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Phase-out regulations for fossil fuel boilers at EU and national level

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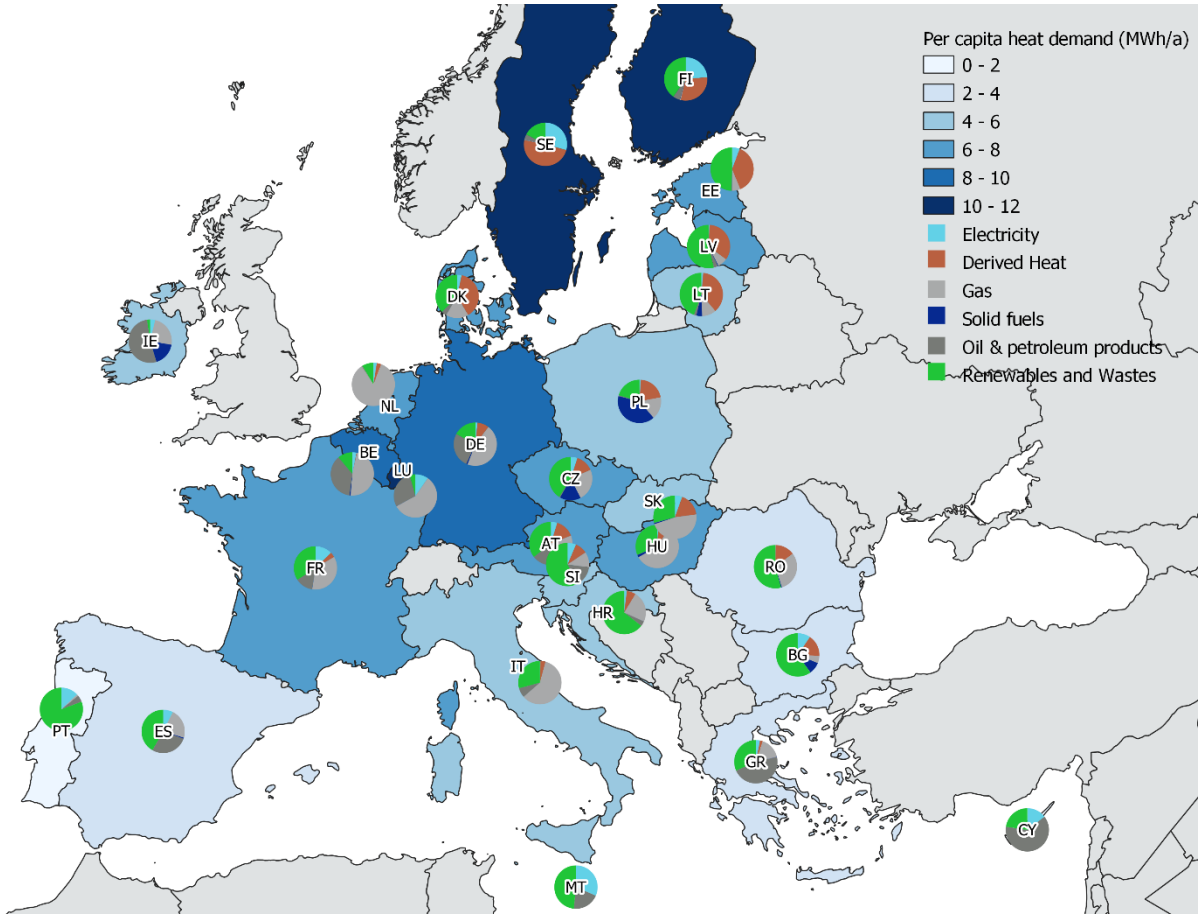
Summary

The decarbonisation of the heating sector is a key priority for achieving climate neutrality in the EU by 2050. The EU heating and cooling (H&C) sector is largely based on fossil fuels, with renewable energy providing only 22 % of gross final energy demand[1]. With an average increase of the renewable share in H&C of less than 1 % per year over the past 15 years, the pace of phasing out fossil fuels in the heating and cooling sector needs to dramatically increase in order to achieve climate neutrality by 2050.

Space heating makes up for more than a quarter of the final energy demand in the EU and is largely based on fossil fuels. Figure I shows that in many countries, gas is the main energy carrier for heating (e.g. Netherlands, Belgium, Germany, Italy, Hungary). Oil also plays an important role in several countries (e.g. Belgium, Germany, Ireland), whereas solid fossil fuels have a minor share except for a few countries (e.g. Poland, Czech Republic Ireland).

Figure I: Per capita heat demand and energy mix for space heating in the EU MS.



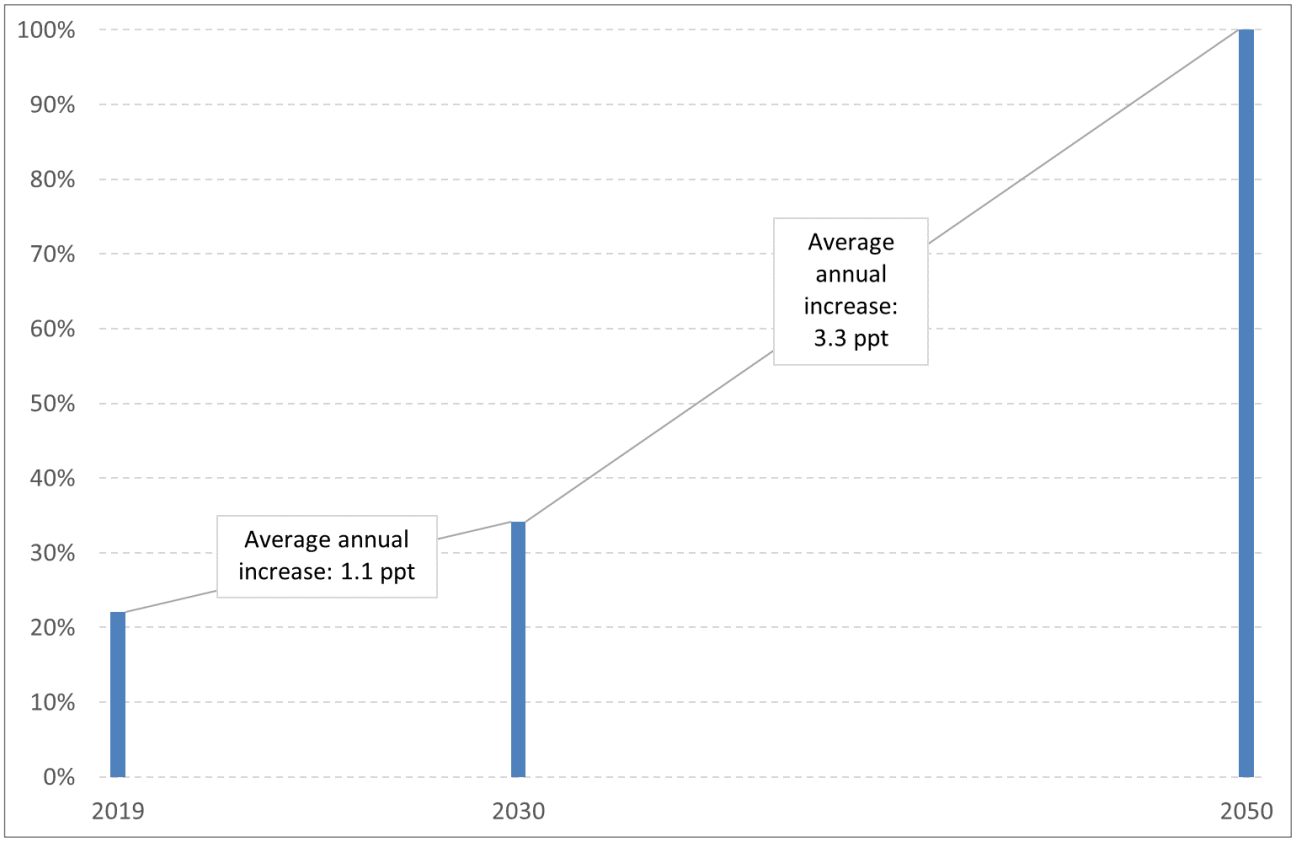
Source: Öko-Institut based on Eurostat data.

The EU heating sector is currently not on track towards decarbonisation. To meet the EU goal of net zero in 2050, the heating sector needs to be fully decarbonized. The proposal for the revised

[1] Source: Eurostat Shares data.

Renewable Energy Directive[2] foresees a binding target for the annual increase of the share of renewable energies in the heating sector of 1.1 percentage points (ppt)[3]. However, with an annual increase of 1.1 ppt, renewable heating/cooling would account for up to around 36 % in 2030. This implies that the required annual rate has to more than double after 2030 to reach 100 % in 2050 (Figure II).

Figure II: Share of renewable heating in the EU and required annual increase rates



Source: Öko-Institut 2021.[4]

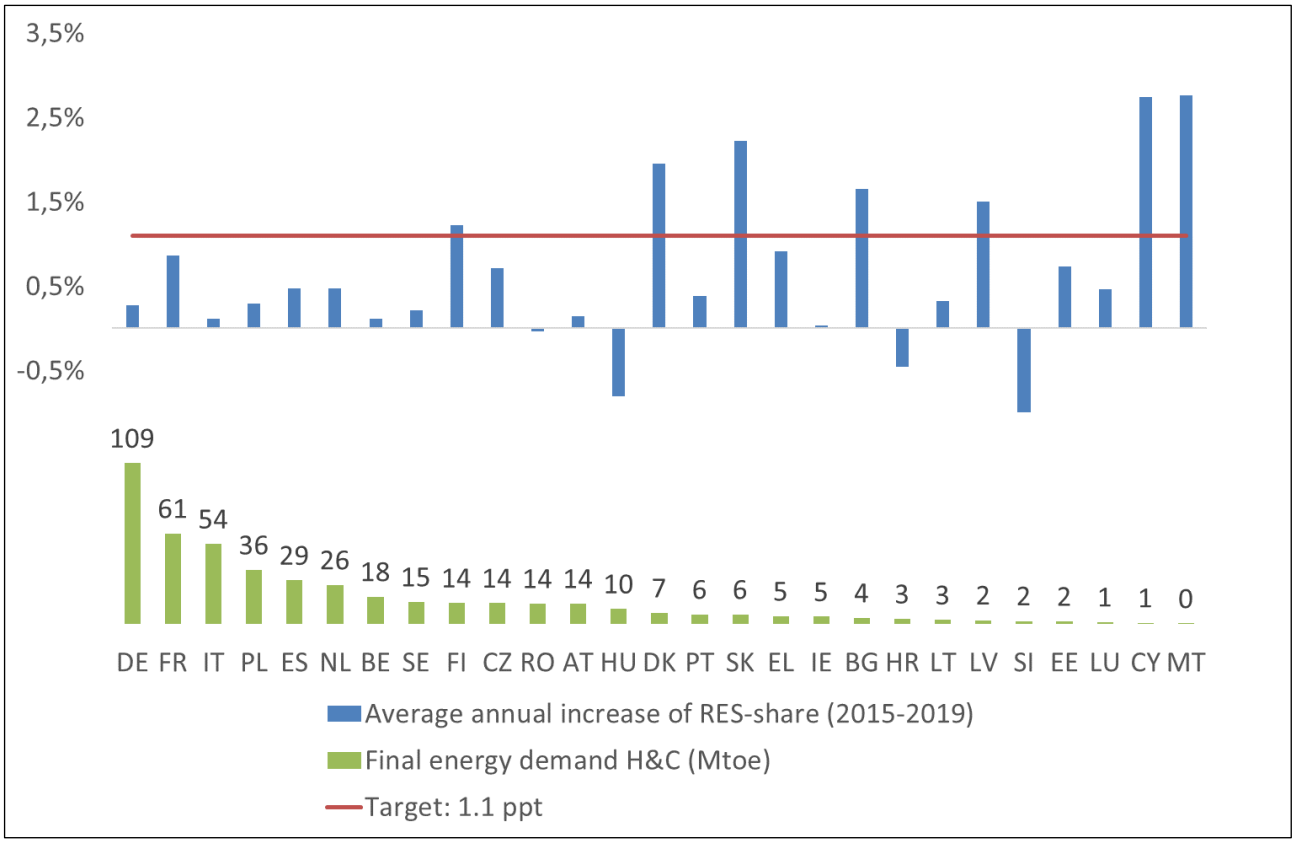
At the same time, most Member States are currently not on track for meeting the target of increasing renewable energies in heating by 1.1 ppt per year. Especially the Member States with high heating demand such as Germany, France or Italy fall short of meeting the target (Figure III).

2 Proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2018/2001 of the European Parliament and of the Council, Regulation (EU) 2018/1999 of the European Parliament and of the Council and Directive 98/70/EC of the European Parliament and of the Council as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0557

3 For Member States using waste heat the target is increased to 1.5 percentage points.

4 Öko-Institut: Is the EU heating sector “fit for 55”?/ Ist der Wärmesektor „Fit for 55“? Available online at: https://blog.oeko.de/is-the-eu-heating-sector-fit-for-55-ist-der-waermesektor-der-eu-fit-for-55-eng-deu/

Figure III: Average annual increase rates of the renewable energy shares for heating (2015-2019)



Source: Öko-Institut 2021.[16]

The transition of the buildings sector towards climate neutrality thus requires extensive additional efforts:

- At the EU level, key legislations are currently under review with the aim of aligning the ambition of the policy framework to the increased ambition of the 2030 target and to the objective of climate neutrality in 2050. As the decarbonisation of heating and cooling in buildings is addressed across key EU legislations[5], the ongoing revisions provide an opportunity to strengthen the legislative framework for decarbonising buildings.
- At the national level, more action is needed as the policy strategies presented in the long-term renovation strategies are not compatible with the objective of reaching climate-neutrality in 2050[6].

[5] Main legislations that include provisions for the buildings sector include the Energy Performance of Buildings Directive (EPBD), the Renewable Energy Directive (RED), the Energy Efficiency Directive (EED) and the EU Ecodesign Directive. Furthermore, an Emissions Trading System (ETS) for the buildings and transport sectors has been proposed.

[6] See for instance: Buildings Performance Institute Europe (BPIE), The road to climate-neutrality: Are national long-term renovation strategies fit for 2050? Available online at https://www.bpie.eu/wp-content/uploads/2021/03/BPIE_LTRS-_10-1.pdf.

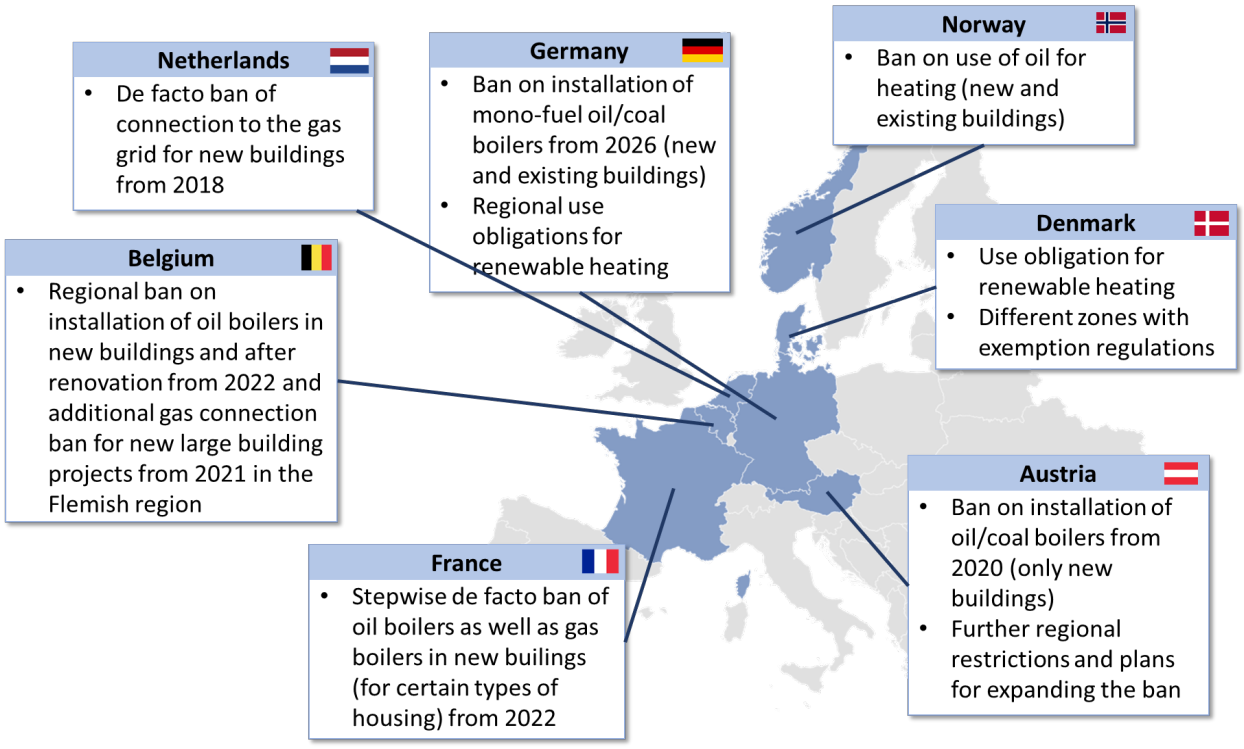
With an average lifetime of 20 - 25 years, the installation of boilers using fossil fuels needs to be phased out rapidly in order to reach climate neutrality by 2050. This phase-out needs to be supported by an ambitious policy framework at EU level as well as in the EU Member States.

In view of the urgent need to accelerate the decarbonisation of heating in buildings, this study assesses key opportunities to introduce policies to phase out fossil fuel boilers at the EU and national levels.

Overview of restrictions for fossil fuels heating in EU Member States

Several EU Member States have taken different approaches for phasing out fossil fuels for heating (see Figure IV, for detailed information see Annex I).

Figure IV: Overview of restrictions for fossil heating in EU Member States and Norway



Source: Öko-Institut.

In Denmark, a **ban on the installation of fossil oil and gas boilers** in new buildings was implemented already in 2013.The current Danish building regulation of 2018 introduced a **general obligation for renewable heating** connected to zoning regulations: New and existing buildings located in district heating (DH) areas can only be heated by DH or by renewable sources. This factually represents a ban of fossil oil and gas boilers for new and existing buildings in DH zones. In areas with a gas grid established or officially approved before 2013, buildings can still be heated with natural gas, but not with fossil oil. Outside the DH and gas zones, existing buildings do not fall under the renewables obligation, whereas new buildings in these areas must be heated using renewable energies. Furthermore, in buildings with a fossil heating system that undergo renovation or alteration work, renewable energy must be integrated to the heating system “to the extent this is technically possible and financially viable”.

Austria introduced a **ban on the installation of central heating boilers running on liquid or solid fossil fuels in new buildings**. Moreover, the current government program contains further plans for regulations concerning the phase-out of fossil oil and gas boilers.

In Norway, the **use of mineral oil for heating of buildings is prohibited** since 2020. This covers new and existing buildings and includes the use of oil in existing boilers.

In France a regulation is planned to enter into force in 2022, containing rules on carbon efficiency for new buildings with a **maximum threshold for the CO_2 emissions per square meter and year** with different levels depending on the building type. This will factually exclude systems relying on fossil fuels only. The regulation thus indirectly bans heating by fossil sources by implementing stringent carbon efficiency measures.

In Belgium the Flemish region introduced a **ban on fuel oil boiler installation for new buildings and major energy renovations in residential and non-residential buildings** from 2022 on. Moreover, concerning existing buildings, a heating boiler may only be replaced by a fuel oil boiler, if no connection to the fossil gas grid is possible. The Brussels region plans to phase-out heating oil from 2025 on. At national level, a ban is planned for 2035. Additionally, Flanders adopted a gas connection ban for large building projects, active since 2021.

In the Netherlands, the **connection of new buildings to the gas grid has been** banned. Furthermore, the Netherlands have introduced a local planning approach to phase-out the use of gas for heating at district level (gas-free districts).

