be aligned with climate neutrality and support the phase-out of fossil-fuel boilers. Ecodesign and Energy Labelling Regulations should set an end date for fossil fuel heating systems and exclude fossil fuel boilers from receiving the highest efficiency labels.
- The rate of replacing fossil- fuel boilers with efficient renewable systems must be accelerated considerably⁶. This should be enabled through a mix of policy measures, notably renovation requirements and mandatory energy performance standards (MEPS) in the revision of the Energy Performance of Buildings Directive (EPBD), climate-aligned building codes, mandatory planned replacement schemes of fossil heating systems under the RED, as well as economic incentives through targeted and effective subsidy schemes and carbon pricing.

Enable smart H&C electrification through Energy System Integration

As recognized in the Energy System Integration Strategy, electrification will have to play a significant role in H&C decarbonisation, whether through individual heat pumps or renewable electricity used to power district heating networks via large-scale heat pumps. While the specific balance between measures for energy efficiency, low-carbon heat supply and electrification is highly context-dependent, most cases will require a combination of the three. Integration between buildings and the electricity sector is therefore crucial to a balanced decarbonisation of the H&C sector.

Heat pumps foster sector coupling by linking up the electricity sector with the thermal energy sector. Beyond storing the energy needed for an individual household, heat pumps combined

⁶ Almost 25% of all buildings in the EU should have their heating systems replaced between 2025 and 2030, see e.g. Regulatory Assistance Project (2021): [Fit for 55: Aligning European policy for decarbonised heat in buildings](#)

with thermal heat and cold storage can also serve to provide intermediate storage for excess electricity on the grid. Thermal heat and cold storage technologies are widely available and represent the most economical storage method but remain underutilised in most EU markets. Electrification through heat pumps can be part of the core of national and EU efforts for energy system integration in the heating and cooling and buildings sectors, as it allows to address both heating and cooling to fully exploit the synergies between the two, whilst integrating renewables and placing buildings at the centre of the energy system. To enable this, EPEE believes that sector coupling between H&C and the electricity sector should be broadly supported across the Fit for 55 files.

To this end, the **Energy Efficiency First principle (EE1st)** must be implemented across the whole energy system and should be a prerequisite for public investment decisions. Greater energy efficiency not only reduces heat demand and thereby the investment required to decarbonise heat, it is also an enabler of buildings that are electrified to act as a flexible resource, and it is an enabler of low and zero-carbon heating systems to operate at higher performance.

- An explicit legal basis for the EE1st principle should be created not only in the EED in order to support its application, but also through clear references to the definition set in Article 2(18) of the Governance Regulation and in the various pieces of legislation part of the 'Fit for 55' Package. The new provision should also include a requirement for adequate monitoring and introduce compliance mechanisms at the national level.

Building codes for both new buildings and renovation must result in an increasing share of buildings fitted with renewable heating systems and must consider demand-side flexibility and storage, for example by ensuring the readiness of technologies to interact with the grid.

- The obligation to assess the renewables potential in H&C set in RED Article 15(4) should be strengthened and complemented by a new article introducing a minimum benchmark for renewable energy use in buildings. The benchmark should gradually increase to reach a fully decarbonized and renewable building stock by 2050. This minimum requirement must also be included in provisions for national buildings codes in the EPBD.
- Energy performance and carbon emission requirements for both new and existing buildings should be strengthened in the revision of the EPBD through the introduction of ambitious minimum energy performance standards (MEPS) and a holistic deep renovation standard.

Energy system integration should also be fostered by promoting a more circular energy system, where no energy is wasted. The **uptake and use of waste heat and cold** are important energy efficiency measures that should be further encouraged in the industrial and tertiary sectors, and if possible in residential applications where a large potential for heat recovery remains untapped.

An integrated approach to H&C across the legislative revisions can help maximizing the synergies and benefits of this major resource.

