

## EHI position on the review of the Energy Efficiency Directive

This paper presents the views of the European Heating Industry on the review of the Energy Efficiency Directive.

### Key messages

- A faster replacement of old and inefficient heating in buildings is fundamental to attaining the EU decarbonisation target for 2030.
- All energy efficient and renewable-based heating technologies, as well as all energy carriers are needed to achieve system integration and cut emissions in the hard-to-decarbonise buildings sector.
- The directive should establish an EU target for energy efficiency of 40% (art 3). It would provide a clear framework for decision makers to promote energy efficiency measures and is aligned with the goal to reduce CO2 emissions by 55% by 2030.
- A target of at least 6% / year should be set for the replacement of old and inefficient heaters (art. 7). Given that heating and hot water represent most of the energy needs of buildings and the short pay-back time of replacing heaters, this measure would help Member States make large energy savings, cost-efficiently.
- The scope of renovation requirements in public buildings should be extended to all public buildings, with limits to the use of alternative measures to renovation (art 5), because they represent a major potential source of energy savings.
- Include new decarbonised and renewable fuels in the Primary Energy Factor (annex IV), to ensure that energy efficiency policies targeting all fuels are properly accounted for.
- Ensure coherence across the Fit for 55 package: the review of climate and energy legislation, as well as of the ecodesign and energy label regulations for space and water heaters should contribute to achieving a faster replacement of old and inefficient heaters and cutting CO2 emissions from buildings.

### **A faster replacement of old and inefficient heating equipment in buildings is key to attaining the EU decarbonisation target for 2030.**

Attaining our targets for CO2 emissions reductions in 2030 and carbon neutrality in 2050 means that our economy and society must become more energy efficient. Most energy savings by 2030 will need to come from buildings <sup>1</sup> and the forthcoming review of the energy efficiency directive is a very good opportunity to make it happen.

<sup>1</sup> Stepping up Europe's 2030 climate ambition, European Commission, COM(2020) 562 final, p. 20.

The key to achieving these savings is to replace old and inefficient heaters in buildings with modern, efficient technologies.

Why? This is because modern heating technologies bring considerable energy efficiency gains – and potential savings are huge. The building sector is the single largest source of energy consumption in the EU, representing 40% of final energy consumption and 36% of CO<sub>2</sub> emissions.<sup>2</sup> Emissions from buildings have proven so far hard to abate, because the Moreover, heating and hot water production takes up the largest share (about 80%) of a building's total energy consumption. But most of the heating systems installed in Europe today – that is almost 60% of the total – are old and inefficient. Appliances are on average 25 years old and, if they were labelled today, they would end up in class D or below.

But today's replacement rate of old heaters, 4% a year, is too low. In fact, even a replacement rate of 5% would not cut CO<sub>2</sub> emissions by more 40% in 2030.<sup>3</sup> But cutting emissions by 40% is not enough. To achieve the new goal of 55% CO<sub>2</sub> emissions reductions in 2030, in line with the European Green Deal, an even higher replacement rate is needed. The renovation wave has identified the modernisation of heating systems as 'essential to decarbonise the EU building stock'.<sup>4</sup> Very recently, the industry, research and energy (ITRE) committee of the European Parliament 'note[d] with concern the low replacement rate of old and inefficient heating systems' as part of the report on the strategy for energy system integration.<sup>5</sup>

While product policy (ecodesign and energy label) do bring energy savings, by ensuring that only efficient appliances are placed on the EU market and raising people awareness, they do not per se accelerate the market uptake of energy efficient heating equipment.<sup>6</sup> Hence, measures are needed also in other pieces of legislation across the 'fit for 55 package', with a coherent approach. The directives on energy efficiency and energy performance of buildings should particularly contribute to accelerating the replacement rate of old and inefficient heating equipment.

A variety of efficient and renewable-based heating technologies and energy carriers is needed to achieve the EU targets for 2030 and 2050<sup>7 8</sup> and will provide the best platform to increase the share of renewable energy in heating. The reasons are several:

From a user perspective, a variety of heating technologies (multitechnology) and energy carriers allows to achieve decarbonisation in the most affordable and convenient way for their building and local circumstances.

From a building perspective, a multitechnology approach is needed to cope with the fact that buildings are different across Europe and so are heating needs, due to different climates, energy infrastructure, available renewable energy resources at local level, individual preferences and economic resources. There is no one-size-fits-all solution.

---

<sup>2</sup> A Renovation Wave for Europe, European Commission, 2020, p. 23.

<sup>3</sup> EU pathways to a decarbonised building sector, ECOFYS, 2016.

<sup>4</sup> A Renovation Wave for Europe, European Commission, 2020, p. 23.

<sup>5</sup> Energy System Integration report compromise amendments, ITRE vote, 18 March 2021.