In Germany, the **installation of mono-fuel fossil boilers is banned** from 2026. Furthermore, new buildings are subject to a use obligation for renewable energies. Some regions (Baden-Württemberg and Hamburg) have introduced use obligations for renewable energies in existing buildings (trigger point: exchange of heating system).

Some other EU Member States have adopted or planned phase-out regulations for fossil heating. Slovenia for example plans a ban on the installation of fossil oil and coal boilers from 2023 on[7]. Finland, where the share of fossil oil in heating is already low, stated in their NECP (2019) that they plan a ban on oil heating in government-owned buildings after 2024 and a stepwise phase-out of fossil oil heating in general from 2030 on[8]. Ireland formulated the goal to effectively ban the installation of fossil oil boilers starting 2022 and fossil gas boilers from 2025 for new buildings[9]. This is implemented by setting rules for a high level of energy performance for new buildings to be Nearly Zero Energy Buildings that effectively do not allow for pure fossil heating.

Recommendations for national phase-out regulations

For phase-out regulations to provide a significant contribution towards decarbonising the EU buildings stock, the **scope of these regulations needs to comprise all fossil energy carriers**

7 Euroheat. 2021. https://www.euroheat.org/news/slovenia-gets-new-law-renewables-heating-boilers-oil-coal-banned-2023/.

8 Finlands Integrated Energy and Climate Plan. 2019. https://ec.europa.eu/energy/sites/ener/files/documents/fi_final_necp_main_en.pdf.

9 National Energy & Climate Plan. 2019. https://ec.europa.eu/energy/sites/ener/files/documents/ie_final_necp_main_en.pdf.

including natural gas and cover both new and existing buildings. With gas being the leading energy carrier accounting for 39 % of EU energy demand for space heating, the potential of phase-out legislations to reduce emissions is particularly large for gas heating. The coverage of existing buildings is of key importance as new buildings make up for a minor share of GHG emissions.

Phase-out regulations can be introduced following a **staged approach**, e.g. by first phasing out fossil fuels in new buildings followed by a phase-out of fossil fuel in existing buildings. **However, with an average lifetime of fossil boilers of 20 - 25 years, the scope of the regulations needs to be expanded rapidly to cover a large share of the buildings stock as well as all fossil fuels for heating by 2025**. Phase-out regulations for new buildings therefore need to be introduced immediately.

The level of **stringency** of phase-out regulations needs to be aligned to the objective of full decarbonisation and should therefore largely **exclude hybrid technologies using fossil fuels**. Partial phase-out regulations, such as use obligations for renewable energies with low minimum shares and bans for fossil boilers allowing hybrid solutions, create lock-in effects as fossil fuels remain the main energy carrier for heating.

The **use of biofuels, synthetic fuels and hydrogen needs to be addressed in a restrictive way** in phase-out regulations, as the future availability of such fuels at affordable prices for individual space heating is uncertain[10]. The blending of such fuels should not be included as an option in phase-out regulations, as a lock-in is created and consumers face a risk of future high prices of such fuels. The use of such fuels should be restricted to buildings where no other options are viable.

Phase-out regulations for gas should be connected to spatial heat planning, as the decarbonisation of space heating requires at least a partial reduction of the gas distribution grid. This also requires a regulatory framework for decommissioning the gas grid.

Compatibility of national phase-out regulations with EU legislations

With the EU ecodesign framework providing harmonised requirements for heating appliances in the EU, the study analyses whether these provisions pose limitations on Member States willing to introduce national phase-out regulations for heating.

The analysis shows that while ecodesign regulations do restrict the Member States' scope of action to introduce national provisions restricting the efficiency of such appliances, this does not apply to restrictions on the **usable fuels in such heating systems**. Neither ecodesign Regulation (EU) 813/2013 for space heaters and combination heaters nor ecodesign Regulation (EU) 814/2013 for water heaters and hot water storage tanks include any provisions on the fuels which can be used in such systems.

There is no violation of the free movement of goods clauses of Article 6(1) and (2) of the Ecodesign Directive 2009/125/EC, since this has only a prohibitive effect on national measures

- which either relate to the same ecodesign parameters for which there are specific relevant provisions in an ecodesign implementing regulation,

[10] See e.g. Ueckerdt, F., Bauer, C., Dirnaichner, A. et al. Potential and risks of hydrogen-based e-fuels in climate change mitigation. Nat. Clim. Chang. 11, 384–393 (2021). https://doi.org/10.1038/s41558-021-01032-7.

- or which relate to ecodesign paramenters for which the regulatory part of an ecodesign implementing regulation expressly stipulates that they are not necessary.

Either fact does not apply here with regard to the admissibility of the fuels used.

This understanding is clearly confirmed by the Decision (EU) 2020/654 of 13 May 2020 of the EU Commission to approve the German Regulation on small and medium-sized combustion units (1st BImSchV – Ordinance for the Implementation of the Federal Immission Control Act) stipulating requirements for solid fuel boilers as derogations from Ecodesign Regulation 2015/1189.

In the decision, the EU Commission indicates that the free movement of goods clause clause only covers national provisions that set requirements for the respective products with regard to the parameters regulated in the respective ecodesign Regulation. It does not cover national provisions that only concern other parameters or that only establish requirements for use and monitoring, i.e. it does not matter whether these may have an indirect negative impact on the placing on the market of the products covered by the respective ecodesign Regulation.

In addition, the second sentence of Article 6(1) of the Ecodesign Directive provides possibilities for Member States to introduce provisions for the buildings sector. The sentence restricts the Ecodesign Directive's limiting effect when setting requirements for the energy performance of buildings and technical building systems in order to comply with the EPBD. This means that the provisions of the Member States – due to the special exception clause of Article 6(1) second sentence of the Ecodesign Directive – can also go further with regard to individual ecodesign parameters than the minimum requirements laid down for the installations concerned in an ecodesign regulation.

Specifically, for national provisions that have a restrictive effect on the use of fossil gas, the Gas Appliances Regulation (EU) 2016/426 is relevant in addition to the Ecodesign Directive and its implementing regulations. This contains an independent free movement of goods clause (Article 6(1)). According to this clause, Member States "*shall not, on grounds relating to the aspects covered by this Regulation, prohibit, restrict or impede the making available on the market and the putting into service of appliances which comply with this Regulation*". However, the provisions of the Regulation do not refer to aspects such as climate protection or – more specifically – the reduction of greenhouse gases by the gas appliances in question. Consequently, the limiting effect of this clause does not extend to national provisions restricting the use of fossil gases for climate protection reasons either, even if this indirectly impairs the marketing conditions for gas appliances that comply with the Regulation.

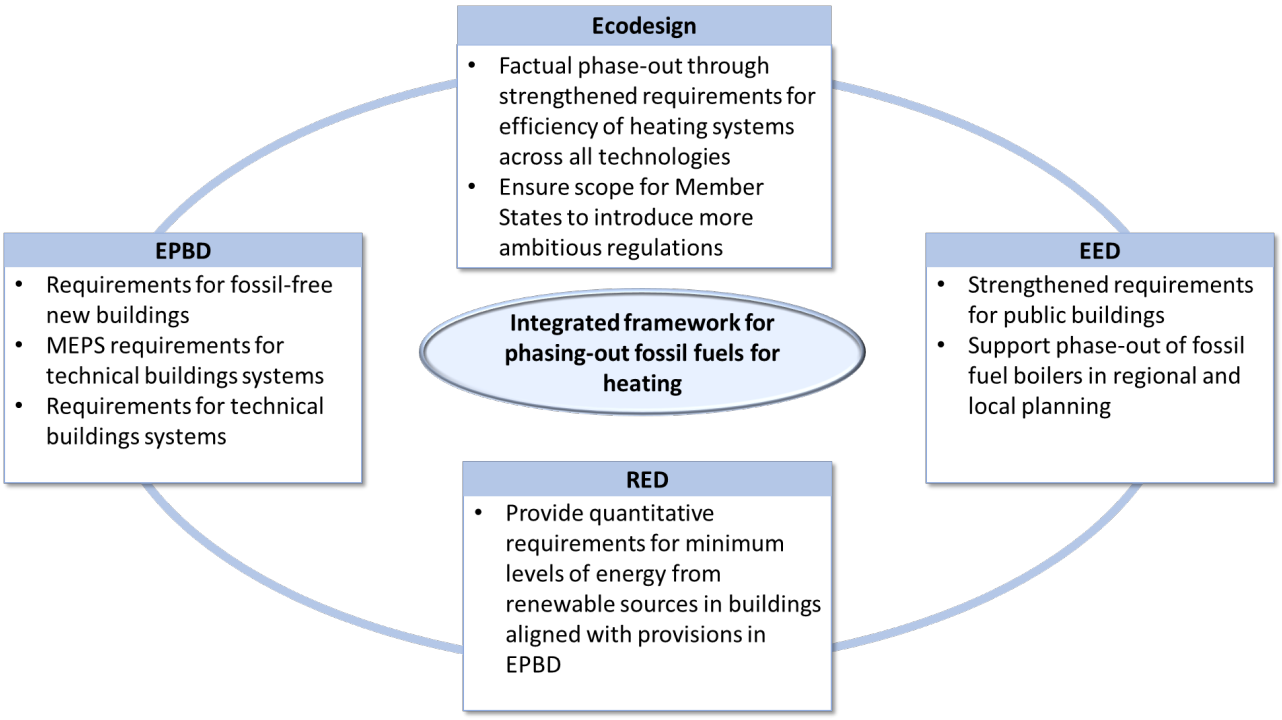
Furthermore, national measures that are not subject to harmonisation by an EU directive or regulation must be compatible with the general provisions of the Treaty on the Functioning of the European Union (TFEU) and thus in particular with the regime of the free movement of goods (Art. 34/36 TFEU). The examination of the primary legislation has shown that there are, in principle, no objections to the prohibition or restriction provisions under consideration with regard to the free movement of goods, because the measures would be sufficiently justified with reference to climate action goals, they do not have a discriminatory effect and they do not impair the internal market more than is necessary to achieve the goals pursued.

Options for phasing out fossil fuels at EU level

At the EU level, the phase-out of fossil fuels for heating needs to be addressed consistently across all relevant legislations. The transition from fossil-based heating towards climate neutrality is subject to a variety of provisions in several legislations. The ongoing revisions of these legislative pieces

need to be aligned to ensure a consistent framework for phasing-out fossil heating. Figure V provides an overview of key legislations.

Figure V: Overview of key legislations for an integrated framework for phasing-out fossil fuels for heating in buildings.



Source: Öko-Institut.

The phasing-out of fossil fuel heating has received increasing interest recently in the context of the revision of the **ecodesign** implementing regulations for heating systems[11]. Within the ecodesign framework, a phase-out of mono-fuel fossil heating systems could be introduced by defining minimum thresholds for the efficiency of heating systems that exceed 100 %. While this approach has the advantage of providing a harmonized framework for phasing-out fossil fuels at EU level, it faces the risk that the ambition of the legislation would be set at a low level to adapt to the needs of the most affected countries and regions.

Aside from the ecodesign framework, there are several options to introduce restrictions for the use of fossil fuels in heating systems.

The **Energy Performance of Buildings Directive (EPBD)** contains several provisions that allow for introducing restrictions on the use of fossil fuels for heating:

- The performance requirements for buildings and building elements (Art. 3-7) could explicitly include the requirement for buildings to be heated with 80 % renewable energies by 2025, ensuring that all new buildings and buildings under major renovation are (nearly) fossil-free. It is then in the responsibility of the Member States to implement the requirements in national

[11] See e.g. ecos: Open letter: Phasing out new fossil-fuel based boilers is vital to achieving the EU's climate commitments. Available online at https://ecostandard.org/publications/open-letter-phasing-out-new-fossil-fuel-based-boilers-is-vital-to-achieving-the-eus-climate-commitments/

regulations, ensuring that the requirements are met for all buildings where it is technically possible and economically reasonable.

- For new buildings, the requirement for fossil-free buildings could be introduced into the concept of nearly zero-energy buildings.
- The requirement for setting requirements for technical building systems (Art. 8) could explicitly state that at the replacement of boilers, heating systems need to use at least 80 % renewable energies. A staged approach is recommended, where the share increases with time.

In the **Renewable Energies Directive**, the requirement to introduce minimum renewable shares in buildings according to Art. 15(4) provides a direct link to national phase-out legislations by means of a use obligation (see Chapter 2). Strengthening the requirements of Art. 15(4) thus provides an opportunity to support the phase-out of fossil fuels for heating at the EU level.

However, the requirement does currently not include a **quantitative target** for the share of renewable energies in buildings. To avoid lock-in effects when introducing use obligations with low shares of renewable energies, the following step-by-step approach could be used:

- For new buildings, Member States shall introduce requirements of a 100 % share of renewable energies[12].
- For existing buildings subject to major renovation, Member States shall introduce requirements of an 80 % share of renewable energies.
- For existing buildings where the heating system is exchanged, Member States shall introduce requirements of an 80 % share of renewable energies (staged approach).

For the use of biogas, synthetic fuels and hydrogen the option for meeting the requirements could be restricted to areas identified as priority areas for the use of gas in national zoning regulations.

The **Energy Efficiency Directive (EED)**, while not being the core directive for phasing out fossil fuel boilers, could incorporate some important requirements that could support the phase-out.

- The Commission's proposal to exclude savings resulting from policy instruments that address efficiency measures for fossil fuel boilers (e.g. financial support programs to replace old oil or gas boilers in favor of condensing technology) from being accounted for under the energy savings obligations should definitely be supported.
- The renovation requirement for public buildings could be tightened to the effect that in the case of a major renovation or in the case of boiler replacement, a new fossil fuel boiler may no longer be installed; or a new fossil fuel boiler may only be installed if it is proven that the use of renewable heat or connection to district heating would lead to significantly higher overall costs over the lifetime of the heating system.
- The requirement to encourage regional and local authorities to prepare local heating and cooling plans could be significantly strengthened. Member States could be required to implement mandatory strategic heat planning for municipalities above a certain minimum size.

[12] This would require a clear definition of the renewable share of heating provided by heat pumps. An option would be to align the approach to the calculation of the renewable energy shares using the approach defined in Annex VII of the Renewable Energy Directive, where the ambient energy transferred by heat pumps is considered renewable if the heat pumps meet the efficiency requirements determined by the seasonal performance factor. For hybrid systems, minimum requirements would need to be specified for the share of energy provided by renewable energy.

It could be further specified that the heating and cooling plans must describe strategies and decarbonization roadmaps towards a climate-neutral heat supply (inclusion of a target definition). In this context, strategies for switching from fossil fuel boilers in favour of climate-neutral heat generation would also have to be developed. And legal options should be explored for integrating the heating and cooling plans into decision-making processes at the municipal level (e.g. regarding the further development of infrastructures at the municipal level such as gas and heating grids or in the form of regulations that specify, for specific properties, which types of heat supply or which energy sources for heating purposes are to be used, or are no longer allowed to be used, as of certain dates in new construction and whenever a heating system is to be replaced).

The analysis concludes that an ambitious approach for phasing-out of fossil fuels for heating in the EU would benefit from introducing an integrated approach including provisions in several of the legislations that are currently under revision.

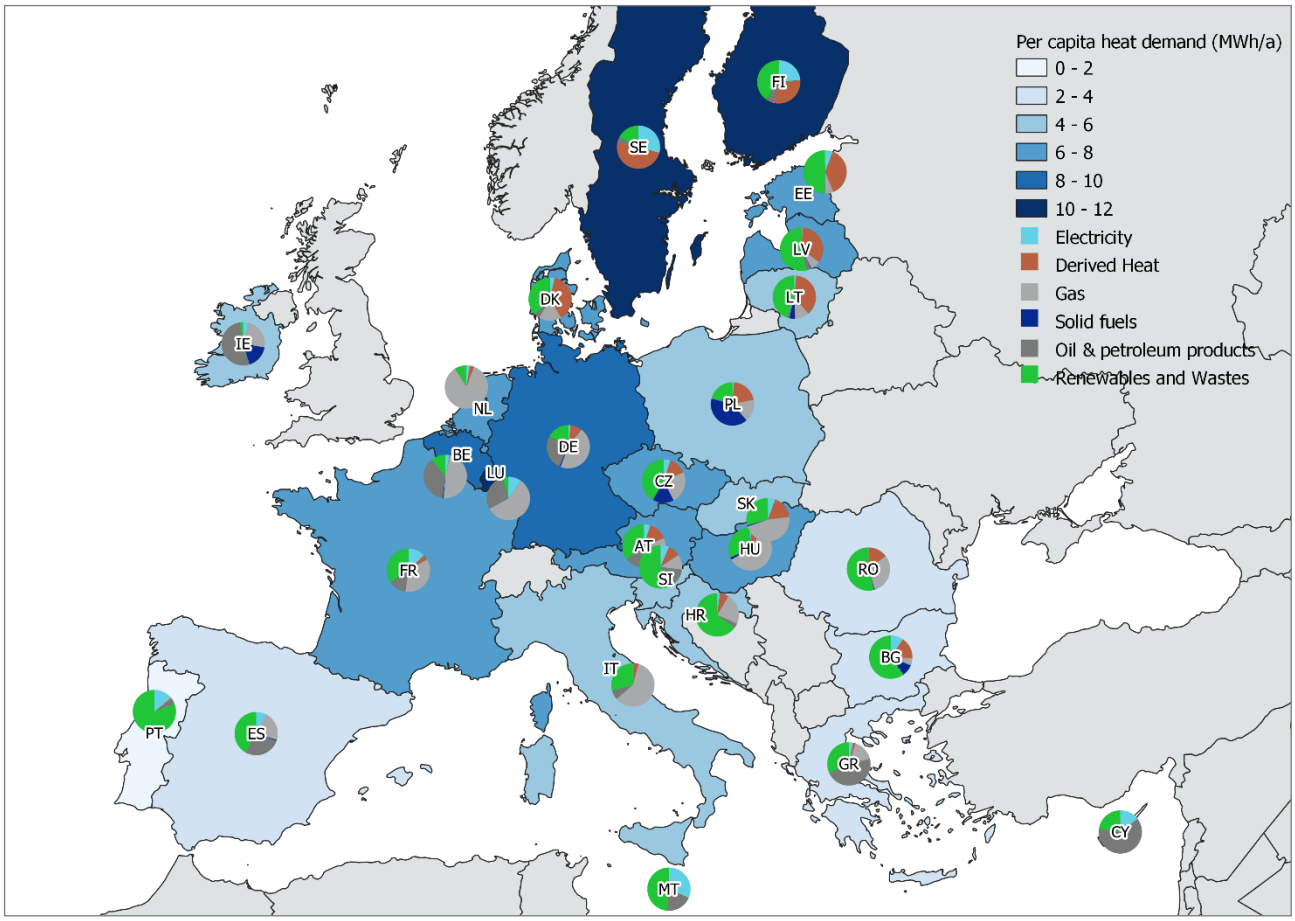
1 Introduction

1.1 Background

The decarbonisation of the heating sector is a key priority for achieving climate neutrality in the EU by 2050. The EU heating and cooling sector is largely based on fossil fuels, with renewable energy providing only 22 % of gross final energy demand[13]. With an average increase of the renewable share in H&C of less than 1 % per year over the past 15 years, the pace of phasing out fossil fuels in the heating and cooling sector needs to dramatically increase in order to achieve climate neutrality by 2050.

Space heating makes up for more than a quarter of the final energy demand in the EU and is largely based on fossil fuels. Figure 1-1 shows that in many countries, gas is the main energy carrier for heating (e.g. Netherlands, Belgium, Germany, Italy, Hungary). Oil also plays an important role in several countries (e.g. Belgium, Germany, Ireland), whereas solid fossil fuels have a minor share except for a few countries (e.g. Poland, Czechia, Ireland).

Figure 1-1: Per capita heat demand and energy mix for space heating in the EU MS.

