

## Transitioning away from boiler emissions

### Marcogaz propositions for the guidance on «fossil fuel boiler» definition – May 2024

#### Position Paper

The Energy Performance of Buildings Directive (EPBD) was adopted by the European Parliament on 12th March 2024 and by the Council on 12th April 2024: Marcogaz welcomes it and supports its goal of achieving a Zero-Emission Building (ZEB) stock by 2050, and its related target of phasing out fossil fuels from the building sector.

Concerning boilers, Marcogaz welcomes the distinction made by **the Directive between the boiler as a technology, and the fuel used to power it (and more particularly its emissions):**

- **Boilers, as a technology, can be used in Zero Emission Buildings, the directive's target for all buildings in 2050, if it is fuelled by renewable energy**, as mentioned in recital 22<sup>1</sup> : the boiler, as a technology, is therefore part of the toolbox for achieving the 2050 decarbonation objectives.
- The directive calls for a phase out of “boilers powered by fossil fuels” or “fossil fuel boilers”. It should be noticed that the boiler as a technology is not targeted, otherwise it would have been formulated more simply as a “phase out of boilers”. The issue is to phase out fossil fuels in building heating, including in the most common heating appliance, stand-alone boilers. The ambiguous use of the expression “fossil fuel boiler” **raises this question: until which share of fossil fuel supply should a boiler be considered as a "fossil fuel boiler", and therefore phased out?**

Shedding light on this question is important to clarify what is expected from the Member States at the following two key dates:

- **“From 1 January 2025, Member States shall not provide any financial incentives for the installation of stand-alone boilers powered by fossil fuels» (article 17.15)”**
- **“Member States should strive to phase out stand-alone boilers powered by fossil fuels» (recital 14) «with a view to a complete phasing out of fossil fuel boilers by 2040“(annex II)”**

Therefore, the article 13-8 of the Directive requests the Commission to “issue guidance on what qualifies as a fossil fuel boiler”.

***This position paper provides the propositions of Marcogaz in view of the next Commission’s guidance.***

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<sup>1</sup> Recital 22: « different options are available to cover the energy needs of a zero-emission building: energy generated on site or nearby from renewable sources (...). Energy derived from combustion of renewable fuels is considered to be energy from renewable sources generated on-site where the combustion of the renewable fuel takes place on-site. »

Marcogaz proposes the following principles:

In the context of the phrasing "fossil fuel boilers" in Annex II, the meaning is (short for): "boilers powered by fossil fuels, as stated in other parts of the regulation". As a general principle, a technology that can use several fuels cannot be associated to just one fuel (fossil) by default, especially if this is done only for one typology of appliances, and not for all others. Moreover, today, there is no fully renewable or "low-carbon" energy vector in the mix (gas, heat, or electricity), hence, gas appliances should not be ostracized but should benefit from the same opportunity to transition to a lower carbon-intensity as the other typologies of appliances (technology neutrality). Emissions and footprints should be banned for all energy vectors and appliances, and carbon intensive users should be penalised on the basis on their non-demonstrated low-carbon level and footprints.

Proportional application of low-carbon fuels (renewable or not) in one application should get their proportional added value recognised for their percentual presence, because the Energy Transition is meant to imply a progressive 'transition' and hence an increasing proportional replacement in time. Hence, thresholds for the consideration of an appliance as emitting (the right term is emitting, not fossil) (as a whole) should not be used.

Note: by "low-carbon fuel", we mean fuel which is not from renewable origin (as defined in RED) but have a decrease of its carbon intensity through carbon capture or market instruments like certification (as it is currently done for "green electricity") but by the application of mass-balance by consignment (stricter) and sustainability conditions.

1. Hybrid heating systems and packages, such as the combination of a boiler with solar thermal or with a heat pump, should not be in the scope of "fossil fuel boilers"<sup>2</sup>. Indeed, fossil fuel boilers are "standalone boilers powered by fossil fuels" as mentioned several times in the Directive. In addition to all that is mentioned above in the prior paragraphs.