<sup>6</sup> Impact assessment, Renewable energy directive 2016 recast, European Commission, p. 101.

<sup>7</sup> In-depth analysis, section 4.3.1

<sup>8</sup> Impact assessment for the EU 2030 climate target plan, Section 2.2.2.

From a system perspective, multitechnology is key to cope with the current sizing of grids and local availability of renewable energy sources. It will also reduce the needs of investments in additional energy infrastructure and supply.

### **Targets for energy efficiency and replacement of old and inefficient heating equipment should set clear objectives for decision makers.**

First, it is important that the overall target for energy efficiency in the EU be increased to 40%, in order to match the level of CO<sub>2</sub> savings needed by 2030 (art. 3).<sup>9</sup> This level would also be in line with the recommendation of the European Parliament, which has a long-standing position in favour of 40%.<sup>10</sup>

Second, there should be a target to replace old and inefficient heating equipment, as part of the energy savings obligations for Member States (art. 7). In order to contribute adequately to the 60% GHG reduction for buildings needed by 2030,<sup>11</sup> this target should be set at least 6% per year. This is because we know that even a 5% replacement rate will not bring Europe in line with achieving its CO<sub>2</sub> emission reduction targets for buildings in 2030. In fact, a 5% replacement rate will cut CO<sub>2</sub> emissions from heating in buildings by 40% in 2030 (see above).<sup>12</sup>

Energy savings obligations are a key measure for the energy efficiency directive, which is the cornerstone of the directive. Boosting the existing art. 7 with a specific provision for the replacement would help Member States achieve large energy savings quickly and at a low price tag.

This is because replacing an inefficient heater has an extremely short payback time, compared to other energy efficiency measures for buildings. As an example, in Italy, a condensing boiler pays back in 4.5 to 7 years, while an electric heat pump in 9 to 12 years, without incentives (source: Assotermica). In Germany, an A class condensing boiler pays back on average in 7 years. An electric heat pump, without subsidies, would pay back its investment in twelve to fourteen years, but 2020 subsidies bring it to similar levels to that of boilers (source: BAFA and BDH estimate). The result is that subsidy schemes in this sector have proven to bring revenues and savings for public budgets, minimising and even bringing down to zero the net costs.<sup>13</sup> Moreover, replacing a heater takes a short time (about 1 day on average) and when planned in advance is relatively hassle-free for a household.

Finally, today's heating technologies pave the way for further staged renovation of the building and achieving even higher energy savings. They do so by adapting heat production

---

<sup>9</sup> Impact Assessment to the 2030 EU climate target plan, European Commission, 2020, p. 49.

<sup>10</sup> A 2030 framework for climate and energy policies, European Parliament, 2014.

<sup>11</sup> Inception Impact Assessment on the Revision of the Energy Performance of Buildings Directive, European Commission, 2021.

<sup>12</sup> EU pathways to a decarbonised building sector, ECOFYS, 2016.

<sup>13</sup> Il recupero e la riqualificazione energetica del patrimonio edilizio: una stima dell'impatto delle misure di incentivazione, Servizi studi dipartimento ambientale e dipartimento finanze, Camera dei Deputati, Italy, December 2019.

(modulating), according to a building's heat demand; i.e., when at a later stage the thermal insulation of the building is improved, they can still operate efficiently, at a lower modulation.

To ensure the feasibility of this measure, as well as good prioritisation of replacement activities, it is important that each Member State has a clear view of the (in)efficiency of the installed stock of heaters in its buildings. In this sense, the comprehensive assessment of national heating and cooling potential for energy efficiency (Annex VIII) could play a very useful role. To do so, it should identify the efficiency of the installed heating technologies. This could start very simply, by identifying whether combustion boilers are condensing or not and prioritise the replacement of non-condensing units.

Moreover, targets should be accompanied by adequate measures to support people in their uptake of efficient heating technologies. A key barrier to be overcome is financial: while the payback time of a new heating technology is extremely short, compared to other energy efficiency measures for buildings, heaters still have a relevant upfront cost. The experience at national level has demonstrated that incentive schemes can be very effective in promoting efficient heating equipment.

A faster replacement rate of old and inefficient heaters will have positive economic consequences across Europe. Heating is a European industry: most of the production of heaters and 90% of the components is produced by European companies, for a total of about 120,000 jobs in the industry. And it has a large value chain, estimated at about 1,7 million installers and wholesalers of heaters, with local jobs all over Europe.

### **Extend renovation requirements to all public buildings.**

The scope of renovation requirements identified in the directive should be extended from 'buildings owned and occupied by the central government' to all public buildings. Moreover, it is important that these buildings be renovated; this means limiting the use of alternative measures, for which no renovation is carried out (Art 5).