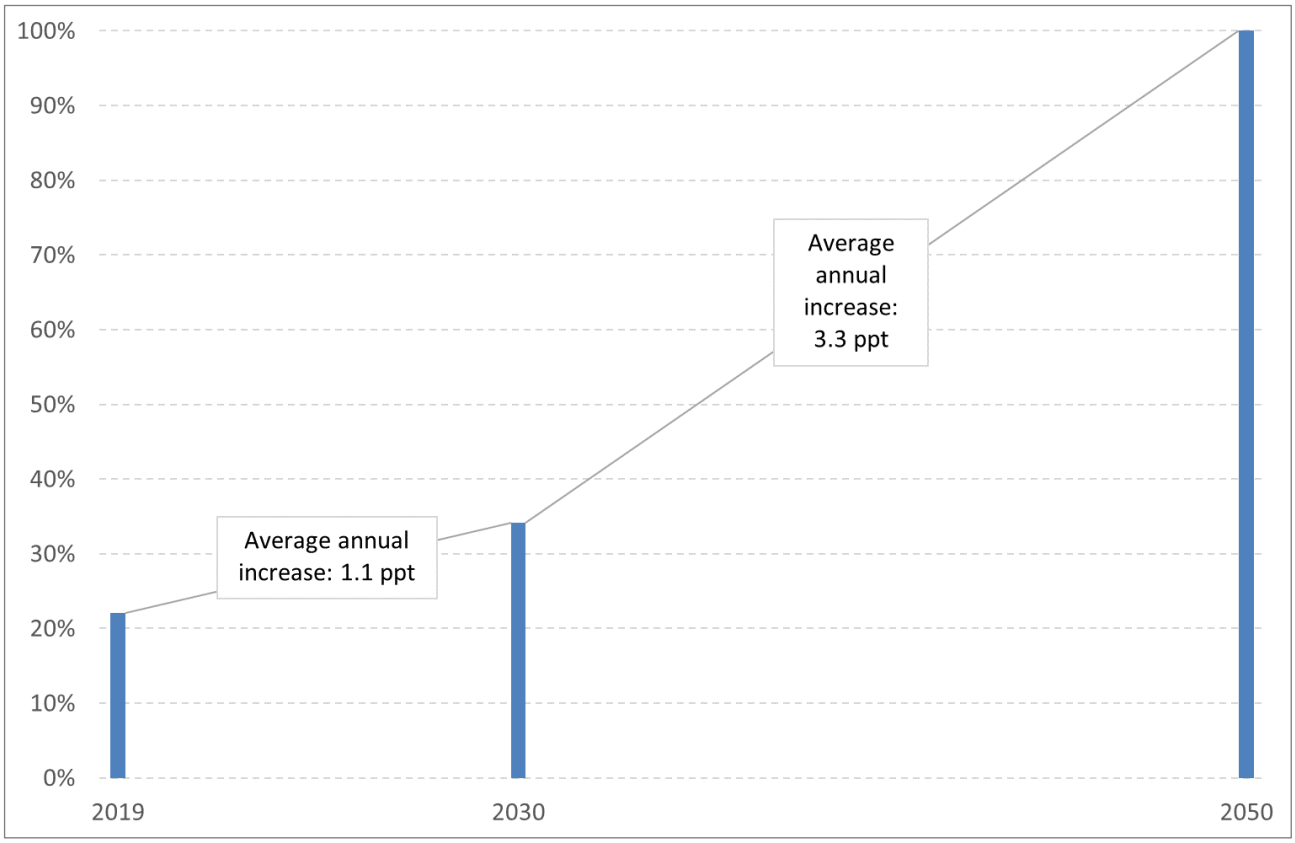


Source: Öko-Institut based on Eurostat data.

[13] Source: Eurostat Shares data.

The EU heating sector is currently not on track towards decarbonisation. To meet the EU goal of net zero in 2050, the heating sector needs to be fully decarbonized. The proposal for the revised Renewable Energy Directive[14] foresees a binding target for the annual increase of the share of renewable energies in the heating sector of 1.1 percentage points (ppt)[15]. However, with an annual increase of 1.1 ppt, renewable heating/cooling would account for up to around 36 % in 2030. This implies that the required annual rate has to more than double after 2030 to reach 100 % in 2050 (Figure 1-2).

Figure 1-2: Share of renewable heating in the EU and required annual increase rates



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At the same time, most Member States are currently not on track for meeting the target of increasing renewable energies in heating by 1.1 ppt per year. Especially the Member States with high heating demand such as Germany, France or Italy fall short of meeting the target (Figure 1-3).

[14] Proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2018/2001 of the European Parliament and of the Council, Regulation (EU) 2018/1999 of the European Parliament and of the Council and Directive 98/70/EC of the European Parliament and of the Council as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0557

[15] For Member States using waste heat the target is increased to 1.5 percentage points.

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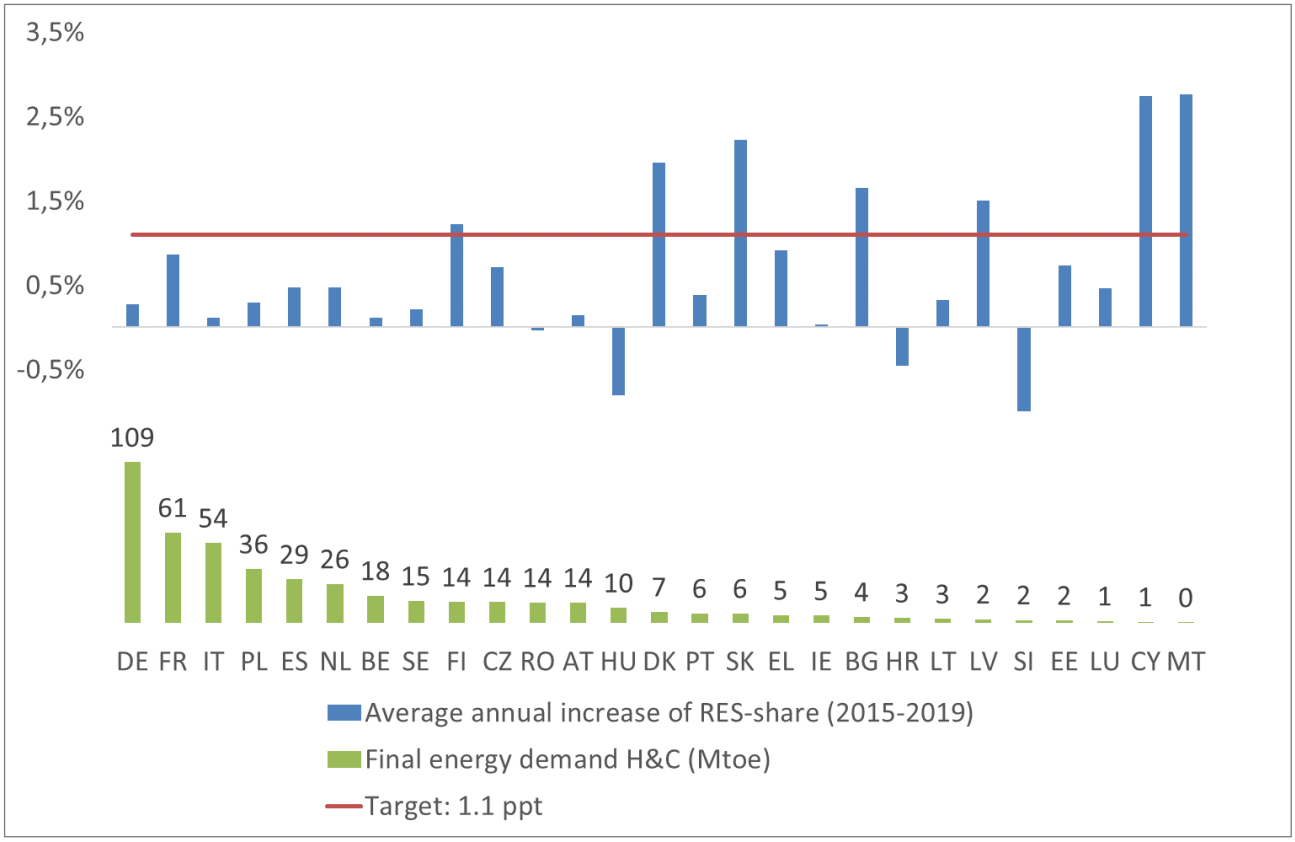
Figure 1-3: Average annual increase rates of the renewable energy shares for heating (2015-2019)



Source: Source: Öko-Institut 2021[16].

The transition of the buildings sector towards climate neutrality thus requires extensive additional efforts:

- At the EU level, key legislations are currently under review with the aim of aligning the ambition of the policy framework to the increased ambition of the 2030 target and to the objective of climate neutrality in 2050. As the decarbonisation of heating and cooling in buildings is addressed across key EU legislations[17], the ongoing revisions provide an opportunity to strengthen the legislative framework for decarbonising buildings.
- At the national level, more action is needed as the policy strategies presented in the long-term renovation strategies are not compatible with the objective of reaching climate-neutrality in 2050[18].

[17] Main legislations that include provisions for the buildings sector include the Energy Performance of Buildings Directive (EPBD), the Renewable Energy Directive (RED), the Energy Efficiency Directive (EED) and the EU Ecodesign Directive. Furthermore, an Emissions Trading System (ETS) for the buildings and transport sectors has been proposed.

[18] See for instance: Buildings Performance Institute Europe (BPIE), The road to climate-neutrality: Are national long-term renovation strategies fit for 2050? Available online at https://www.bpie.eu/wp-content/uploads/2021/03/BPIE_LTRS-_10-1.pdf.

1.2 Objectives of the study

In view of the urgent need to accelerate the decarbonisation of heating in buildings, this study assesses key opportunities to introduce policies to phase out fossil fuel boilers at the EU and national levels. The study addresses the following issues:

1. Based on an analysis of existing national approaches, the study provides insights on **key design options for phase-out regulations** for fossil heating (Chapter 2).
2. **Legal options for introducing national phase-out regulations**: Based on a legal assessment of possible restrictions for the introduction of national phase-out regulations in the context of the EU ecodesign framework, the study assesses the scope of action for Member States to implement national phase-out regulations (Chapter 3).
3. Phase-out of fossil fuels for heating at EU level: Chapter 4 assesses options to introduce **phase-out regulations in EU legislations**.

2 Phase-out regulations: Status Quo and design options

Several EU Member States have introduced phase-out regulations for fossil fuels for heating using different approaches and design options. This chapter provides an overview of the various approaches to phasing out fossil fuels used in the EU Member States (+Norway) and derives recommendation for designing phase-out regulations. A detailed description of the legislations is provided in country factsheets in Annex I.

2.1 Overview of approaches

There are two key approaches to phasing out fossil fuels for heating: Restricting the use of fossil fuels and restricting the installation of heating equipment used for fossil fuel heating. For each of the two approaches, there are different options for implementing the restrictions (Figure 2-1):

- The most commonly used approach for restricting the use of fossil fuels for heating are **use obligations for renewable energies**, mandating that a given share of heat demand needs to be supplied by renewable energies (and thus restricting the remaining use of fossil fuels). Use obligations have been implemented in several EU Member States (see Chapter 2.2) and are already partly addressed at EU level in the Renewable Energies Directive (see Chapter 4.3).
- **Restrictions of heating equipment** using fossil fuels are another common approach for phasing out fossil fuels and include bans for the installation of fossil boilers or bans for placing equipment on the market. The former approach has been implemented by several EU Member States (see Chapter 2.2), while the latter could potentially be applied in the context of ecodesign implementing regulations (see Chapter 4.1).
- A **ban for selling or using fossil fuels for heating** after a specified date means that after this end date, fossil fuels cannot be sold or used, implying a full phase-out covering all heating installations. While to our knowledge no such regulations are currently implemented or planned in any of the EU Member States, a legislative proposal for introducing an end-date for the use of fossil fuels was developed by the German Climate Neutrality Foundation[19] based on an assessment of the legal options[20]. The study assesses the legal feasibility of implementing an end date for the use of fossil fuels in Germany and concludes that there are no fundamental legal constraints as long as a sufficiently long time span is foreseen between the legal enshrinement of the phase-out and the actual end date to have enough time for the transformation process[21]. Norway, for instance, prohibited the use of mineral oil for heating of buildings.
- Another approach for restricting the use of gas for heating are restrictions on the **connection of buildings to the gas grid**. This approach has been implemented in the Netherlands (see

[19] Stiftung Klimaneutralität (2021): Fehlinvestitionen vermeiden: Klimaneutralität 2045 und das Ende des Einsatzes fossiler Brennstoffe. Available online at https://www.stiftung-klima.de/app/uploads/2021/05/2021-05-18-Fehlinvestitionen-vermeiden.pdf.

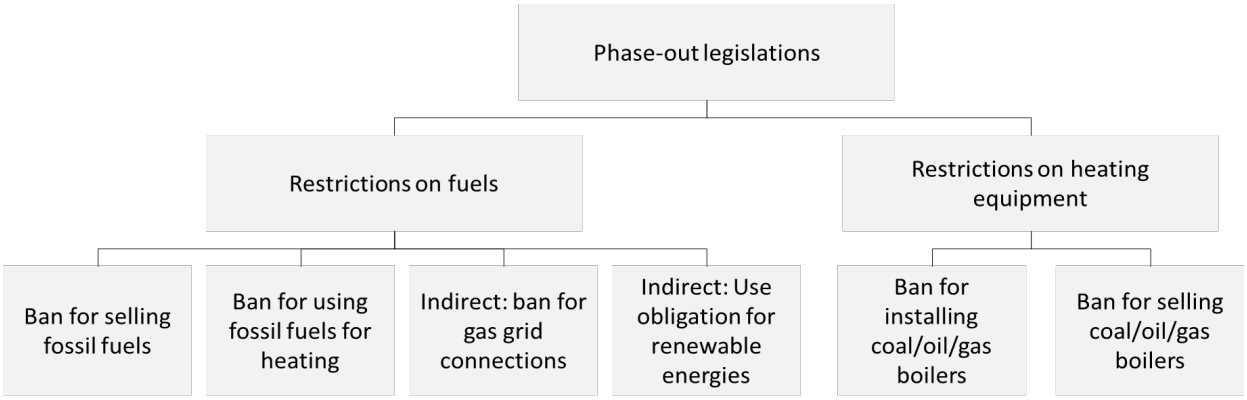
[20] BBH (2021): Fehlinvestitionen vermeiden–Eine Untersuchung zu den rechtlichen Möglichkeiten und Grenzen zur Defossilisierung der deutschen Volkswirtschaft bis 2045. Available online at https://www.stiftung-klima.de/app/uploads/2021/05/2021-05-12_Gutachten-Fehlinvestitionen-vermeiden.pdf.

[21] The study foresees an end date by 2045 according to the German target to achieve climate neutrality by 2045.

Chapter 2.2), where new buildings cannot be connected to the gas grid since July 2018. Another example is Denmark, no fossil fuel heating equipment can be installed in district heating areas.

- Moreover, there are indirect approaches to address the installation or use of fossil heating fuel heating. For example, the French government passed a law defining a **CO_2 efficiency threshold**, specifying a threshold for CO_2 emissions per square meter and year.

Figure 2-1: Overview of approaches to phase out fossil fuels for heating

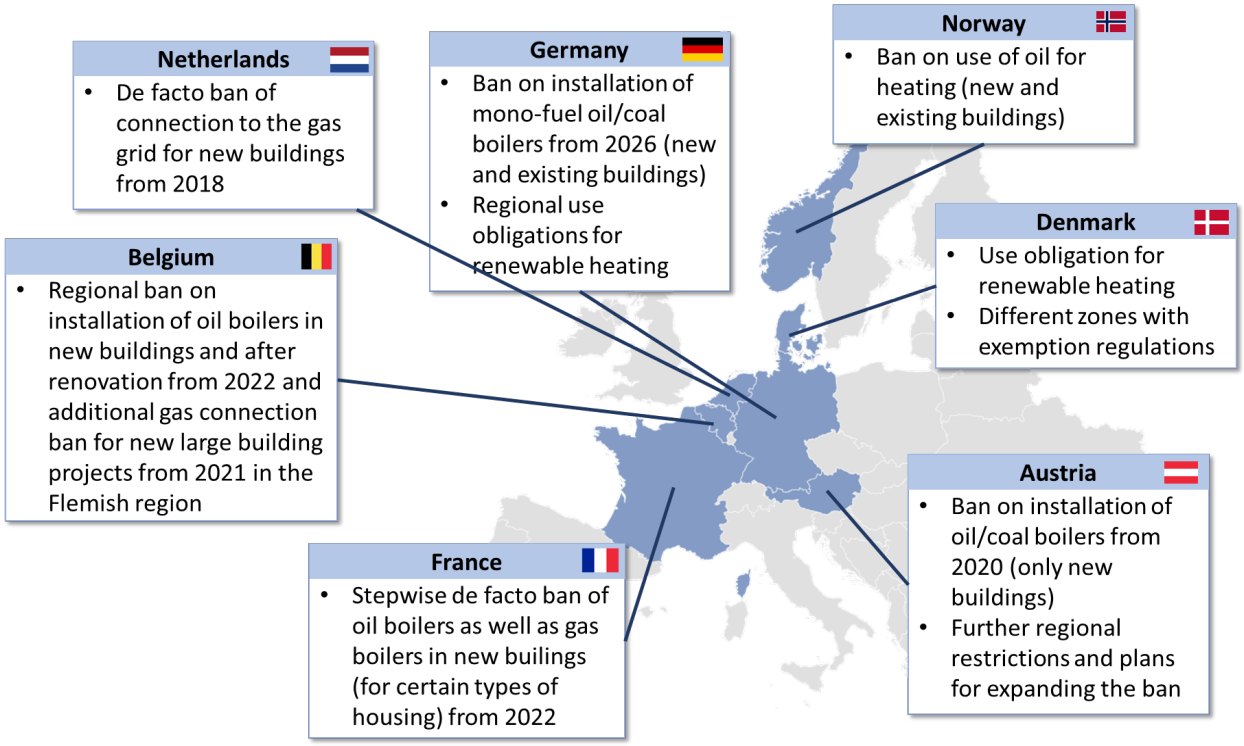


Source: Oeko-Institut.

2.2 Phase-out regulations in EU Member States and Norway

Among the options outlined in Chapter 2.1, the following approaches have been implemented by EU Member States so far (see Figure 2-2):

Figure 2-2: Overview of restrictions for fossil heating in EU Member States and Norway



Source: Oeko-Institut.

In Denmark, a **ban on the installation of fossil oil and gas boilers** in new buildings was implemented already in 2013.The current Danish building regulation of 2018 introduced a **general obligation for renewable heating** connected to zoning regulations: New and existing buildings located in district heating (DH) areas can only be heated by DH or by renewable sources. This factually represents a ban of fossil oil and gas boilers for new and existing buildings in DH zones. In areas with a gas grid established or officially approved before 2013, buildings can still be heated with natural gas, but not with fossil oil. Outside the DH and gas zones, existing buildings do not fall under the renewables obligation, whereas new buildings in these areas must be heated using renewable energies. Furthermore, in buildings with a fossil heating system that undergo renovation or alteration work, renewable energy must be integrated to the heating system “to the extent this is technically possible and financially viable”.

Austria introduced a **ban on the installation of central heating boilers running on liquid or solid fossil fuels in new buildings**. Moreover, the current government program contains further plans for regulations concerning the phase-out of fossil oil and gas boilers.

In Norway, the **use of mineral oil for heating of buildings is prohibited** since 2020. This covers new and existing buildings and includes the use of oil in existing boilers.

In France a regulation is planned to enter into force in 2022, containing rules on carbon efficiency for new buildings with a **maximum threshold for the CO_2 emissions per square meter and year** with different levels depending on the building type. This will factually exclude systems relying on

fossil fuels only. The regulation thus indirectly bans heating by fossil sources by implementing stringent carbon efficiency measures.