2. **A boiler should not be classified as a "fossil fuel boiler" if it consumes a significant proportion of non-fossil fuel** (renewable or low-carbon) or if its emissions and footprint have been abated by either market or physical means. This will facilitate the transition. The proportional value of the use of low-carbon fuels should be recognised for their percentual presence (and certification is there to help this process).

3. Each Member State should therefore define (for example in its national renovation plan), for each type of fuel, its national trajectory for the minimum proportion of low-carbon fuels (renewable and not), or maximum footprint and emissions for boilers (so that it is no longer considered a "fossil fuel boiler").

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<sup>2</sup> e.g. recital 14: "It should still be possible to provide financial incentives for the installation of hybrid heating systems with a considerable share of renewable energy, such as the combination of a boiler with solar thermal or with a heat pump".

**This trajectory should be in line with its production projections for each type of low-carbon fuel.** Determining such a trajectory will be beneficial for the low-carbon and non-fossil fuel production sectors, because it will:

- give an outlook of the quantities of low-carbon and non-fossil fuels likely to be consumed by the building sector, and therefore reassure producers of the quantities needed;
- give consumers the use and benefit of low-carbon and non-fossil fuels produced close to their home and will therefore encourage public acceptance of low-carbon and non-fossil energy production plants (methanisation, pyro or hydrothermal gasification, methanation, electrolyse, bio propane or bio-oil production, new techniques for smaller CCUS and market-based abatement via certificates...).

**A systemic approach (from non-fossil fuel producers to consumers) by the Member States is surely a key success factor for shifting from unabated fossil fuel use in boilers to low-carbon and non-fossil fuelled boilers,** as developed in Annex 1.

4. To determine the proportion of low-carbon and non-fossil fuel consumed by a boiler (and hence their emissions), fuel certification can be used (notably via the UDB). To determine the footprint of boilers further assessments can be made (notably via a more correct Ecolabelling system than the one that exists today and via a re-evaluation of the PEFs). Proportional recognition and market instruments need to be enabled to **facilitate the Energy Transition.**

**In summary, Marcogaz proposes these changes to the definition of a “fossil fuel boiler”**

*A “fossil fuel boiler” is a boiler that uses fossil fuels that have carbon emissions (i.e. those fuels not certified as low-carbon or renewable) and only for the proportion that it does so.*

This definition also explains, by its opposite, **what are “low-carbon fuel boilers” (renewable or not)** – and this “low-carbon boilers” **will remain, even after 2040, in the toolbox of the available solutions,** provided that the needed volumes of low-carbon and non-fossil fuels are dedicated to the building sector:

European production capacity for low-carbon and non-fossil and renewable fuels is substantial: for instance, the Commission has set ambitious targets of 380 TWh (35 bcm) of biomethane to be produced by 2030, and within the framework of REPowerEU, studies are showing that **European potential is 1600 TWh (150 bcm) by 2050.** Part of these volumes could be used in industry or heavy mobility, but **a part should be devoted to the building sector. Boilers are indeed a key support for the transition of the building sector and for achieving 2050 ZEB stock,** as already detailed in a previous Marcogaz position paper<sup>3</sup> :

- boilers are helpful for **affordability**: boilers cost at least 3 times less than heat pumps, which leaves financial means available for the insulation of dwellings; moreover, boilers are produced mostly in Europe;
- boilers don't increase the seasonal peak demand (as happening during the combination of a cold wave and a Dunkelflaute<sup>5</sup>), and the considerable systemic

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<sup>3</sup> “Pan-European boiler ban in 2029: another way is possible and preferable” – Marcogaz – June 2023

investments that they will need on electric grids and dispatchable peak capacity for very rare events and due to recurrent dynamic congestion and unscheduled flows;

- boilers constitute a solution for households facing a **technical impossibility or legal deadlock** to install a heat pump or to connect to district heating... It will prevent them from having no choice but to turn to direct electric heating, which is twice less efficient than boilers and is very demanding on electric infrastructures (not to speak of costs).
- at least and mostly, boilers are needed, as shown by a study of the European Heating Industry Association<sup>4</sup>, for **optimizing the cost-effectiveness of the transition, which of the utmost importance because it's explicitly requested in the article 1 of the Directive**: the 2050 goal must be achieved «taking into account (...) cost-effectiveness». There is no one-solution that fits all for heating and diversity has synergies for security of supply, efficiency, affordability, and footprint.