- Stronger incentives are needed to promote the uptake of waste heat and cold in the tertiary sector (both off and on-site). Aside from industrial sources, the recovery of non-residential and commercial waste heat and cold (e.g. from data centres or supermarkets) should be encouraged by extending the scope of Comprehensive Assessments under EED Article 14 and by strengthening the provisions for waste heat and cold use in urban planning and building codes in RED Article 15(4).
- RED Article 24(4) should ensure that waste heat and cold owners have access to district heating networks (DHC). Since the value of waste heat is often insufficiently visible, clear provisions on access to the DHC would help to correctly value the heat and assess the amortization time of investments.

Create an integrated framework for planning and assessment obligations

As outlined above, a successful decarbonization of H&C requires addressing energy efficiency, renewable H&C supply and energy system integration in a balanced way and taking an integrated policy approach to both heating and cooling. Current **obligations for assessing and planning measures** in those areas at Member State level are, however, not well integrated and their delivery timing is not matched. This often results in incomplete and scattered ways of addressing H&C decarbonization in National Energy and Climate Plans (NECPs).

- The framework for Comprehensive Assessments under Article 14 of the EED, the Renewables Assessments for H&C under Article 15 of the RED, as well as the Long-Term Renovation Strategies (LTRS) under Article 2(a) of the EPBD should be integrated and their output delivery should be timed so that they can provide useful input to the NECP process.
- Assessment obligations under the EED and RED should be further incorporated into Member States' National Energy and Climate Plans (NECPs) by including a requirement in the Governance Regulation for long-term strategies for decarbonising H&C, using the same principles applied to the LTRS.

Make pricing and fiscal incentives work for decarbonization

It is well established fact that fossil gas and electricity prices are currently not in alignment with the 60% building decarbonisation goal. In most Member States, taxes and levies on electricity actively discourage the electrification of space heating. Even where carbon pricing has been introduced, fossil gas is often cheaper than electricity as a result of levies added to electricity prices⁷. To incentivize consumers to switch to decarbonized and renewable heating and cooling

⁷ European Commission (2020): [Energy prices and costs in Europe](#)

technologies and to create a fair playing field for innovative solutions on EU markets, rebalancing the prices of the fuels used for space heating through an introduction of carbon pricing and an ambitious revision of the energy taxation framework is urgently required.

Internalizing carbon costs in the price of combustible heating fuels and creating a level playing field between fossil gas and electricity taxes is necessary to send the right market signals to end users and the supply chain. However, it is important to recall that buildings energy consumption and heating fuel demand tend to be very price inelastic, and that rebalancing pricing would not necessarily lead to the needed energy efficiency improvements in itself. In addition, it is imperative to address the market failures and barriers affecting the decarbonization of the buildings sector through regulatory measures and investment support⁸. Carbon pricing can consequently not be a substitute for sectoral emissions reduction targets under the Effort Sharing Regulation (ESR), which should be retained and increased to match the updated ambitions.

EPEE believes that carbon pricing should therefore be introduced in a way that is complementary and mutually reinforcing with increased ESR targets and the wider Fit for 55 legislative framework. It can perform an important supporting role but should not in any way justify removing resources and attention from regulatory measures that aim to remove structural barriers to building renovation. As part of a coherent framework of regulation, pricing and support policies, carbon pricing can effectively support the decarbonization of heating and cooling, by making it, for example, more economical for Member States to meet the increased energy savings obligation under EED Article 7 through building renovation and other energy efficiency measures. EPEE considers that carbon pricing revenues should be earmarked to support programmes for renovation of buildings and heat decarbonisation, especially targeting low-income groups and the worst-performing buildings. Aside from alleviating the distributional effects of a carbon price on heating fuels, this would also facilitate this segment's compliance with forthcoming minimum energy performance standards (MEPS) under the Energy Performance of Buildings Directive (EPBD).

- Heating fuel prices, taxes and levies need to be rebalanced to incentivize decarbonization through electrification.
- Carbon pricing can play a role in this but needs to be part of a coherent framework of regulatory, pricing and supporting policies. This includes Effort Sharing Regulation targets adapted to the 2030 climate target and climate-neutrality.
- Carbon pricing revenues should be ring-fenced to support exclusively heat decarbonization and building renovation.

⁸ Regulatory Assistance Project (2021): [Pricing is just the icing](#)



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About EPEE:

The European Partnership for Energy and the Environment (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.