In Belgium the Flemish region introduced a **ban on fuel oil boiler installation for new buildings and major energy renovations in residential and non-residential buildings** from 2022 on. Moreover, concerning existing buildings, a heating boiler may only be replaced by a fuel oil boiler, if no connection to the fossil gas grid is possible. The Brussels region plans to phase-out heating oil from 2025 on. At national level, a ban is planned for 2035. Additionally, Flanders adopted a gas connection ban for large building projects, active since 2021.

In the Netherlands, the **connection of new buildings to the gas grid has been** banned. Furthermore, the Netherlands have introduced a local planning approach to phase-out the use of gas for heating at district level (gas-free districts).

In Germany, the **installation of mono-fuel fossil boilers is banned** from 2026. Furthermore, new buildings are subject to a use obligation for renewable energies. Some regions (Baden-Württemberg and Hamburg) have introduced use obligations for renewable energies in existing buildings (trigger point: exchange of heating system).

Some other EU Member States have adopted or planned phase-out regulations for fossil heating. Slovenia for example plans a ban on the installation of fossil oil and coal boilers from 2023 on[22]. Finland, where the share of fossil oil in heating is already low, stated in their NECP that they plan a ban on oil heating in government-owned buildings after 2024 and a stepwise phase-out of fossil oil heating in general from 2030[23]. Ireland formulated the goal to effectively ban the installation of fossil oil boilers starting 2022 and fossil gas boilers from 2025 for new buildings[24]. This is implemented by setting rules for a high level of energy performance for new buildings to be Nearly Zero Energy Buildings that effectively do not allow for pure fossil heating.

See Annex I for a detailed description of the existing phase-out regulations and linked sources.

2.3 Comparison of design options

The phase-out regulations described in the previous section use different design options. This chapter compares key design features across the legislations.

- **Coverage of buildings segments**: Several of the existing phase-out legislations address only new buildings: In Austria, the current legislation is limited to new buildings, while an extension to existing buildings is planned. Likewise, the approach in the Netherlands is restricted to gas connection in new buildings. The German national obligation for renewable heating covers only new buildings, while the ban on oil boilers covers both new and existing buildings.
- **Coverage of fuels**: Many of the national phase-out regulations are limited to oil heating: The approaches in Norway, Austria, Germany and Belgium are limited to oil boilers. By contrast,

22 Euroheat. 2021. https://www.euroheat.org/news/slovenia-gets-new-law-renewables-heating-boilers-oil-coal-banned-2023/.
23 Finlands Integrated Energy and Climate Plan. 2019. https://ec.europa.eu/energy/sites/ener/files/documents/fi_final_necp_main_en.pdf.
24 National Energy & Climate Plan. 2019. https://ec.europa.eu/energy/sites/ener/files/documents/ie_final_necp_main_en.pdf.

Denmark first introduced restrictions for oil boilers in 2013 and extended the coverage to gas in 2016.

- **Time line**: While for most of the legislations the ban comes into force shortly after its adoption (e.g. Austria, Netherlands), Germany foresees a five-year gap between the adoption of the legislation and the actual ban of oil heating[25].
- **Stringency:** The approaches differ with respect to the ambition of the requirements. For example, the German oil boiler ban is limited to mono-fuel oil boilers, so hybrid boilers (e.g. combination of oil boiler and solar thermal collector) can still be installed. In the use obligation for renewable energies in Baden-Württemberg, the requirement can be fulfilled by installing an oil or gas boiler, as long as a share of 15 % of the fuel is biogas/biooil.
- **Connection to spatial planning:** Some countries connect phase-out regulations to spatial planning and zoning approaches. In Denmark, the use obligations for renewable energies are connected to zoning approaches, so different requirements apply to district heating areas and areas connected to the gas grid. In the Netherlands, the district-level is at the heart of the approach for phasing out fossil gas for heating in the gas-free districts approach.

2.4 Recommendations for the design of phase-out regulations

For phase-out regulations to provide a significant contribution towards decarbonising the EU buildings stock, the **scope of these regulations needs to comprise all fossil energy carriers including natural gas and cover both new and existing buildings**. With gas being the leading energy carrier accounting for 39 % of EU energy demand for space heating, the potential of phase-out legislations to reduce emissions is particularly large for gas heating. The coverage of existing buildings is of key importance as new buildings make up for a minor share of GHG emissions.

Phase-out regulations can be introduced following a **staged approach**, e.g. by first phasing out fossil fuels in new buildings followed by a phase-out of fossil fuel in existing buildings. **However, with an average lifetime of fossil boilers of 20 - 25 years, the scope of the regulations needs to be expanded rapidly to cover a large share of the buildings stock as well as all fossil fuels for heating by 2025**. Phase-out regulations for new buildings therefore need to be introduced immediately.

The level of **stringency** of phase-out regulations needs to be aligned to the objective of full decarbonisation and should therefore largely **exclude hybrid technologies using fossil fuels**. Partial phase-out regulations, such as use obligations for renewable energies with low minimum shares and bans for fossil boilers allowing hybrid solutions, create lock-in effects as fossil fuels remain the main energy carrier for heating.

The **use of biofuels, synthetic fuels and hydrogen needs to be addressed in a restrictive way** in phase-out regulations, as the future availability of such fuels at affordable prices for individual space heating is uncertain[26]. The blending of such fuels should not be included as an option in

[25] The ban was introduced into national law in 2020, whereas the restrictions come into force in 2026.

[26] See e.g. Ueckerdt, F., Bauer, C., Dirnaichner, A. et al. Potential and risks of hydrogen-based e-fuels in climate change mitigation. Nat. Clim. Chang. 11, 384–393 (2021). https://doi.org/10.1038/s41558-021-01032-7

phase-out regulations, as a lock-in is created and consumers face a risk of future high prices of such fuels. The use of such fuels should be restricted to buildings where no other options are viable.

Phase-out regulations for gas should be connected to spatial heat planning, as the decarbonisation of space heating requires at least a partial reduction of the gas distribution grid. This also requires a regulatory framework for decommissioning of the gas grid.

3 Compatibility of national phase-out regulations with EU legislations

3.1 Introduction

This chapter examines if and how national regulations to restrict the use of fossil fuels for the heating of buildings are limited by EU legislations[27]. focuses on the compatibility with Directive 2009/125/EC (Ecodesign Directive)[28] in the context of Regulations (EU) No. 813/2013[29] and 814/2013[30] which were adopted on the basis of this directive. The Ecodesign Directive creates a framework for the legal harmonisation of national standards for energy-related products. In doing so, it aims to eliminate national legal differences. This chapter addresses the question whether Member States cat set deviating standards for the products covered under the ecodesign framework. Secondly, other complementary aspects are assessed such as the compatibility with the provisions of the Treaty on the Functioning of the European Union (TFEU)[31] on the free movement of goods (Articles 34 and 36 TFEU).

The aim of the analysis is to provide a sound legal basis for decisions on the introduction and design of national legislations to phase out the use of fossil fuels for heating buildings.

Section 3.2 and 3.3 provides an overview of the primary legislation of the European Union and the existing European legal framework in product regulation. Building on this, Section 3.4 elaborates the national scope for limiting or ending the use of fossil fuels. In this context, the particularly important questions on the scope and limiting effect of the free movement of goods clauses of the Ecodesign Directive as well as the specific provisions in the product-specific Ecodesign Regulations for heating

[27] This chapter is based on Keimeyer/Klinski/Braungardt/Bürger/Tezak (2020): Nationale Beschränkungen fossiler Brennstoffe in Heizungsanlagen im Lichte der Ökodesign-Richtlinie (in German). Available online at: https://www.umweltbundesamt.de/publikationen/nationale-beschraenkungen-fossiler-brennstoffe-in

[28] Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products (OJ L 285, 31.10.2009, p. 10), last amended by Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC (OJ L 315, 14.11.2012, p. 1).

[29] Commission Regulation (EU) No 813/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters (OJ L 239, 6.9.2013, p. 136), last amended by Commission Regulation (EU) 2016/2282 of 30 November 2016 amending Regulations (EC) No 1275/2008, (EC) No 107/2009, (EC) No 278/2009, (EC) No 640/2009, (EC) No 641/2009, (EC) No 642/2009, (EC) No 643/2009, (EU) No 1015/2010, (EU) No 1016/2010, (EU) No 327/2011, (EU) No 206/2012, (EU) No 547/2012, (EU) No 932/2012, (EU) No 617/2013, (EU) No 666/2013, (EU) No 813/2013, (EU) No 814/2013, (EU) No 66/2014, (EU) No 548/2014, (EU) No 1253/2014, (EU) 2015/1095, (EU) 2015/1185, (EU) 2015/1188, (EU) 2015/1189 and (EU) 2016/2281 with regard to the use of tolerances in verification procedures (OJ L 346, 20.12.2016, p. 51).

[30] Commission Regulation (EU) No 814/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for water heaters and hot water storage tanks (OJ L 239, 6.9.2013, p. 162), last amended by Commission Regulation (EU) 2016/2282 of 30 November 2016 amending Regulations (EC) No 1275/2008, (EC) No 107/2009, (EC) No 278/2009, (EC) No 640/2009, (EC) No 641/2009, (EC) No 642/2009, (EC) No 643/2009, (EU) No 1015/2010, (EU) No 1016/2010, (EU) No 327/2011, (EU) No 206/2012, (EU) No 547/2012, (EU) No 932/2012, (EU) No 617/2013, (EU) No 666/2013, (EU) No 813/2013, (EU) No 814/2013, (EU) No 66/2014, (EU) No 548/2014, (EU) No 1253/2014, (EU) 2015/1095, (EU) 2015/1185, (EU) 2015/1188, (EU) 2015/1189 and (EU) 2016/2281 with regard to the use of tolerances in verification procedures (OJ L 346, 20.12.2016, p. 51).

[31] Consolidated version of the Treaty on the Functioning of the European Union (OJ C 202, 7.6.2016, p. 47).

systems and water heaters are addressed. The significance of the special exemption clause for national provisions on the energy performance of buildings and technical building systems is also elaborated. Depending on how the national restrictions are classified with regard to the requirements of the Ecodesign Directive, the admissibility of the provisions also depends in different ways on the more general provisions of European law - such as the free movement of goods and freedom from discrimination.(section 3.5).

The results of the legal assessment are then summarised and evaluated in chapter 3.6.

3.2 Primary legislation: TFEU/TEU

The Treaty on the Functioning of the European Union (TFEU)[32], since coming into force on 1 December 2009, establishes, jointly with the Treaty on European Union (TEU), the political and legal basis for the European Union (“primary legislation”). At the time, the TFEU substituted the former Treaty establishing the European Community (TEC)[33] whose provisions were newly structured, partly substituted or complemented, or largely adopted by the TFEU without changes.

The provisions of the primary legislation also include, and in particular, competence provisions. They regulate in which areas of law and under which conditions the EU may issue specific directives, regulations and decisions by which the Member States are bound in their national legislation ("secondary legislation").

For the present study, European Union competences in individual policy areas are particularly relevant on the basis of which the EU can act. Of particular relevance is legislation which the EU has adopted, based on its competences, in the area of environmental policy according to Article 192 TFEU (ex Article 175 TEC), in energy policy according to Article 194 TFEU (newly introduced in 2009, not included in TEC) and for the approximation of law in the European internal market according to Article 114 (ex Article 95 TEC).

- According to Article 192 TFEU (ex Article 175 TEC, mostly identical in wording), the European Union has the competence to act in the field of environmental protection policy. For legal acts based on environmental policy, Member States maintain some room for manoeuvre according to Article 193 TFEU (ex Article 176 TEC, identical in wording) since such legal acts do not prevent them to maintain or to take more stringent protective measures (“principle of minimum harmonization”). As a consequence, Member States may exceed the provisions of Union law. While such measures need to be notified to the Commission, they do not need to be approved by the Commission. It is important to note that such procedure by Member States needs to be in conformity with European primary law and in particular the four freedoms of the TFEU, i.e. more stringent national measures must comply with their provisions[34].
- After the Treaty of Lisbon granted competences in energy policy to the European Union (Article 194 TFEU), the European Union may pass legal acts, among others, to promote energy efficiency and energy savings. Member States again have quite a wide room for manoeuvre since such European Union measures may not prevent them from determining conditions for the use of their energy resources, their choice of different energy sources and the general structure of their energy

[32] Consolidated version of the Treaty on the Functioning of the European Union (OJ C 202, 7.6.2016, p. 47)
[33] Treaty establishing the European Community (TEC), consolidated version of 29.12.2006 (OJ C 321 E, 29.12.2006, p. 1)
[34] Classen in: von der Groeben/Schwarze/Hatje, Art. 114, margin no. 205

supply. Article 194 TFEU does not foresee any special procedure for maintaining or introducing national special provisions. Again, national legal provisions must comply with European primary law and in particular the four freedoms in this context.

- In Article 114 TFEU (ex Article 95 TEC, identical in wording), the European Union furthermore has a competence for the approximation of legal provisions in the internal market. If a directive is based on this competence, Member States – other than with other competences – basically have less room for manoeuvre, since legal acts based on this competence (harmonisation measures) are adopted just with the purpose of harmonisation. Article 114(4) to (6) TFEU (ex Article 95(4) to (6) TEC, identical in wording) stipulates how national legislation deviating from EU legislation shall be treated. According to the case law of the ECJ, the character of such national provisions, which aim at breaking the harmonisation measure[35], requires a restrictive interpretation and application, as otherwise the Union legislation would be undermined and the matter would be left to Member States again[36].

  In accordance with Article 114(4) to (6) TFEU (Article 95(4) to (6) TEC), Member States may maintain national (more stringent) provisions for certain reasons (cf. paragraph 4) or may introduce national provisions on the grounds of new scientific evidence (cf. paragraph 5) if they have notified the Commission of such provisions and the grounds for maintaining or introducing them, and the EU Commission has approved such a deviation within 6 months through a decision. If the EU Commission does not adopt a respective decision within this period the national provisions are deemed to have been approved (cf. paragraph 6).

- Moreover, the “four freedoms” of EU law need to be complied with which form the basis of the internal market: free movement of goods and services (Articles 34 and 56 TFEU / Articles 28 and 49 TEC), freedom of movement for workers (Article 45 TFEU / Article 39 TEC), freedom of establishment for self-employed persons and undertakings (Articles 49 and 54 TFEU / Articles 43 and 48 TEC) and free movement of capital and payments (Article 63 TFEU / Article 56 TEC). For products falling within the scope of the Ecodesign Directive, the free movement of goods is naturally of particular importance. However, the relevant provisions are only of subsidiary importance. They are of practical significance if and insofar as there is no conclusive harmonising secondary legislation of the EU.

3.3 Product law provisions

3.3.1 Ecodesign Directive 2009/125/EC

The European Ecodesign Directive 2009/125/EC establishes a framework for setting ecodesign requirements for energy-related products which are placed on the market and/or put into service.[37]

The Ecodesign Directive was established on the basis of the TEC, so that with regard to the regulatory competences for its enactment, the TEC is decisive, not the TFEU.

35 Cf. M. Schröder in: Streinz, Article 114 TFEU, margin no. 84.

36 According to ECJ and prevailing view: cf. ECJ, Case C-350/97, Monsees, European Court Reports 1999 I-02921, paragraph 24, and M. Schröder in: Streinz, Article 114 TFEU, margin no. 82 et seq., different view: Kahl in: Calliess/Ruffert, Article 114 TFEU, margin no. 44.

37 Cf. Article 2(1) of the Ecodesign Directive.

The Ecodesign Directive aims at, on the one hand, designing products in an environmetally sustainable, energy efficient manner in order to reduce the European-wide energy demand.[38] On the other hand, the establishment of common ecodesign requirements is intended to strengthen the internal market in order to ensure the free trade of these products.[39]

The Ecodesign Directive itself does not set minimum requirements but creates an overall framework for setting ecodesign requirements for energy-related products.[40] According to Article 15(1) of the Ecodesign Directive, specific ecodesign requirements are laid down through "implementing measures" adopted by the European Commission.[41] These are independent legal acts that can take the form of regulations, directives or decisions. So far, however, only implementing regulations (hereinafter also referred to as ecodesign regulations) have been issued, as these have direct effect in the Member States (cf. Article 288 TFEU, ex Article 249 TEC, identical in wording).

Various ecodesign requirements have been laid down in implementing regulations.[42] The most prominent example is (the meanwhile repealed) Regulation (EC) No 244/2009[43] which entailed a factual prohibition of incandescent lamps. Ecodesign regulations include in particular Regulation (EU) No 813/2013 for space heaters and combination heaters and No 814/2013 for water heaters and hot water storage tanks, which are, inter alia, in the focus of this study.

Article 6(1) of the Ecodesign Directive explicitly includes a clause on the free movement of goods which limits Member States' power to restrict provisions for products covered by ecodesign regulations. It reads:

> *„Member States shall not prohibit, restrict or impede the placing on the market and/or putting into service, within their territories, of a product that complies with all the relevant provisions of the applicable implementing measure and bears the CE marking in accordance with Article 5 on grounds of ecodesign requirements relating to those ecodesign parameters referred to in Annex I, Part 1 which are covered by the applicable implementing measure. This shall be without prejudice to the energy performance requirements and system requirements set by Member States in accordance with Article 4(1) and Article 8 of Directive 2010/31/EU."*

This clause will be of essential importance in the following assessment. It should be noted that the second sentence was included retrospectively in 2012.[44]

38 Cf. Article 1(2) of the Ecodesign Directive
39 Cf. recital 2 and Article 1(1) of the Ecodesign Directive.
40 Recital 8 of the Ecodesign Directive.
41 Article 15 of the Ecodesign Directive further stipulates that standards can be set through self-regulation measures by industry. These have been established so far for imaging equipment (cf. www.eurovaprint.eu) and for games consoles (www.efficientgaming.eu).
42 An updated overview of adopted ecodesign regulations is given at: https://ec.europa.eu/info/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/energy-label-and-ecodesign/energy-efficient-products_en, last access 16.07.2021.
43 Commission Regulation (EC) No 244/2009 of 18 March 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for non-directional household lamps (OJ L 076, 24.3.2009, p. 3), last amended by Commission Regulation (EU) 2015/1428 of 25 August 2015 (OJ L 224, 27.8.2015, p. 1).
44 Included through Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC (OJ L 315, 14.11.2012, p. 1).

3.3.2 Energy labelling Regulation (EU) No 2017/1369

The Ecodesign Directive is complemented by Regulation (EU) No 2017/1369 which sets a framework for energy labelling[45], replacing the previous Directive No 2010/30/EU[46]. The present regulation as well as the previous directive one from 2010 were based on the TFEU, i.e. the TFEU is decisive with regard to the regulatory competences used (in contrast to the Ecodesign Directive, which is based on the TEC).

Pursuant to the Regulation, manufacturers of certain goods are obliged to place a label on the product which provides information on the product's energy efficiency in a clear and comparable manner. The Labelling Regulation aims to provide consumers with accurate, relevant and comparable information on the energy consumption of products so that they can choose the most energy-efficient appliances when making a purchase.

As for the Ecodesign Directive, the Labelling Regulation delegates the power to adopt specific legal acts for specific product groups to the European Commission. These usually take the form of regulations (hereinafter also referred to as Labelling Regulations), which are directly applicable in the Member States. Unlike the Ecodesign Directive, these are not referred to as "implementing measures". Rather, they are "delegated acts" within the meaning of Art. 290 TFEU (which only came into force after the adoption of the Ecodesign Directive in 2009). So far, labelling regulations have been issued in around 18 areas.[47]

3.3.3 Product-specific EU regulations for heaters and hot water heaters

In the context of the present assessment, Ecodesign Regulation No 813/2013 for space heaters and combination heaters is of particular importance as it lays down specific requirements for the energy consumption of heating systems which are placed on the market in the EU. Provisions apply directly in all Member States and do not require national legal acts for their implementation. Their focus is on regulating energy efficiency and sound power levels.