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<sup>4</sup> “Decarbonization pathways for the European building sector” – EHI – October 2022. In this study, non-fossil fuel boiler appears to be a key asset for optimizing the speed, efficiency and cost of the energy transition in the building sector.

## Annex 1:

*The main issue is pollution, emissions and footprint, not fuels and technologies.*

*To achieve the phasing-out of the pollution associated to unabated fossil fuels in buildings, a systemic approach is required and should be reminded in the guidance*

- **Foster the uptake of low-carbon and renewable production:**
  - means such as an obligation to use a growing share of low-carbon and non-fossil gas also in buildings and in a progressive (transition) with defined trajectories, by means of green contract (market instruments, and certification) or blending obligation, are a unique opportunity to boost the development of biomethane and other low-carbon and non-fossil gas productions.
  
- **Facilitate and make more attractive building renovation:**
  - Give more choices to homeowners to decarbonise their building: in many cases, electric only solutions are not technically or economically feasible;
  - demand-reduction: inclusion of low-carbon and non-fossil fuels among other measures like isolation and hybrid systems will make more efficiency possible reducing the demand, which will have a direct positive impact on the energy bills.
  
- **Consider the local energy system capacity:**
  - as it can already be seen in some countries, the local electric system may not be able to manage a large-scale heating electrification, either because there is not sufficient renewable power production, or no sufficient capacity to handle a peak event, like several days of dunkelflaute<sup>5</sup> combined with a cold wave, on the dispatchable production and/or grid capacity side. Moreover, more investment in grids and power renewables with no diversification only adds to the problem due to physics and carrier logistics efficiency. Efficient boilers using low-carbon fuels and with a growing share of green gas and building insulation can be a cost-effective first step towards diversification synergies, lower footprint, higher security of supply and lower bills. All these can be later completed by the addition of smart heat-pumps for some proportion, when economic and co-able to manage the optimisation of renewable electricity integration and grid congestion (if technically and economically feasible, indeed, as pre-condition).
  
- **Ensure traceability of the low-carbon and non-fossil share of fuel used** and on customer's commitment to use a minimum share of renewable fuels when they have received subsidies or for new buildings after 2030.

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<sup>5</sup> Definition: <https://en.wikipedia.org/wiki/Dunkelflaute>

- For the share of low-carbon and renewable gas used, in many MS (France, Germany) “green contract” specifies the share of non-fossil fuel delivered to the house. Control in mass-balance by consignment can be done at the supplier’s level;
  - Member states shall explain how they will ensure that customer’s commitment to low-carbon and non-fossil gas used is controlled. It can rely on the UDB (Union Database) as described in Article 31a of RED3.
- Furthermore, **other essential collateral aspects should be the subject of particular attention by the European Commission**, for examples:
- **the reutilization of existing gas networks** which will make it possible to supply buildings with renewable gas and therefore boilers are also those which are used to supply manufacturing/production sites in Europe. Considering their reduction or local elimination will have a negative impact on European industry, which is contrary to the current European reindustrialization policy. It is better reuse these networks than strand them, especially considering their high efficiency in terms of costs and throughput capabilities (compared to other carriers).
  - the fact that **boilers compatible with renewable gases are currently manufactured in Europe**, which makes possible to preserve jobs in Europe and which makes possible to limit the carbon weight of relevant European gas solutions versus technological solutions manufactured mainly in Asia.
  - on the **consistency of the future EC Guidance with EU regulations**, it is crucial that the guidance that will be established are consistent with existing texts and those currently being revised, in particular the Energy Efficiency Directive (EED), the Directive on renewable energies (RED), the regulation on gas appliances (GAR) and the regulations on Ecodesign and Energy Labeling (EcoD/EE), and in particular the safety requirements applicable to boilers and harmonized standards (ENh) which are applicable to them (EN 15502 series, EN 437 - gases and test pressures, etc.), without forgetting the corresponding CE Marking procedures. The main principles of the Energy Transition include concepts like: leaving no one behind, technology neutrality, polluter-pays, no discrimination, level-playing field, proportionality, justification, etc.