Public buildings represent a major source of potential energy savings. They represent 12% of the whole building stock of the EU;<sup>14</sup> therefore, renovating them would bring very large savings. According to the latest impact assessment available on the consequences of renovating public buildings, energy-savings investments would pay back in 8 years.<sup>15</sup> Moreover, renovation would act as a flywheel, creating jobs at a moment when they are much needed for the European economy.

Increasing the renovation requirements to all public buildings – as opposed to only the ones owned and occupied by the central government – means increasing the number of buildings that should undergo renovation and most likely further broadening the geographical distribution within the country to the benefit of areas outside the largest cities or the capital.

---

<sup>14</sup> Impact assessment to the proposal of the first energy efficiency directive, European Commission, 2011, p. 43.

<sup>15</sup> Impact assessment to the proposal of the first energy efficiency directive, European Commission, 2011, p. 40.

### **Include new, decarbonised and renewable fuels in the Primary Energy Factor.**

The evolution of the energy mix should be adequately reflected in the Primary Energy Factor (PEF), to ensure that the decarbonisation measures affecting all fuels are properly accounted for.

On the PEF for electricity: this means assessing the need to review the PEF, according to the schedule already envisaged by the directive (Annex IV). Any revision should be based on accurate data on the efficiency of electricity production in Europe today, not on predictions.

Moreover, such PEF revision in the EED should not be applied automatically in ecodesign and energy labelling. This is because too frequent changes in the stated energy efficiency of products (energy label) would result in confusions for end-users.

In addition, similarly to what happens for electricity, the share of decarbonised and renewable energy in fuels should be accounted for, as it is expected to increase in the coming years. Such increase should be reflected in the directive (Annex IV), to make sure that Member States can plan adequately their energy efficiency measures. A lower “PEF” for fuels would make it clear to Member States that they are obtained from renewable energy sources. This is relevant also for the future, as fuels – in particular gaseous fuels – are expected to represent the bulk of the non-electricity consumption for the heating of buildings under the European Commission carbon neutrality scenarios for 2050.<sup>16 17</sup>

### **Ensure coherence across the ‘Fit for 55’ package.**

The provisions envisaged for the energy efficiency directive should be complemented by coherent measures across the ‘fit for 55’ package:

- In the energy performance of buildings directive (EPBD):
  - Introduce a 60% greenhouse gas emissions reduction target in 2030 (in line with the need to achieve 55% emissions cuts by 2030), with an adequate governance to uphold it.
  - Acknowledge hybrid appliances explicitly in the directive.
  - Reintroduce systematic checks of heating equipment and introduce an energy label for the installed stock, to raise awareness on need to replace old and inefficient heaters.
  - Introduce a replacement obligation for old and inefficient heating equipment and a scrappage scheme to overcome the financial barrier of upfront costs.
  - Assess the creation of an indication of CO<sub>2</sub> performance for buildings in the use phase.

---

<sup>16</sup> European Commission, In-depth analysis for the Clean Planet for All Communication (2018), p. 105.

<sup>17</sup> There is already one example of rollout of a similar policy. In Germany, as part of the building energy law (GebäudeEnergieGesetz), gases where a share of 50% is of biological origin have their PEF reduced to 0.7.

- Train enough installers to handle the ‘Renovation Wave’: upskilling installers and increasing their number will be essential to deliver faster replacement with new heating equipment.
- Replacement of heaters should be considered as an example of deep renovation, due to high energy savings and CO2 cuts.
- In ecodesign and energy label:
  - Conduct a full review study to determine the effects of downgrading heating products on the energy label (rescaling) on the acceleration of the replacement of installed, old and inefficient appliances before rescaling.
  - Promote hybrids by creating a product category for them.
  - Promote the use of renewable and decarbonised gases for heating.
- In the renewable energy directive:
  - Increase target for renewable energy to 38-40%, in line with the need to achieve 55% emissions cuts by 2030.
  - Yearly increase in renewables for heating and cooling should be raised to at least 2.3 percentage points / year and made mandatory.
  - New buildings and buildings undergoing major renovation should be equipped with a share of renewable energy.
  - The use of renewable energy in energy carriers used for heating should count to achieve the renewable heating and cooling annual increase.
  - Acknowledge the renewable energy captured by all heat pumps technologies.

**About EHI, the Association of the European Heating Industry**

*EHI represents 90% of the European market for heat and hot water generation, heating controls and heat emitters, 75% of the hydronic heat pump market, 80% of the biomass central heating market (pellets, wood) and 70% of the solar thermal market. EHI Members produce advanced technologies for heating in buildings, including: heating systems, burners, boilers, heat pumps, components and system integrators, radiators, surface heating & cooling and renewable energy systems. In doing so, they employ about 120,000 people in Europe and invest over a billion Euros per year in energy efficiency. [www.ehi.eu](http://www.ehi.eu)*