Simultaneously with Regulation No 813/2013, and coordinated with it, the European Commission adopted the related Labelling Regulation No 811/2013[48] and the Ecodesign Regulation No 814/2013 for water heaters and hot water storage tanks[49] and, related to the latter, the Labelling Regulation

[45] Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU (OJ L 198, 28.7.2017, p. 1).

[46] Directive 2010/30/EU of the European Parliament and of the Council of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products (OJ L 153, 18.6.2010, p. 1).

[47] An updated overview of the adopted labelling regulations can be found at: https://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/ecodesign_en, last accessed on 19.07.2021.

[48] Commission Delegated Regulation (EU) No 811/2013 of 18 February 2013 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to the energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar device *(OJ L 239, 6.9.2013, p. 1).*

[49] Commission Regulation (EU) No 814/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for water heaters and hot water storage tanks (OJ L 239, 6.9.2013, p. 162), last ameded by Commission Regulation (EU) 2016/2282 of 30 November 2016 amending Regulations (EC) No 1275/2008, (EC) No 107/2009, (EC) No 278/2009, (EC) No 640/2009, (EC) No 641/2009, (EC) No 642/2009, (EC) No 643/2009, (EU) No

No 812/2013[50]. The two labelling regulations, however, do not have any direct importance for the legal assessment of the possibility of introducing national phase-out regulations.

The Ecodesign Regulation No 813/2013 for space heaters is currently under revision and the respective preliminary work (review study / consultation) has already been completed.[51]

3.3.4 Regulation (EU) 2016/426 on appliances burning gaseous fuels

For national phase-out regulations that restrict the use of fossil gas in heating units, Regulation (EU) 2016/426[52] on appliances burning gaseous fuels must be complied with in addition to the Ecodesign Directive. This Regulation also includes a clause on the free movement of goods, however, with a different wording (cf. Article 6(1)):

> *"Member States shall not, on grounds relating to the aspects covered by this Regulation, prohibit, restrict or impede the making available on the market and the putting into service of appliances which comply with this Regulation."*

The Regulation replaced Directive 2009/142/EC in 2016, the former Directive had been the subject of Denmark's dispute with the European Commission over a ban on the supply of heat to buildings with fossil natural gas in certain circumstances (see below, 3.4.5.2).

3.3.5 Directive (EU) 2015/1535 on information in the field of technical regulations

A further EU legal act which may need to be considered in drafting national legislation is Directive (EU) 2015/1535[53] which requires Member States to communicate new technical regulations to the European Commission. The Directive replaced the former Directive 98/34/EC[54] in 2015 which had

1015/2010, (EU) No 1016/2010, (EU) No 327/2011, (EU) No 206/2012, (EU) No 547/2012, (EU) No 932/2012, (EU) No 617/2013, (EU) No 666/2013, (EU) No 813/2013, (EU) No 814/2013, (EU) No 66/2014, (EU) No 548/2014, (EU) No 1253/2014, (EU) 2015/1095, (EU) 2015/1185, (EU) 2015/1188, (EU) 2015/1189 and (EU) 2016/2281 with regard to the use of tolerances in verification procedures (OJ L 346, 20.12.2016, p. 51).

50 Commission Delegated Regulation (EU) No 812/2013 of 18 February 2013 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to the energy labelling of water heaters, hot water storage tanks and packages of water heater and solar device (OJ L 239, 6.9.2013, p. 83); last amended by Commission Delegated Regulation (EU) 2018/543 of 23 January 2018 correcting the Spanish language version of Commission Delegated Regulation (EU) No 812/2013 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to the energy labelling of water heaters, hot water storage tanks and packages of water heater and solar device (OJ L 90, 6.4.2018, p. 63).

51 Documents related to the review study: Space/combination heaters: https://ecoboiler-review.eu/Boilers2017-2019/documents-boilers-2017-2019.htm; water heaters: https://ecoboiler-review.eu/Waterheaters2017-2019/documents-waterheaters-2017-2019.htm (in particular Tasks 6 and 7); documents related to "interim work" up to the consultation forum are to be found at: https://ecoboiler-review.eu/documents.htm (last accessed on 19.07.2021).

52 Regulation (EU) 2016/426 of the European Parliament and of the Council of 9 March 2016 on appliances burning gaseous fuels and repealing Directive 2009/142/EC (OJ L 81, 31.3.2016, p. 99).

53 Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services (OJ L 241, 17.9.2015, p. 1).

54 Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations (OJ L 204, 21.7.1998, p. 37).

been the basis of the European Commission's opinion in the dispute with Denmark's plan to impose a ban on the supply of heat to buildings with fossil natural gas in certain cases (see below, 3.4.5.2).

The Directive does not contain any requirements of substantive law. Rather, its obligations are of a purely procedural nature. Specifically, it obliges the Member States (like the predecessor Directive 98/34/EC), in the case of the planned introduction of new technical regulations, to communicate draft "technical regulations" to the European Commission prior to their entry into force, in accordance with Articles 5 to 7, in order to give the Commission and the other Member States the opportunity to comment on them and, if necessary, to raise objections. If this possibility is used, the Member State is subject to certain standstill obligations lasting several months, the duration of which is differentiated between different case situations. Member States are supposed to take into account the comments and concerns raised, but are not obliged to do so by the Directive. If, in the opinion of the EU Commission or a Member State, the measure in question by the Member State should constitute a breach of the special clause on the free movement of goods of a directive or of the general freedom of movement of goods under primary law, the parties involved have the option of infringement proceedings. Directive (EU) 2015/1535 does not provide for a more extensive right of intervention or prohibition for the EU Commission (nor did its predecessor Directive 98/34/EC).

Article 7(1) of Directive (EU) 2015/1535 exempts Member States from the relevant obligations for certain technical regulations. This includes, inter alia, regulations by means of which Member States "comply with binding Union acts which result in the adoption of technical specifications or rules on services" (cf. point (a)) or "make use of safeguard clauses provided for in binding Union acts" (cf. point (c)).

While Article 1(1)(f) defines "technical regulations" in particular as "technical specifications and other requirements", Article 1(1)(c) and (d) defines them as follows:

> *"(c) 'technical specification' means a specification contained in a document which lays down the characteristics required of a product such as levels of quality, performance, safety or dimensions, including the requirements applicable to the product as regards the name under which the product is sold, terminology, symbols, testing and test methods, packaging, marking or labelling and conformity assessment procedures. […]*
>
> *(d) 'other requirements' means a requirement, other than a technical specification, imposed on a product for the purpose of protecting, in particular, consumers or the environment, and which affects its life cycle after it has been placed on the market, such as conditions of use, recycling, reuse or disposal, where such conditions can significantly influence the composition or nature of the product or its marketing".*

National regulations which restrict the use of heating oil or fossil gas are thus "other requirements" in accordance with Article 1(1)(d) of Directive (EU) 2015/1535. As a consequence, prior to adopting such national regulations, the communication and standstill obligations laid down in Articles 5 to 7 of this Directive must be complied with.

3.3.6 Interim result

The above statements indicate that the power of the Member States to adopt national regulations on the installation or use of certain boilers depends primarily on whether they are prevented from doing so by the Ecodesign Directive with its clause on the free movement of goods. In this respect,

the content of Ecodesign Regulation No. 813/2013 may be decisive. The other specific EU provisions do not have any restrictive effects that are relevant in this case.

EU treaty legislation (primary legislation) can play a role in the interpretation of the ecodesign provisions. Insofar as the ecodesign provisions do not have any final harmonising effects, the EU free movement of goods must also be taken into account, which may only be interfered with to a limited extent under certain conditions.

3.4 The limiting effect of ecodesign regulations on national restrictions on the use of fossil fuels in heating systems

Whether the national legislator may introduce a ban or a restriction on fossil-fuelled boilers depends in particular on whether and, if so, to what extent the Ecodesign Directive in conjunction with the product-group-specific Ecodesign Regulation has a limiting effect. This is because the Ecodesign Directive creates a framework for the legal harmonisation of national standards for energy-related products. In doing so, it aims precisely at eliminating national legal differences. Accordingly, it principally restricts the Member States' room for manoeuvre. However, the question arises as to the degree of harmonisation of the Ecodesign Directive, i.e. to what extent it affects Member States' legal systems and/or leaves regulatory powers to the Member States.[55]

Whether a directive intends a final regulation and in this respect excludes national measures, is to be determined by interpretation, where the wording, the objective and the regulatory system are to be taken into account.[56] For the national legislator's scope of action, it is therefore decisive whether and to what extent the Ecodesign Directive has a limiting effect.

Whether the Ecodesign Directive should in principle have a limiting effect through final harmonisation depends on various factors. The decisive factors are both the legal basis on which it was adopted and the interpretation of the Ecodesign Directive itself, as these factors allow conclusions to be drawn on the intensity of the legal harmonisation emanating from the Ecodesign Directive.

Approximation of legislation means "the approximation of Member States' legislation to standards laid down in Union law, with the aim of eliminating national differences in legislation and the market interferences they cause [...]".[57] The terms coordination and harmonisation are used synonymously.[58] With regard to the intensity of harmonisation, a basic distinction can be made between two methods: full and partial harmonisation. Full harmonisation[59] is to be assumed when a directive is drafted in such a way that the Member States may not adopt or maintain any regulations concerning the subject matter covered by the directive that are not provided for in the directive.[60] In other words, in the case of full harmonisation, the Member States have no room for manoeuvre because a final harmonisation measure has a limiting effect.[61] In contrast, in the case of partial

55 M. Schröder in: Streinz, Article 114 TFEU, margin no. 45.
56 M. Schröder in: Streinz, Article 114 TFEU, margin no. 46; cf. also Klinski, Zur Vereinbarkeit nationaler Klimaschutzregelungen für Gebäude und Gebäudetechnik mit Öko-Design-Vorschriften der EU (unpublished manuscript), p. 21.
57 Korte in: Calliess/Ruffert, Article 114 TFEU, margin no. 22.
58 Korte in: Calliess/Ruffert, Article 114 TFEU, margin no. 22.
59 Also called "maximum harmonisation".
60 Tietje in: Grabitz/Hilf/Nettesheim, Article 114 TFEU margin no. 39.
61 Korte in: Calliess/Ruffert, Article 114 TFEU, margin no. 27 f., 69.

harmonisation, the Member States may adopt or maintain national standards, although these are also covered by the harmonisation directive.[62]

3.4.1 The role of the competence basis

In order to determine the intended harmonisation intensity of the Ecodesign Directive, the competence basis on which it was adopted plays a role. Like the predecessor Directive 2005/32/EC, it is based on Article 95 of the Treaty establishing the European Community (EC Treaty)[63] (now Article 114 TFEU). Accordingly, the European Union invoked its **competence to approximate laws in the internal market**. If a directive is based on this competence, the Member States - in contrast to other titles of competence - are in principle left with only a small scope for manoeuvre due to Article 95(4) and (5) TEC or today Article 114(4) and (5) TFEU.[64]

With the Directive based on Article 95 TEC, Member States cannot invoke the other possibilities of justification for national measures provided for in primary legislation. In particular, they cannot base national measures on the possibilities of justification by the provisions on the free movement of goods (ex Article 28 et seq. TEC, now Article 34 et seq. TFEU).[65] The free movement of goods guarantees manufacturers and consumers that goods can be freely traded across the borders of the Member States. However, certain expressly listed exceptions to this principle are permitted (cf. Article 30 TEC, unchanged today Article 36 TFEU). In addition, according to the so-called Cassis de Dijon jurisdiction of the ECJ, further exceptions are permissible for overriding reasons of public interest [66], including environmental protection.[67] In practice, the invocation of derogation possibilities can thus mean that Member States are permitted to impose restrictions on the movement of goods under certain conditions. However, if a directive exists on the basis of Article 95 TEC or Article 114 TFEU respectively, they are not able to do so, as specific rules of Article 114(4) and (5) TFEU would otherwise be circumvented.

Although the Ecodesign Directive could thematically also be assigned to the competence areas of environmental protection or energy policy, it was not based on the corresponding competence titles. This means for the Ecodesign Directive that the Member States cannot invoke the more far-reaching possibilities for independent regulations under the relevant competence provisions – In particular not the principle of minimum harmonization (Article 193 TFEU, ex Article 176 TEC) of EU environmental law.

It can certainly be criticised that the Ecodesign Directive was based on the competence from Article 95 TEC (today: Article 114 TFEU), because according to Article 1(2), second sentence of the Ecodesign Directive, environmental protection is the primary thematic objective of the Directive, along with the security of energy supply.[68] However, according to its conception, the Ecodesign Directive is a product-related regulation, which explains why it is based on Article 95 TEC (today: Article 114 TFEU). Particular national product regulations would entail that companies from other

62 Tietje in: Grabitz/Hilf/Nettesheim, Article 114 TFEU margin no. 41.
63 Consolidated version of the Treaty establishing the European Community (OJ C 325, 24.12.2002, p. 33).
64 Cf. Kahl, in: Calliess/Ruffert, Article 114 TFEU, margin no. 40.
65 Korte in: Calliess/Ruffert, Article 114, margin nos. 28, 74.
66 Leible/T. Streinz in: Grabitz/Hilf/Nettesheim, Article 34 TFEU margin no. 107; ECJ, Judgment of 20.02.1979 - Case 120/78, paragraph 8.
67 Leible/T. Streinz in: Grabitz/Hilf/Nettesheim, Article 34 TFEU margin no. 117.
68 Schomerus in: Jepsen/Reintjes/Rubik/Schomerus, Grundkonzeption eines Top-Runner-Modells auf EU-Ebene, p. 83.

Member States have disadvantages in marketing their products in the respective Member States, which would run counter to the objectives of the internal market. Therefore, it seems understandable that product regulations at the EU level are based on the legal basis for internal market harmonisation, even if it must be assumed that this in itself must take a back seat to more specific legislative bases.[69] Approximation of legislation in the internal market is at least also an essential objective of the Ecodesign Directive, which is reflected both in its recitals and in its first Article. Therefore, it cannot be assumed for the ecodesign requirements of products that the environmental protection or energy competences[70] of the internal market would necessarily be regarded as the more specific legal basis compared to Article 95 TEC (today: Article 114 TFEU). It can therefore be assumed that the Ecodesign Directive's reliance on the competence for the harmonisation of legislation in the internal market will be legally valid.

3.4.2 Wording and harmonisation purpose of the free movement of goods clause

The question of whether the Ecodesign Directive has a limiting effect depends in particular on the interpretation of Article 6(1), first sentence, of the Ecodesign Directive (see the wording above, 3.3.1). From this sentence, it follows that Member States may not "prohibit, restrict or impede the placing on the market and/or putting into service of a product" "on grounds of ecodesign requirements relating to those ecodesign parameters referred to in **Annex I, Part 1 which are covered by the applicable implementing measure**" if the product "complies with all the relevant provisions of the applicable implementing measure" and bears a CE marking.

The subsequent second sentence of Art. 6(1) of the Directive, according to which certain exemptions apply to national measures implementing EPBD 2010/31/EU, cannot be of any significance for the interpretation of the first sentence of the provision, because it was only inserted subsequently - namely in the context of the Energy Efficiency Directive 2012/27/EU (see on this below, 3.4.7).

From Article 6(1), first sentence of the Ecodesign Directive it follows beyond doubt that the Member States are prohibited from introducing stricter ecodesign requirements that relate to the same products and, in this respect, to the same parameters with which the respective implementing measure of the European Commission (= product-specific Ecodesign Regulation) to the Ecodesign Directive operates. This strict interpretation follows from the fact that the Ecodesign Directive was not issued on the basis of the European Union's environmental protection competence but was based on the competence for the approximation of laws in the internal market.

Hereby, the text highlights the product-related character of the Ecodesign Directive and thus the goal of creating an internal market for energy-related products. Accordingly, the national legislator only has a margin of manoeuvre within the narrower limits of Article 95(4) to (6) ECT (today: Article 114(4) to (6) TFEU). This is made explicitly clear in recital 11 of the Directive. This reads:

> *"A Member State that deems it necessary to maintain national provisions on grounds of overriding needs relating to the protection of the environment, or to introduce new provisions based on new scientific evidence relating to the protection of the environment on grounds of a problem specific to that Member State that arises after the adoption of the applicable implementing measure, may do so* **under the conditions laid down in Article**

[69] In this regarad: Kahl, in: Calliess/Ruffert, Article 114, margin no. 11.

[70] The energy competences would not come into consideration anyway, as these were only created after the adoption of the Ecodesign Directive.

95(4), (5) and (6) of the Treaty, which provides for prior notification to, and approval from, the Commission."

Thus, it remains to be said that the Ecodesign Directive in principle leaves the Member States a narrowly limited scope for manoeuvre only within the framework of Article 95(4) and (5) ECT (or the identical successor provision of Article 114 TFEU). In this respect, it basically has a limiting effect on measures taken by the Member States. However, the deeper question arises as to what exactly the limiting effect is, i.e. when it actually occurs and what its scope is in detail.

3.4.3 Implementing regulation as a prerequisite for the limiting effect of the Ecodesign Directive

The adoption of an ecodesign regulation is necessary for the limiting effect of the Ecodesign Directive because the latter is a framework directive[71] that does not itself set standards. Rather, it only provides a framework for the adoption of implementing acts in which the European Commission then sets the standards itself according to a specific procedure. As long as no ecodesign regulation exists, the Ecodesign Directive only has effect insofar as the EU Commission has the competence to adopt an ecodesign regulation for this product group. Since the Directive itself does not yet set any product-related standards, the Member State cannot logically deviate from them.

This also corresponds to the system of Article 95(4) and (5) ECT (today: Article 114(4) and (5) TFEU) in conjunction with the wording of Article 6(1) and (2) of the Ecodesign Directive. According to this, Member States are only prohibited from restricting the import of a product that has been manufactured in compliance with the respective applicable ecodesign regulation and labelled accordingly. Consequently, the limiting effect of the Ecodesign Directive only applies if standards are actually set by the European Union. This is also supported by the principle of conferral laid down in Article 5(2) of the Treaty on European Union (EU Treaty)[72], according to which the European Union acts only within the limits of the competences conferred upon it by the Member States in the Treaties. All competences not conferred upon the European Union in the Treaties remain with the Member States. This argues against interpreting a framework directive as having a limiting effect for all product groups. With such a far-reaching understanding, the Member States would be prevented from imposing ecodesign requirements on all products that could possibly fall under an ecodesign regulation in the future. This would excessively restrict the national legislator's room for manoeuvre. This applies in particular because the procedure for adopting implementing regulations is lengthy due to the complexity of the matter and the scope of the potential product groups, and the European Commission does not have sufficient human resources to adopt regulations for all products in a timely manner, and moreover it is not certain whether a certain product will ever fall under an ecodesign regulation. If, however, the national legislator is to be prevented from adopting its own standards already with the enactment of a framework directive, this would make the adoption of such regulations impossible throughout Europe, even though the European Union itself cannot solve the problem in a timely manner. This cannot have been the intention when adopting the Ecodesign Directive.[73]

[71] Schomerus in: Jepsen/Reintjes/Rubik/Schomerus, Grundkonzeption eines Top-Runner-Modells auf EU-Ebene, p. 90.

[72] Consolidated version of the Treaty on European Union (OJ C 202, 7.6.2016, p. 13).

[73] The question arises whether this is to be assessed differently if the procedure regulated in Article 15 Ecodesign Directive has already been initiated with regard to a product or if the product has been

Even if it is in principle open to the national legislator to enact regulations with regard to such products for which no ecodesign regulation has yet been adopted, such a regulation must always be measured against primary legislation, i.e. also against the four freedoms and there in particular the free movement of goods. A justification of the measure for environmental reasons seems obvious. These measures must not be discriminatory and must particularly comply with the principle of proportionality.[74]

3.4.4 Scope of the limiting effect of ecodesign regulations

However, the question arises as to the scope of the Ecodesign Directive in terms of its subject matter and thus the extent of its limiting effect. It should be noted that the scope of a harmonisation measure usually only covers individual aspects of a legal matter. The reason for this is that the EU cannot strive for an overall codification[75], as it lacks such far-reaching competence[76] due to the principle of conferral.[77]

3.4.4.1 The scope of the regulatory purpose of the free movement of goods clause

Specifically for the Ecodesign Directive, it should be noted that the EU legislator did not express, either in the (remaining) provisions or in the recitals of the Directive, that the purely technical product provisions of ecodesign law should be the only regulatory instrument which may impact the energy consumption by the application of the respective products. The very existence of the Directives on Energy Labelling,[78] on Energy Performance of Buildings,[79] on Energy Services[80] or on the Promotion of the use of Renewable Energies[81] at the time of the adoption of the Ecodesign Directive (2009) makes it clear that the Ecodesign Directive was not intended to have a stand-alone function in the EU strategy on energy consumption reduction and choice of energy sources. These provisions already required Member States to take certain appropriate measures to reduce energy consumption. Such measures necessarily lead to consumers choosing to purchase products that have better energy efficiency or emission performance than the minimum standards set out in the respective ecodesign regulations. In a broad understanding of the free movement of goods clause, this could be seen as a "restriction" or "hindrance" to their being placed on the market. This cannot

included in the work programme of the EU Commission (Article 16 Ecodesign Directive). The principle of loyalty to the Union laid down in Article 4(3) of the EU Treaty would have to be applied here. For more details, see Keimeyer/Müller: Zulässigkeit nationaler Standards für energieverbrauchsrelevante Produkte, chapter 3.3.3.2 (p. 136 of the document).

74 Cf. Chapter 3.5.2.

75 Tietje in: Grabitz/Hilf/Nettesheim, Article 114 TFEU, margin no. 36.

76 Classen in: von der Groeben/Schwarze/Hatje, Article 114, margin no. 24.

77 Cf. chapter 3.4.3.

78 Council Directive 92/75/EEC of 22 September 1992 on the indication by labelling and standard product information of the consumption of energy and other resources by household appliances (OJ L 297, 13.10.1992, p. 16).

79 Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings (OJ L 1, 4.1.2003, p. 65).

80 Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC (OJ L 114, 27.4.2006, p. 64).

81 Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (OJ L 140, 5.6.2009, p. 16).

be the case, however, because it would overstretch the scope of application and effect of EU law, which is product-related and thus directly related to the technical properties of the products.

If the free movement of goods clause of the Ecodesign Directive were to be understood as prohibiting any measures by the Member States which, on the basis of other EU Directives, influence the use of products for which there are technical regulations according to ecodesign regulations, this far-reaching regulatory intention should have been clearly expressed in the Ecodesign Directive. But this is not the case. Rather, even after the Ecodesign Directive came into force, the EU continued its strategy of using other directives to call on the Member States to take measures that influence the use of products that are subject to ecodesign regulations and can thus indirectly make their marketing more difficult. In addition to the requirements of the EPBD, this applies in particular to the prospective energy efficiency obligation systems or the mandatory energy audits based on the Energy Efficiency Directive as well as the building provisions for the use of heat from renewable energy sources based on the Renewable Energy Directive.

It is not evident that the Ecodesign free movement of goods clause intended to generally prohibit indirect effects on the marketing of products which are subject to the ecodesign regulations through measures to implement other EU directives. In the meantime, the EU has also massively increased, through the requirements of the Effort Sharing Regulation (EU) 2018/842,[82] the pressure on Member States to take effective measures to reduce fossil energy consumption. According to this regulation, Member States must meet certain targets for the reduction of greenhouse gas emissions in the so-called non-ETS sector[83]. If they were prevented by the Ecodesign Directive from influencing the choice between different energy sources or between heating appliances with different emission levels by national regulations or incentives to use them, the EU climate action strategy would be severely impaired by the Ecodesign Directive. It seems impossible that such a result should be sought through the free movement of goods clause.

The free movement of goods clause of the Ecodesign Directive aims at protecting the movement of products that comply with the requirements laid down in "implementing measures". According to Article 15(6) of the Directive, implementing measures lay down "ecodesign requirements in accordance with Annex I and/or Annex II". According to the definition in Article 2(24) of the Ecodesign Directive, an "ecodesign requirement" is "any requirement in relation to a product, or the design of a product, intended to improve its environmental performance, or any requirement for the supply of information with regard to the environmental aspects of a product".

Apart from information requirements, ecodesign requirements are therefore to be understood as requirements "to a product, or the design of a product". “Product design" is defined in Article 2(10) of the Ecodesign Directive as "*the set of processes that transform legal, technical, safety, functional, market or other requirements to be met by a product into the technical specification for that product*". It is therefore a question of the technical characteristics of the product.

Accordingly, the purpose of the free movement of goods clause of the Directive must be interpreted to the effect that it only prohibits Member States from adopting regulations whose direct object are the technical product characteristics. However, regulations that indirectly influence the choice

[82] Regulation (EU) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013 (OJ L 156, 19.6.2018, p. 26)

[83] That is in those sectors of CO_2 emissions which are not subject to EU emissions trading.

between different products permitted under the respective ecodesign regulation without themselves operating with divergent technical product requirements are not affected by the free movement of goods clause. This understanding is also clearly supported by the wording of the provision, which only addresses national measures "relating to those ecodesign parameters referred to in Annex I, Part 1 which are covered by the applicable implementing measure". The national measures must "relate to" the respective parameters. The respective national regulations must therefore in turn also be specifically related to technical product characteristics.

The clause therefore does not cover, for example, technically unspecific regulations or incentives for energy saving in companies, for public procurement, in the context of energy efficiency obligation systems, as well as greenhouse gas reduction requirements or requirements for energy consumption in buildings. Nor can anything else apply in principle to the choice between different energy sources (e.g. between renewable energies and fossil energies or to restrictions on the use of certain fuels such as coal, heating oil, etc.) - unless the choice between different fuels is itself the subject of the parameters used in the ecodesign regulation - which is, however, conceivable. To the extent that this is not the case, the free movement of goods clause cannot prevent national regulations on the choice of fuels for specific purposes.

3.4.4.2 The importance of specific provisions in ecodesign regulations

It has already become clear that a limiting effect can only arise for products that are covered by an ecodesign regulation.[84] For example, according to Article 1 of the Ecodesign Regulation for Space Heaters, space heaters and combination heaters with a rated heat output of more than 400 kW are explicitly excluded from the scope of this regulation. For these appliances, the Ecodesign Directive in conjunction with the Space Heater Ecodesign Regulation cannot have a limiting effect.

Furthermore, the second paragraph of Article 6 of the Ecodesign Directive (not yet quoted) is relevant for the scope of the Ecodesign Directive, which deals with explicit provisions in an ecodesign regulation according to which no further ecodesign parameters have been deliberately established. This reads:

> *„Member States shall not prohibit, restrict or impede the placing on the market and/or putting into service, within their territories, of a product bearing the CE marking in accordance with Article 5 on grounds of ecodesign requirements relating to those ecodesign parameters* ***referred to in Annex I, Part 1*** *for which the applicable implementing measure* ***provides that no ecodesign requirement is necessary****.“*

First of all, it should be noted that both Article 6(1) and (2) refer only to ecodesign parameters of Annex I, Part 1 of the Ecodesign Directive. For Part 2 of Annex I, i.e. the requirements for the provision of information, this limiting effect does not apply. Accordingly, more extensive information requirements than those provided for in the ecodesign regulation are permissible. This is also supported by the objective of the free movement of goods, for the realisation of which the harmonisation of laws in the internal market takes place. If a Member State merely imposes stricter requirements on the information that the manufacturer must provide, this does not force the manufacturer to adapt their product to certain standards and to change their product. Information requirements thus have a much smaller impact on the exercise of the free movement of goods.

[84] Schomerus in: Jepsen/Reintjes/Rubik/Schomerus, Grundkonzeption eines Top-Runner-Modells auf EU-Ebene, p. 111.

Irrespective of this, it can be inferred from **Article 6(1)** of the Ecodesign Directive that a limiting effect occurs with regard to the ecodesign parameters "which are covered by the applicable implementing measure". If an implementing measure explicitly regulates certain parameters, a Member State cannot adopt a national measure to regulate these parameters. For example, Annex II of the Space Heater Ecodesign Regulation sets limits for the emission of nitrogen oxides (No. 4). As a consequence, Member States are prevented from setting their own higher or lower limit values for nitrogen oxide emissions.

It follows from Article 6(2) of the Ecodesign Directive that the limiting effect of the ecodesign regulation should also apply if the ecodesign regulation (explicitly) stipulates that certain ecodesign requirements are *not necessary*. Should this be the case, Member States would be left with no leeway to regulate these parameters.[85] The question arises, however, as to what applies if the ecodesign regulation does not cover a certain parameter, but does not further explicitly state that no ecodesign requirement is necessary for it. In this context, Article 15(6)(3) of the Ecodesign Directive must be considered in particular:

> *„Implementing measures may also provide that no ecodesign requirement is necessary for certain specified ecodesign parameters referred to in Annex I, Part 1.“*

The fact that the European Commission is explicitly given this option suggests that only the explicit refraining from specifying an ecodesign parameter extends the limiting effect of the regulation to this parameter as well.[86]

In its current decision on the approval of the German Regulation on small and medium-sized combustion units (‘1st BImSchV’) as a derogation within the meaning of Article 114(4) to (6) TFEU, the European Commission confirms this restrictive understanding (see Section 3.4.5). It even goes further to say that it is not sufficient in this respect if the preparatory studies for the Ecodesign Regulation state that the parameters in question are not necessary; however, the prohibitive effect is only triggered if this is stated in the adopted regulation itself.[87]

In order for the implementing regulation to have a limiting effect in the case of "non-regulation", the regulation itself must therefore **explicitly provide** that no ecodesign requirements are to be set for certain ecodesign parameters according to Annex I, Part 1. The "non-regulation" must therefore not only have been **conscious** to the legislator but must be made the subject of an explicit provision in the regulation. An unconscious "overlooking", "forgetting" or a conscious "ignoring" cannot result in a limiting effect for the national legislator.[88] If there are doubts as to whether the legislator intended to make an explicit "non-regulation", such a non-regulation cannot be assumed. If the European Union wants to restrict Member States in their legislative competence, this must also be done explicitly due to the principle of subsidiarity.[89]

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85 Schomerus in: Jepsen/Reintjes/Rubik/Schomerus, Grundkonzeption eines Top-Runner-Modells auf EU-Ebene, p. 111.

86 Tölle, Der Rechtsrahmen für den Erlass von Ökodesign-Anforderungen, p. 185 et seq.

87 Commission Decision (EU) 2020/654 of 13 May 2020 concerning national provisions notified by Germany on small and medium combustion units (notified under document C(2020) 2986) (OJ L 152, 15.5.2020, p. 5).

88 Schomerus in: Jepsen/Reintjes/Rubik/Schomerus, Grundkonzeption eines Top-Runner-Modells auf EU-Ebene, p. 112.

89 Schomerus in: Jepsen/Reintjes/Rubik/Schomerus, Grundkonzeption eines Top-Runner-Modells auf EU-Ebene, p. 112.

However, it could be questionable what applies if the waiver of a regulation is mentioned in the recitals of the ecodesign regulation, but there is no specification in the enacting terms of the regulation (i.e. in the individual articles). The reasons listed at the beginning of the EU legal acts are intended to provide guidance for the implementation of the legal act. However, by their very nature, they do not order any binding legal consequences; rather, they are merely declarative or explanatory in nature. Binding provisions are only made in the respective articles or annexes of the regulations. However, since the "non-regulation" in the sense of Article 6(2) or Article 15(6) of the Ecodesign Directive is legally a regulation, it must in principle be included in the articles or annexes of the regulations. If it is only stated in the recitals, this speaks against a limiting effect of the respective regulation.[90]

However, it could also be argued that this narrow interpretation of Article 6(2) or Article 15(6) of the Ecodesign Directive contradicts the intention of the legislator. If the recitals clearly state that a certain ecodesign parameter is not to be regulated and that the Member States are also to be prevented from regulating it, then consideration of the recitals could lead to the interpretation that, exceptionally, a limiting effect is to be assumed.[91]

In this respect, too, the current decision of the EU Commission on the 1st BImSchV contains an interesting statement. It states in recital 34 and the footnote 6 referred to there:[92]

> *"(34) Regulation (EU) 2015/1189 does not set out ecodesign requirements related to usable fuels for solid fuel boilers. While the preparatory study conducted to inform the adoption of the implementing measure concluded that 'no further requirements regarding ecodesign parameters for products referred to in Part 1 of Annex I to Directive 2009/125/EC are necessary in the case of solid fuel boilers' ([93]), Regulation (EU) 2015/1189 does not provide that no ecodesign requirement relating to usable fuels are necessary ([6])."*
>
> Footnote 6: *"Contrary to, for example, Commission Regulation (EU) No 547/2012 of 25 June 2012 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for water pumps (OJ L 165, 26.6.2012, p. 28), which provides in Article 3 that 'No ecodesign requirement is necessary regarding any other ecodesign parameter referred to in Annex I, Part 1, of Directive 2009/125/EC.'"*

Accordingly, the EU Commission explicitly states that in this context it is exclusively a matter of regulatory provisions in the respective ecodesign regulation. A respective mentioning in the recitals is not sufficient.

In Regulation (EU) 2015/1189, which was the subject of the European Commission's decision on the 1st BImSchV, recital 5 states:

> *"(5) The preparatory study shows that further requirements regarding ecodesign parameters for products referred to in Part 1 of Annex I to Directive 2009/125/EC are not*

90 Cf. Schomerus in: Jepsen/Reintjes/Rubik/Schomerus, Grundkonzeption eines Top-Runner-Modells auf EU-Ebene, p. 112 et seq.

91 Schomerus in: Jepsen/Reintjes/Rubik/Schomerus, Grundkonzeption eines Top-Runner-Modells auf EU-Ebene, p. 113; Tölle, Der Rechtsrahmen für den Erlass von Ökodesign-Anforderungen, p. 185 et seq.

92 Commission Descision (EU) 2020/654 of 13 May 2020 concerning national provisions notified by Germany on small and medium combustion units (notified under document C(2020) 2986) (OJ L 152,15.5.2020, p. 5).

93 Cf. recital 5 of Regulation (EU) 2015/1189.

necessary in the case of solid fuel boilers. In particular, emissions of dioxins and furans are not identified as significant."

In Regulation (EU) 813/2013, which is at issue here, recital 7 states:

"(7) The preparatory study shows that requirements regarding the other ecodesign parameters referred to in Annex I, Part 1 to Directive 2009/125/EC are not necessary in the case of space heaters and combination heaters. In particular, greenhouse gas emissions related to refrigerants used in heat pump heaters for heating today's European building stock are not identified as significant. The appropriateness of setting ecodesign requirements for these greenhouse gas emissions will be reassessed when reviewing this Regulation".

The similarity is unmistakable. In both cases, the findings from the preliminary studies were mentioned in the recitals. In both cases, however, there is no corresponding specification in the regulatory part of the regulation. Therefore, there should be no doubt that the EU Commission would also decide in the same way in the case at hand: Regulation No. 813/2013 does not contain any (negative) specifications on parameters other than those that are explicitly the subject of the provisions in the Annex to the Regulation. The same applies to Regulation No. 814/2013.

3.4.5 Excursus: The practice of applying Article 95 TEC / Article 114 TFEU

3.4.5.1 The EU Commission's decision on the German 1st BImSchV

The above-mentioned decision of the European Commission on the approval of Germany's deviating provisions from Regulation No. 2015/1189 in the 1st BImSchV is enlightening in another respect. It can be concluded from it that the European Commission interprets the scope of the free movement of goods clause of the Ecodesign Directive narrowly in other contexts, too, in line with the understanding developed here.

In the decision, the European Commission indicates that the prohibition clause only covers national provisions that set requirements for the respective products with regard to the parameters regulated in the respective ecodesign regulation. It does not cover national provisions that only concern other parameters or that only establish requirements for use and monitoring, i.e. it does not matter whether these may have an indirect negative impact on the placing on the market of the products covered by the respective ecodesign regulation.

The decision of the European Commission was made in a procedure pursuant to Article 114(4) to (6) TFEU, i.e. in a procedure that Germany would also have to initiate if it wished to deviate from one of the ecodesign regulations under consideration here.[94] According to the European Commission, the subject matter of such a procedure, which would aim at an "approval" of a national deviation pursuant to Article 114(6) TFEU, can only be national provisions that deviate from the respective EU provision. In the first step, the respective Member State must submit a formal "notification" (Article 114(4) and (5) TFEU). In the second step, the European Commission decides whether it (exceptionally) "approves" the deviation.

If the Member State in question seeks approval for a national provision that is not a deviation from the respective EU provision, the European Commission is prevented from approving it, since the

[94] The procedure in accordance with Article 95(4) to (6) TEC does not differ from this.

provision may not be the subject matter of the procedure in accordance with Article 114(4) to (6) TFEU in this case. As a consequence, the Member State's notification in question is "not admissible".

The wording that the "notification" of a Member State - i.e. the respective request for approval - is "not admissible" reads at first glance as if the approval is thereby rejected, however, it rather means that the approval may not be decided upon because there is no deviation from the harmonization provision.

This is exactly what happened to Germany with three of the four national provisions of the 1st BImSchV that were notified to the European Commission for approval pursuant to Article 114(6) TFEU.

The national provisions notified by Germany for approval were the following provisions of the 1st BImSchV:[95]

(a) Section 5, point (1) which sets emission limit values and a measurement methodology for particulate matter (the 'first provision'). Those differ from the values and measurement methodology applicable from 1 January 2020 pursuant to Regulation (EU) 2015/1189;

(b) Section 4, point (1), in conjunction with section 3, which provides an exhaustive list of fuels that may be used in firing installations (the 'second provision'). Regulation (EU) 2015/1189 does not contain such an exhaustive list;

(c) Section 5, point (4) requires solid fuel boilers to be provided with hot water storage tanks (the 'third provision'). Regulation (EU) 2015/1189 does not contain such a requirement;

(d) Section 14 and section 15 point (1) as regards the monitoring of new and significantly modified combustion units (the 'fourth provision'). Regulation (EU) 2015/1189 sets out requirements at the time of placing solid fuel boilers on the market and does not contain provisions for further monitoring.

In its conclusion the European Commission summarises:

> *„(71) In the light of the above considerations, and taking into account of comments received from Germany and other relevant stakeholders, the Commission is of the opinion that:*
>
> - *the notifications related to the provision on usable fuels, hot water tanks and monitoring of firing installations are not admissible under Article 114(4) TFEU;*
> - *the notification related to particulate matter emissions thresholds shall be approved,"*

Consequently, Germany would not have had to notify provisions relating to (b), (c) and (d) for approval as they do not deviate from the respective ecodesign regulation.

Of particular interest for the present context is the notification relating to (b), since it related to a national provision prohibiting the use of certain fuels in certain heating systems - albeit expressed conversely as a binding requirement to use only certain fuels. It is precisely this kind of provision, a ban or restriction on the use of heating oil or other fossil fuels in boilers, that is also at issue here.

[95] Verbatim quotation from the Decision of the European Commission; recital 14.

The EU Commission's decision states that the restriction of the use of certain fuels in heating systems is by nature an ecodesign requirement.[96] It further stated that the relevant Regulation (EU) No. 2015/1189 would not set out ecodesign requirements related to usable fuels for solid fuel boilers. The relevant preparatory study had concluded that such requirements were "not necessary". However, the Regulation would "not provide that no ecodesign requirement relating to usable fuels are necessary".[97] "Usable fuels are thus not a harmonised ecodesign requirement under Regulation (EU) 2015/1189."[98] Therefore, the European Commission considered that "the application by Germany with a view to obtaining authorisation to maintain its national provisions regarding usable fuels is not admissible under Article 114(4) TFEU".[99]

With regard to obligations to install hot water tanks alongside solid fuel boilers (section 5 point 4 of the 1st BImSchV) addressed by the notification under (c), the EU Commission found that these “are not related to product design, a requirement to supply information or a requirement for the manufacturer. Therefore, they do not constitute ecodesign requirements within the meaning of Directive 2009/125/EC".[100]

The provision on the verification of proper operation of firing installations by chimney sweeps (sections 14 and 15 of the 1st BImSchV) addressed in the notification under (d) was assessed by the EU Commission in the same way: This "does not constitute an ecodesign requirement" either.[101]

The assessments of the requests related to (c) and (d) make it clear that the EU Commission assumes that provisions of the Member States, indirectly impairing the marketing of products, of an ecodesign regulation which merely set supplementary requirements on the installations covered or regulate their monitoring, cannot be classified from the outset as violations of Article 6(1) of the Ecodesign Directive. This is exactly in line with the above considerations on the limited scope of the limiting effect of the ecodesign free movement of goods clause (see above, chapters 3.4.2, 3.4.3 and 3.4.4).

Therefore, only measure a) remained for the EU Commission's decision, which dealt with limit values and a measurement methodology that deviated from the ecodesign regulation. This was approved by the EU Commission in the respective Decision because it was justified on grounds of major needs in terms of environmental protection[102] and there was no arbitrary discrimination, no disguised restriction of trade between Member States and no obstacle to the functioning of the internal market.[103]

3.4.5.2 The European Commission’s opinion on the restriction of the use of fossil oil and natural gas in Denmark

In 2013, there was a dispute between Denmark and the EU Commission about provisions in Danish law, which were still being prepared at the time, to ban new fossil oil and natural gas furnaces. An amendment to the building regulations was planned, according to which fossil oil-fired systems may

96 Cf. recital 32 of the Decision.
97 Cf. recital 34 of the Decision.
98 Cf. recital 35 of the Decision.
99 Cf. recital 36 of the Decision.
100 Cf. recital 37 of the Decision.
101 Cf. recital 39 of the Decision.
102 Cf. recital 51 et seq. of the Decision.
103 Cf. recital 58 et seq. of the Decision.

no longer be newly operated if a connection to a district heating or gas network or heating with renewable energies is possible in a respective location, and a ban on the new operation of natural gas heating systems if a district heating connection or heating based on renewable energies is possible on site. In its opinion on the draft law submitted by Denmark in the context of a notification procedure, the EU Commission raised concerns specifically against the provisions relating to gas appliances from the point of view of an impairment of trade in gas appliances.[104] Specifically, the EU Commission doubted the compatibility with the former Directive 2009/142/EC on appliances burning gaseous fuels.[105] In its opinion, the EU Commission pointed out in particular that the wording of the Danish draft ("designed to burn natural gas or oil") entails the risk "that heating boilers which, after proper adjustments, can burn both fossil fuels and renewable energy fuels are caught by the term and as a consequence of that, are restricted on the Danish market".

Denmark countered that this was in fact an implementation of a provision of the (then) RES Directive 2009/28/EC,[106] which in Article 13(4), first sentence, contained the obligation: "Member States shall introduce in their building regulations and codes appropriate measures in order to increase the share of all kinds of energy from renewable sources in the building sector." Denmark maintained its regulatory intention but changed the relevant wording to the effect that for the purpose of heating buildings in district heating areas, only RES installations may be newly operated as an alternative to district heating. The EU Commission tolerated this procedure by not subsequently initiating infringement proceedings.

The position expressed in the European Commission's opinion on the Danish ban of 2013 appears much more critical of national provisions that affect EU product law than the European Commission's decision on the 1st BImSchV. The question therefore arises whether the view developed here on the partial limiting effect of the Ecodesign Directive, which is (also) decisively based on the EU Commission's decision on the 1st BImSchV, must be reconsidered in light of the Commission's opinion on the Danish ban.

On closer inspection, however, it turns out that there is no reason to do so. The European Commission's opinion from 2013 is not only much older than the decision on the 1st BImSchV adopted in 2020 (which would therefore, in case of doubt, be considered authoritative for this reason alone). The free movement of goods clause of the Gas Appliances Directive 2009/142/EC, which was at issue in the dispute between the European Commission and Denmark in 2013[107], also had a much broader wording than the free movement of goods clause of the Ecodesign Directive. Article 4(1) of Directive 2009/142/EC stated:

[104] Message 316, Communication from the Commission - TRIS/(2013) 01814 Directive 98/34/EC, Notification: 2013/0192/DK on the Danish draft "Order on amendment to Publication Notice of 2010 Building Regulations (BR 10)".

[105] Directive 2009/142/EC of the European Parliament and of the Council of 30 November 2009 relating to appliances burning gaseous fuels (OJ L 330, 16.12.2009, p. 10). Directive 2009/142/EC was substituted by Regulation (EU) 2016/426 on gas appliances in 2016.

[106] Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (OJ L 140, 5.6.2009, p. 16).

[107] To be noted: Directive 2009/142/EC was substituted by Regulation (EU) 2016/426 on gas appliances in 2016.

> *"1. Member States may not prohibit, restrict or impede the placing on the market and the putting into service of appliances which comply with this Directive and which bear the CE marking provided for in Article 10."*

The scope of the free movement of goods clause of the Gas Appliances Directive 2009/142/EC, in contrast to Article 6(1) of the Ecodesign Directive, therefore did not merely extend to national provisions by which the Member State invokes certain parameters for which there are specific specifications in an (implementing) regulation. Rather, the prohibition was directed at *any* restrictions in national law on the placing on the market and putting into service of gas appliances that comply with the provisions of the Directive. The scope of assessment of the procedure at that time was thus much broader than for the question of the compatibility of national restrictions on the use of oil and gas with the Ecodesign Directive considered here. Therefore, it cannot be concluded from the comparatively strict view of the European Commission on the clause of the Gas Appliances Directive that the EU Commission also understands Article 6 of the Ecodesign Directive in a strict sense.

Another question is whether the national restrictions considered here, insofar as they should also extend to natural gas (and not only to heating oil), are compatible with the *current* provisions of EU law on gas appliances. These are now no longer regulated in the Gas Appliances Directive 2009/142/EC, but in the Gas Appliances Regulation (EU) 2016/426 - the free movement of goods clause of which is again worded differently than the former one. This will be discussed further below (see section 3.5.1).

3.4.6 Specific limiting effect of Ecodesign Regulations 813/2013 and 814/2013

Neither Ecodesign Regulation 813/2013 for space heaters and combination heaters nor Ecodesign Regulation 814/2013 for water heaters and hot water storage tanks have a limiting effect on usable fuels as these regulations do not include any harmonised ecodesign requirements related to usable fuels. This clearly results from the EU Commission's decision on the notification related to the 1st BImSchV just presented in the excursus.

In the following, the study describes which ecodesign parameters are laid out in detail in the two Regulations No 823/2013 and 814/2013. From this, conclusions can be drawn as to which aspects of the respective installations Germany is prohibited from adopting independent national provisions.

3.4.6.1 Specific provisions of Regulation 813/2013 for space heaters and combination heaters

In order to come to a more precise assessment as to which specific provisions Member States may adopt – and which national measures are not admissible – the provisions of the Regulation are assessed in detail.

The ecodesign requirements are laid down in detail in Annex III of Regulation 813/2013:

1. Requirements for seasonal space heating energy efficiency
2. Requirements for water heating energy efficiency
3. Requirements for sound power level
4. Requirements for emissions of nitrogen oxides
5. Requirements for product information

Annex I comprises definitions of the terms used. Annex III gives methodological provisions on the measurements and calculations to be performed.

Since there is no "non-regulation" within the meaning of Article 6(2) of the Ecodesign Directive in the enacting (binding) part of the implementing regulation with regard to ecodesign parameters other than those dealt with in Annex II, it can be concluded that any national provisions on ecodesign parameters not regulated in the Regulation are not to be regarded as a breach of Article 6 of the Ecodesign Directive.

In recitals 5 to 7 of the Regulation, the following significant environmental aspects are identified for space heaters and combination heaters, they are not entirely consistent with Annex II (see recital 5):

- Energy consumption in the use phase;
- Sound power levels (for heat pump heaters); and
- For heaters using fossil fuels, emissions of nitrogen oxides, carbon monoxide, particulate matter and hydrocarbons.

It is striking that the Regulation in its regulatory part (Annex II) does not contain any specific requirements for emissions of carbon monoxide, particulate matter or hydrocarbons, although these have been identified as "significant environmental aspects" for fossil-fuelled space heaters.[108]

The question could therefore arise whether the ecodesign regulation limits the adoption of a national provision that sets requirements, with regard to these emissions, for an environmentally sound design of space heaters in relation to the ecodesign parameters listed in recital 5 but not included in Annex II. The answer to this question can be derived from recital 6. There it is explained that at the time of the adoption of the Regulation such ecodesign requirements are not appropriate because at the time no suitable European measurement methods were available to measure these emissions. However, since these represent a significant environmental aspect for space heaters operated with fossil fuels, the specification of respective standards is basically reasonable. Consequently, as can be seen from recital 6, the EU Commission did not refrain from establishing respective requirements because these emissions are irrelevant for the eco-balance of space heaters, but because such requirements were simply not possible at the time the Regulation was adopted. Therefore, recital 6 explicitly clarifies that national provisions relating to these parameters may be maintained or introduced until corresponding European Union requirements enter into force.

Furthermore, the question could arise as to how to assess the fact that the Regulation does not set requirements for other ecodesign parameters for space heaters and combination heaters listed in Annex I Part 1 of the Ecodesign Directive. Recital 7 states that the preparatory study shows that requirements in this respect are not necessary. This could suggest the interpretation that the EU Commission has made use of the possibility to stipulate that no requirements are to be established for certain parameters in accordance with Article 6(2) and Article 15(6) of the Ecodesign Directive. This would then also prohibit the adoption of national requirements for these parameters.

Such an interpretation is not appropriate. It follows from the EU Commission's decision on the 1st BImSchV (see Section 3.4.5), that it is not sufficient for the limiting effect of Article 6(2) or Article 15(6) of the Ecodesign Directive to be triggered if it is only mentioned in the recitals that certain or further requirements are not necessary[109] (see comments above on the corresponding practice of

[108] Recital 5.
[109] Cf. recitals 34 to 36 there.

the EU Commission in 3.4.5). However, the EU Commission only deals with this point briefly and in an apodictic form in its decision. Therefore, it will be briefly discussed here how this result can be derived from a legal point of view:

If recitals 6 and 7 are compared, it is noticeable that the EU Commission has explicitly clarified in recital 6 that the Member States may continue to introduce provisions with regard to these emissions. In contrast, recital 7 does not explicitly state that the Member States may not adopt any provisions regarding the ecodesign requirements mentioned there. If the EU Commission explicitly explains one sub-area, then the Commission would also be expected to clarify the other area accordingly. This reasoning is strengthened by the fact that the Member States basically have room for manoeuvre and the limitation of the same is the exception, which in turn requires a clear provision. In this respect, the interpretation of the recitals, which must be considered as a whole and not detached from each other, is not unambiguous. These ambiguities or doubts speak against the EU Commission wanting to make an explicit "non-regulation" within the meaning of Article 6(2) or Article 15(6) Ecodesign Directive[110] in order to achieve a limiting effect for the Member States. In addition, it is noticeable that the EU Commission does not directly adopt the statement that further ecodesign requirements are not necessary, but only refers to the fact that this emerges from the preparatory study. Such an indirect statement, which, moreover, is made in the non-binding recitals, cannot have a limiting effect.

It can thus be noted that Ecodesign Regulation 813/2013 does not regulate the use of fuels and does not explicitly state either that respective provisions cannot be established. The ecodesign regulation therefore does not have a limiting effect on national provisions that determine the fuels permitted in the installations concerned.[111] The same applies to national provisions which establish requirements for other ecodesign parameters than those for which requirements are laid down in Annex II of the Regulation. The Member States of the European Union can therefore establish additional ecodesign requirements. Finally, Member States are also free to regulate independently monitoring requirements for the installations concerned.

3.4.6.2 Specific provisions of Regulation 814/2013 for water heaters and hot water storage tanks

An assessment of eEcodesign Regulation 814/2013 for water heaters and hot water storage tanks yields the same result as it does not regulate the use of specific fuels either.

Annex II of this Ecodesign Regulation establishes (only) the following specific ecodesign requirements for water heaters:

1.1. Requirements for water heating energy efficiency

1.2. Requirements for storage volume of storage water heaters with declared load profiles 3XS, XXS, XS and S

1.3. Requirements for mixed water at 40 °C of storage water heaters with declared load profiles M, L, XL, XXL, 3XL and 4XL

[110] Schomerus in: Jepsen/Reintjes/Rubik/Schomerus, Grundkonzeption eines Top-Runner-Modells auf EU-Ebene, p. 112.

[111] With the same result: Grabenwarter/Vašek (2016): Gesetzliches Verbot von Ölheizungen – Verfassungs- und unionsrechtliche Determinanten, p. 17.

1.4. Requirements for sound power level

1.5. Requirements for emissions of nitrogen oxides

1.6. Requirements for product information related to water heaters

The ecodesign requirements for hot water storage tanks are:

2.1. Requirement for standing loss

2.2. Requirements for product information related to hot water storage tanks

Tantamount to the Ecodesign Regulation for space heaters, recitals 4 to 6 explain the selection of "significant environmental aspects" for which uniform ecodesign requirements are established on a European level. The system and the wording are almost identical. The Regulation also refrains from setting requirements for emissions of carbon monoxide and hydrocarbons as no suitable European measurement methods are as yet available.[112] Recital 5 expressly states in this context that respective national provisions may be maintained until the corresponding (European) Union requirements enter into force. Recital 6 explains that the preparatory study shows that other ecodesign requirements are not necessary. What was said about the Ecodesign Regulation for space heaters also applies here: As these statements are not included in the enacting part of the Regulation, there is no limiting effect for national provisions on other ecodesign parameters or monitoring requirements. As a consequence, a direct ban of the use of certain fossil fuels for water heaters and hot water storage tanks is possible.

3.4.7 The special role of the exception clause for requirements based on the EPBD

Apart from the restrictions specifically related to the use of fossil fuels in heating systems considered here, it is also possible to restrict the use of fossil fuels in an indirect way. In particular, (more) ambitious requirements for the "energy performance of buildings" and "system requirements" in the sense of the EPBD could be set, which can no longer be met with fossil heating systems. According to Article 6(1) **second sentence** of the Ecodesign Directive, Member States are expressly permitted to take such action.

The specific provision of Article 6(1), second sentence of the Ecodesign Directive raises two questions: Firstly, it must be clarified what is meant by it in terms of content, i.e. what the exception refers to. Secondly, the question arises as to whether the clause does not imply that the Member States are prohibited from adopting provisions other than those expressly mentioned in the second sentence, which - at least with regard to heat from buildings - set more stringent ecodesign requirements than those provided for in ecodesign regulations. The latter would be in contradiction to the results developed above, according to which this is precisely not a violation of Article 6(1), first sentence of the Ecodesign Directive. From a legal point of view, however, this conclusion from the juxtaposition of the two sentences is obvious, at least at first glance.

A closer look at the development of Article 6(1) of the Ecodesign Directive provides the explanation. Initially (2009), it contained only the first sentence; the second sentence was only added in the course of the adoption of the Energy Efficiency Directive 2012/27/EU in 2012. The second sentence can therefore have no significance for the interpretation of the first sentence. The regulatory content of the latter was already clear before. The regulatory content of the first sentence cannot have been

[112] Recital 5.

changed by the second sentence, which was inserted later, because the first sentence remained unchanged. It can be assumed that the EU bodies involved in the legislative process for the Energy Efficiency Directive were unsure whether the first sentence might not in practice lead to the conclusion that the regulatory scope of the Member States under the EPBD would be restricted by the Ecodesign Directive. This conclusion should be avoided. The function of the second sentence is therefore a clarifying one: It clarifies and thereby safeguards that the free movement of goods clause of the first sentence in the provision has no meaning for the application of the relevant provisions of the EPBD. However, it cannot be concluded from the second sentence that the first sentence should be interpreted strictly to mean that Member States' hands are tied with regard to other ecodesign requirements of their own. The EU Commission's decision on the German 1st BImSchV cited above makes it very clear that Article 6(1), first sentence of the Ecodesign Directive is indeed *not* to be interpreted and applied in such a strict sense (see above, 3.4.5).

With regard to the meaning of the exception clause of Article 6(1), second sentence of the Ecodesign Directive, the following should be added:

The clause refers to Articles 4 and 8 of the EPBD in its original version from 2010 (Directive 2010/31/EU). Article 4 EPBD obliges Member States to set minimum requirements for the energy performance of buildings, on the basis of their own national systems in accordance with Article 3 EPBD. Article 8 EPBD supplements that Member States shall set minimum requirements for technical building systems, the proper installation, and the appropriate dimensioning, adjustment and control of the technical building systems. Pursuant to Article 9 EPBD, which is linked to this, Member States must ensure, among other things, that by 31.12.2020 all new buildings are "nearly zero-energy buildings". According to Article 2(2) EPBD, this shall be understood to mean

> *"a building that has a very high energy performance, as determined in accordance with Annex I. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby."*

These high requirements for the energy performance of buildings and the requirement that a very substantial part of the remaining energy demand must come from renewable sources can in fact make it impossible to use fossil energy sources for heat generation. This gives Member States a great deal of leeway to restrict fossil energy sources in order to increase the "energy performance" of buildings and technical building systems. This is also supported by Article 1(3) of the EPBD. This reads as follows:

> *"The requirements laid down in this Directive are minimum requirements and shall not prevent any Member State from maintaining or introducing more stringent measures. Such measures shall be compatible with the Treaty on the Functioning of the European Union. They shall be notified to the Commission."*

Thus, the Member States can also set stricter requirements within the framework of the EPBD. This is consistent in terms of primary legislation, because the Directive was adopted on the basis of the environmental competence of the European Union, so that the principle of minimum harmonization of Article 193 TFEU applies in this respect. When implementing the requirements of the EPBD, the Member States therefore have a wide margin of manoeuvre in terms of adopting more stringent provisions (but not vice versa).

As mentioned above, the second sentence of Article 6(1) of the Ecodesign Directive was inserted with the adoption of the Energy Efficiency Directive 2012/27/EU. This explicitly states:

> *"This shall be without prejudice to the energy performance requirements and system requirements set by Member States in accordance with Article 4(1) and Article 8 of Directive 2010/31/EU."*

The background to inserting this exception is explained in recital 35a, newly inserted, of the Ecodesign Directive:

> *"Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings ([113]) requires Member States to set energy performance requirements for building elements that form part of the building envelope and system requirements in respect of the overall energy performance, the proper installation, and the appropriate dimensioning, adjustment and control of the technical building systems which are installed in existing buildings. It is consistent with the objectives of this Directive that these requirements may in certain circumstances limit the installation of energy-related products which comply with this Directive and its implementing measures, provided that such requirements do not constitute an unjustifiable market barrier."*

This means that irrespective of the interpretation of the free movement of goods clause from the first sentence of Article 6(1) of the Ecodesign Directive, the Member States are not prevented from introducing stricter ecodesign requirements when they set minimum requirements for the energy performance of buildings (Article 4(1) of the EPBD) and for technical building systems (Article 8 of the EPBD).

Beyond the (primarily) clarifying function of the second sentence of Article 6(1) of the Ecodesign Directive as explained above, the provision therefore also has a constitutive function in the direction of an expansion of the national regulatory leeway: it can be concluded from the provision that the Member States may, within the framework of the minimum requirements they set for the energy performance of buildings and for technical building systems, also set more stringent requirements for installations with regard to ecodesign parameters that are per se conclusively regulated in an ecodesign regulation. For example, it can be assumed that, in the context of the national provisions concerned, Member States are allowed to set higher requirements on the ecodesign parameter of seasonal space heating energy performance than those provided for as a minimum in Annex II to Ecodesign Regulation 813/2013.

3.5 Limiting effects of other legislation

3.5.1 Compatibility with Regulation (EU) 2016/426 on appliances burning gaseous fuels

Especially in the case that the national provision (also) covers the use of fossil gas, Regulation (EU) 2016/426[114] on appliances burning gaseous fuels must be observed in addition to the ecodesign provisions (see above, 3.3.4). This prohibits Member States from introducing national restrictions in accordance with an independent clause on the free movement of goods (Article 6(1)). According to this clause, Member States shall not "on grounds relating to the aspects covered by this Regulation,

[113] OJ L 153, 18.6.2010, p. 13.
[114] Regulation (EU) 2016/426 of the European Parliament and of the Council of 9 March 2016 on appliances burning gaseous fuels and repealing Directive 2009/142/EC (OJ L 81, 31.3.2016, p 99).

prohibit, restrict or impede the making available on the market and the putting into service of appliances which comply with this Regulation."

As mentioned above, the Gas Appliances Regulation 2016 replaced the former Gas Appliances Directive 2009/142/EC, whose free movement of goods clause was broader (see above, 3.4.5.2). According to the latter, Member States could not "prohibit, restrict or impede the placing on the market and the putting into service of appliances which comply with this Directive and which bear the CE marking provided for in Article 10".

The crucial difference between these two provisions is that the new clause is only directed at national restrictions provided for "on grounds relating to the aspects covered by this Regulation", whereas the former clause prohibited any national measure having restrictive effects under the given conditions. The current clause is thus similar in its regulatory approach to the free movement of goods clause of the Ecodesign Directive, which only applies to national restrictions that relate to ecodesign parameters that are explicitly the subject of implementing measures.

Therefore, the scope of the limiting effect of the Gas Appliances Regulation also depends on the question for which properties of the gas appliances - referred to here as "aspects", in the ecodesign area as "parameters" - the relevant EU legal acts contain specific provisions. Unlike in the area of the Ecodesign Directive, the Gas Appliances Regulation does not stipulate that the properties of the appliances be defined in "implementing measures" or delegated acts. Here, these are conclusively regulated in the Gas Appliances Regulation itself.

Article 7(1) of the Gas Appliances Regulation is decisive for the scope of the limiting effect, which obliges manufacturers of gas appliances as follows: "When placing their appliances or fittings on the market or when using the appliances for their own purposes, manufacturers shall ensure that they have been designed and manufactured in accordance with the essential requirements set out in Annex I." Annex I of the Regulation conclusively defines the "essential requirements" and thus indicates which "aspects" are relevant in this respect. The essential requirement described in point 1.1 of Annex I of the Gas Appliances Regulation stipulates:

> *“Appliances shall be so designed and constructed as to operate safely and present no danger to persons, domestic animals or property, when normally used.”*

The other provisions of Annex I regulate what manufacturers have to do to achieve this. The second preliminary observation of Annex I indicates what the requirements are aimed at:

> *“The essential requirements are to be interpreted and applied in such a way as to take into account the state of the art and current practice at the time of design and manufacture as well as technical and economic considerations which are consistent with a high degree of energy efficiency and of health and safety protection.”*

Consequently, it is clear that the requirements of the Gas Appliances Regulation are not aimed at climate protection targets. The "essential requirements" of Annex I of the Regulation do not include any provisions related to the greenhouse gas emissions of the fuels used. Consequently, climate protection intentions are not "grounds relating to the aspects covered by this Regulation" within the meaning of Article 6(1) of the Gas Appliances Regulation. As a consequence, the limiting effect of this special free movement of goods clause does not extend to provisions of the Member States that restrict the use of fossil gases for climate protection reasons, even if these indirectly impair the marketing conditions for gas appliances that comply with the Regulation.

3.5.2 Primary legislation: Free movement of goods (Article 34, 36 TFEU)

The ECJ has consistently held that the provisions of EU primary legislation on the free movement of goods (Article 34 TFEU) are not (or no longer) relevant if a matter relating to the free movement of goods has been harmonised in a final EU legal act.[115] If this is the case, Member States cannot invoke the grounds for exemption recognised for national restrictions of the free movement of goods.[116]

However, it is clear from the above considerations that the ecodesign legal acts relevant here contain final regulations only for those ecodesign parameters for which there are explicit provisions in the respective implementing regulations (= ecodesign regulations). Since Regulations 813/2013 and 814/2013 do not contain any explicit provisions on the fuels that can be used or - which would also be conceivable - on the permissible CO_2 emissions of the fuels or the respective installations, it must be assumed that there is no final harmonisation under secondary legislation in this respect. The same applies specifically to the gas sector with regard to the Gas Appliances Regulation just mentioned. This does not contain any final harmonising regulations either with regard to the fuels that can be used in the appliances in question.

As a consequence, national legislation which may have a negative impact on the marketing of products within the EU must be examined for its compatibility with the free movement of goods (Articles 34 to 36 TFEU).

Article 34 TFEU in principle prohibits Member States from introducing "quantitative restrictions on imports" or "measures having equivalent effect". The ECJ interprets the constituent elements of the provision very broadly. According to its case law, the prohibition extends to all national measures that are capable of hindering, directly or indirectly, actually or potentially, intra-Community trade (so-called Dassonville formula).[117] However, on the other hand, it recognises those indirect restrictions as compatible with the provision as are necessary to protect imperative requirements recognised by Community law which in individual cases take precedence over the requirements of the free movement of goods.[118] A "measure having equivalent effect" is then not present. The ECJ often makes use of this consideration when it comes to measures that are justified by environmental protection objectives recognised by Community law, there is no discrimination against companies from other EU countries and the internal market is not affected more than necessary.[119] The ECJ assumes this to be the case if no alternative measure of comparable effect is apparent that is less disruptive to the free movement of goods.[120] In particular, in cases where environmental protection

[115] The emphasis is on “final”. Cf. ECJ, Case C-473/98 (Kemikalieinspektionen), European Court Reports 2000 I-05681, paragraph 27 et seq.; cf. also Case C-5/94 (Hedley Lomas), European Court Reports 1996 I-02553, paragraph 18.

[116] ECJ, Case C-473/98 (Kemikalieinspektionen), European Court Reports 2000 I-05681, paragraph 25; Case C-5/94 (Hedley Lomas), European Court Reports 1996 I-02553, paragraph 18; Case C-432/03 (Commission of the European Communities v Portuguese Republic), paragraph 35.

[117] Constitutively ECJ, Case 8-74, European Court Reports 1974 -00837, paragraph 5 (Dassonville).

[118] Constitutively ECJ, Case 120/78, European Court reports 1979 Page 00649 (Cassis de Dijon).

[119] Cf. ECJ, Case C-155/91, European Court Reports 1993 I-00939 (Directive on waste); ECJ, Case 302/86, European Court Reports 1988 -04607 (Containers for beer and soft drinks).

[120] Cf. ECJ, Case C-155/91, European Court Reports 1993 I-00939 (Directive on waste); ECJ, Case 302/86, European Court Reports 1988 -04607 (Containers for beer and soft drinks).

objectives recognised in Community law are invoked, the ECJ has often granted Member States this route for impairing the free movement of goods.[121]

In view of the broad interpretation of the term "measures having equivalent effect" by the ECJ, an impairment of the free movement of goods must also be assumed for the measures at issue here to restrict the use of certain fossil fuels in heating systems. The decisive question is whether such measures are nevertheless sufficiently justified.

The justification here results from the climate protection goals pursued and the climate protection effects achievable through the measures respectively. The adoption of measures with this regulatory purpose can undoubtedly be assigned to "mandatory requirements recognised by Community law". This is supported in particular by the fact that the Effort Sharing Regulation (EU) No 2018/842 obliges the Member States to take effective measures with which defined ambitious reductions of CO_2 emissions can be achieved in the so-called non-ETS sectors - which include the sector of building heat - within relatively short periods of time.

Consequently, suitable legal grounds for exemption from the prohibition of impairment of the movement of goods exist in principle. The only question that could be raised is whether these measures would have an inadmissible discriminatory effect vis-à-vis companies from other Member States or whether they go further than necessary in their adverse effect on the internal market. The first criterion can be ruled out in any case, since the measures have the same effect on all companies from the EU in the marketing of heating systems and fuels that cannot be used or can only be used to a limited extent. The second criterion cannot in principle stand in the way of the national measures discussed here either. In this respect, it should be noted in particular that it is not only a question of whether "milder" measures come into consideration, but also whether these would be comparably effective. A measure that would be milder but would not have a comparably deep or broad effect therefore need not be preferred.[122]

The judgment of the ECJ on the introduction of the German mandatory deposit provisions on the basis of the Packaging Regulation of 1998 clearly show in which constellations a national regulation that is basically compatible with the free movement of goods can nevertheless fail on the criterion of not having the mildest impairing effect on the internal market. The ECJ declared the provisions in question to be incompatible with the criterion of necessity for two interesting reasons. Firstly, the ECJ criticised the fact that the producers and distributors concerned, with the defined period of six months, were not offered a sufficient transitional period to be able to adapt to the requirements of the new system before the entry into force of the deposit and return system - the measure would have been milder and no less effective with a more appropriate transitional period.[123] Secondly, Germany should have ensured by means of reliable legal provisions that at the time of the changeover of the system to a deposit management system for non-reusable bottles all producers and distributors concerned could actually participate in an operational system.[124] The latter was not the case because the Packaging Regulation lacked binding provisions on whether they had to take back all or only the types of bottles they sold themselves in return for a deposit.

[121] Cf. ECJ, Case C-155/91, European Court Reports 1993 I-00939 (Directive on waste); ECJ, Case 302/86, European Court Reports 1988 -04607 (Containers for beer and soft drinks).
[122] Cf. ECJ, Case 302/86, European Court Reports 1988 -04607 (Containers for beer and soft drinks).
[123] ECJ, Case C-463/01 (Commission/Germany), paragraph 79 et seq.
[124] ECJ, Case C-309/02 (Radlberger), paragraph 80 et seq.

As a result, a simplified conclusion can be drawn: In principle, it can be assumed that the national provisions discussed here on restricting the use of fossil fuels in heating systems are compatible with the requirements of the free movement of goods. Something else may apply if they are "unskilfully" designed, so that specific impairments for the movement of goods arise from the design - for example, through a very short entry into force period or through particularly complex or legally ambiguous implementation modalities.

3.6 Conclusion: Admissibility of national restrictions on fossil fuels in heating systems

The analysis concludes that neither Ecodesign Regulation 813/2013 for space heaters and combination heaters nor Ecodesign Regulation 814/2013 for water heaters and hot water storage tanks include any provisions on the fuels which can be used in such systems. As a consequence, these ecodesign regulations do not restrict Member States' scope of action to introduce national provisions restricting the usable fuels in such installations.

There is no violation of the free movement of goods clause from Article 6(1), second paragraph of the Ecodesign Directive since this has only a prohibitive effect on national measures

- which either relate to the same ecodesign parameters for which there are specific relevant provisions in an ecodesign regulation,
- or which relate to ecodesign paramenters for which the regulatory part of an ecodesign regulation expressly stipulates that they are not necessary.

Either fact does not apply here with regard to the admissibility of the fuels used.

Furthermore, it can therefore be concluded that Article 6(1) and (2) of the Ecodesign Directive does not preclude other national provisions in relation to heating systems either that set requirements with regard to ecodesign parameters other than those explicitly addressed in Ecodesign Regulations 813/2013 and 814/2013 (e.g. on the CO_2 emissions of the fuels used or of the heating systems concerned). The same applies to the national definition of monitoring requirements.

This understanding is clearly confirmed by the decision of the EU Commission to approve German provisions of the 1st BImSchV on requirements for solid fuel installations as deviations from Ecodesign Regulation 2015/1189.

In addition, the second sentence of Article 6(1) of the Ecodesign Directive provides possibilities for Member States to introduce provisions for the buildings sector. The sentence restricts the Ecodesign Directive's limiting effect when setting requirements for the energy performance of buildings and technical building systems in order to comply with the EPBD. This means that the provisions of the Member States - due to the special exception clause of Article 6(1) second sentence of the Ecodesign Directive - can also go further with regard to individual ecodesign parameters than the minimum requirements laid down for the installations concerned in an ecodesign regulation.

Specifically for national provisions that have a restrictive effect on the use of fossil gas, the Gas Appliances Regulation (EU) 2016/426 is relevant in addition to the Ecodesign Directive and its implementing regulations. This contains an independent free movement of goods clause (Article 6(1)). According to this clause, Member States "shall not, on grounds relating to the aspects covered by this Regulation, prohibit, restrict or impede the making available on the market and the putting into service of appliances which comply with this Regulation". However, the provisions of the regulation do not refer to aspects such as climate protection or - more specifically - the reduction of

greenhouse gases by the gas appliances in question. Consequently, the limiting effect of this clause does not extend to national provisions restricting the use of fossil gases for climate protection reasons either, even if this indirectly impairs the marketing conditions for gas appliances that comply with the regulation.

Furthermore, national measures that are not subject to full harmonisation by an EU directive or regulation must be compatible with the general provisions of the TFEU and thus in particular with the regime of the free movement of goods. The examination under primary legislation undertaken for this purpose has shown that there are in principle no objections to the prohibition or restriction provisions under consideration with regard to the free movement of goods, because the measures would be sufficiently justified with reference to climate action goals, they do not have a discriminatory effect and they do not impair the internal market more than is necessary to achieve the goals pursued.

4 Options for phasing out fossil fuels at EU level

At the EU level, the phase-out of fossil fuels for heating needs to be addressed consistently across all relevant legislations. The transition from fossil-based heating towards climate neutrality is subject to a variety of provisions in several legislations. The ongoing revisions of these legislative pieces need to be aligned to ensure a consistent framework for phasing-out fossil heating.

This section examines options to introduce provisions supporting the phase-out of fossil fuels for heating at EU-level. The analysis covers the Ecodesign implementing regulations (Section 4.1) the Energy EPBD (Section 4.2), the EED (Section 4.3) and the RED (Section 4.3). Section 4.5 compares the different options and provides recommendations.

4.1 Ecodesign implementing regulations

The ecodesign framework setting requirements on the efficiency of the heating equipment could potentially be used to phase-out fossil fuel heating by defining common efficiency requirements across all heating technologies[125]. The approach is discussed in this report using space and combination heaters as examples, but the same considerations apply to water heaters.

4.1.1 Background: Heat pumps and hybrid systems have higher efficiencies than oil/gas boilers

The efficiencies of heat pumps and hybrid heating systems are higher than the maximum efficiencies that can be reached in combustion boilers. Table 4-1 provides an overview of typical efficiency levels of different heating appliances and shows that oil and gas boilers are only part of the lower efficiency levels presented in the table.

Setting minimum efficiency requirements that exceed the maximum efficiency levels reached by fossil fuel boilers would therefore lead to a factual phase-out of these appliances. However, this would require that efficiency requirements are set across all heating technologies, in contrast to the current approach where efficiency levels are set for each technology separately (see Section 4.1.2).

Table 4-1: Energy efficiencies of typical heating appliances

Seasonal space heating energy efficiency ηs in %	**Examples of typical appliances** (+) good; (0) average; (-) bad
166 ≤ ηs < 205	air-source heat pump (+); brine/water source heat pump (+); micro-cogeneration (+)
143 ≤ ηs < 165	air-source heat pump (0); brine/water source heat pump (0); micro-cogeneration (0); Thermally Driven heat pump (+)
123 ≤ ηs < 142	air-source heat pump (-); brine/water source heat pump (-); Thermally Driven heat pump (0); hybrid air-source heat pump & condensing gas/oil boiler (+)

[125] This approach has been proposed in a recent report by ECOS: https://ecostandard.org/wp-content/uploads/2020/12/Five-Years-Left-How-ecodesign-and-energy-labelling-Coolproducts-report.pdf.

106 ≤ ηs < 122	Solar assist & condensing gas/oil boiler (0); hybrid air-source heat pump & condensing gas/oil boiler (0); micro-cogeneration (-); Thermally Driven heat pump (-);
87 ≤ ηs < 105	hybrid air-source heat pump & condensing gas/oil boiler (0); condensing gas/oil boiler (-,0,+); Solar assist & condensing gas/oil boiler (-)
ηs < 87	Non-condensing gas/oil boiler; electric resistance boiler

Source: VKH 2020.[126]

4.1.2 Status quo: Efficiency requirements are set separately for each technology

Both the current regulation (EU) No 813/2013 as well as the proposal for its revision[127] set separate efficiency requirements for different heating technologies (see Table 4-2). This approach follows the objective of removing low-efficiency appliances from the market *within* each type of heating equipment (e.g. fuel boilers, heat pumps), however it does not aim at removing inefficient appliances from the market *across* technologies. The latter would be needed in order to use the ecodesign requirements for phasing out fossil fuel boilers.

Table 4-2: Minimum efficiency requirements for space and combination heaters

Space heater type	Seasonal space heating energy efficiency	
	(EU) No 813/2013	Draft proposal
Fuel boiler	86 %	88 %
B1 Fuel boiler ≤ 10 kW & Fuel combi boiler ≤ 30 kW	75 %	77 %
Electric boiler	36 %	43 %
Cogeneration space heater	100 %	100 %
Electric heat pump, Medium Temperature	110 %	130 %
Thermally Driven heat pump, Medium Temperature	110 %	115 %
Electric heat pump, Low Temperature	125 %	155 %
Hybrid space heater, Medium Temperature	-	110 %

Source: Regulation (EU) 813/2013 and draft legal text for its revision.

[126] EU Commission (2020): Impact Assessment Assistance to the European Commission: Draft Interim Report on Central Hydronic Space HeatersWG 1/2/3. Available online at https://www.ecoboiler-review.eu/downloads/20201217_WG1-2-3_Space-Heaters_Interim_Report.pdf.

[127] EU Commission: Draft Ecodesign regulation space / combination heaters. Available online at http://www.energimyndigheten.se/globalassets/energieffektivisering_/jag-ar-saljare-eller-tillverkare/dokument/produkter-med-krav/pannor-och-varmepumpar/space-heaters_ed_sent_to_cf.pdf.

4.1.3 Proposal: Set efficiency requirements based on Labelling classes

By contrast to the efficiency requirements (Table 4-2), which are set separately for each heating technology, the labelling classes for heating classes are defined across all technologies both in the current regulation (EU) No 811/2013 as well as in the draft proposal for its revision (see Table 4-3).

By linking the ecodesign requirements setting minimum level of energy efficiency for heating equipment to the proposed labelling classes (e.g. removing class G from the market in Tier 1, class F in Tier 2 and class E in Tier 3), the ecodesign requirements could be used to gradually phase-out fossil fuel heating.

Table 4-3: Labelling classes in Regulation (EU) No 811/2013 and the proposal for its revision

Labelling class	Space heating energy efficiency (medium temperature) η_s in % (medium temperature)	
	Regulation (EU) No 811/2013	Draft proposal for revision[128]
A+++	$\eta \geq 150$	-
A++	$125 \leq \eta < 150$	-
A+	$98 \leq \eta < 125$	-
A	$90 \leq \eta < 98$	$\eta \geq 210$
B	$82 \leq \eta < 90$	$180 \leq \eta < 210$
C	$75 \leq \eta < 82$	$150 \leq \eta < 180$
D	$36 \leq \eta < 75$	$120 \leq \eta < 150$
E	$34 \leq \eta < 36$	$100 \leq \eta < 120$
F	$30 \leq \eta < 34$	$90 \leq \eta < 100$
G	$\eta < 30$	$\eta < 90$

Source: (EU) No 811/2013 and draft proposal for its revision.

In addition, the implementing regulation could add an explicit reference to the option of setting requirements towards phasing-out fossil heating at Member State level. For example, by clarifying that the requirements shall be without prejudice to the right of Member States to regulate the use of energy sources for heating Energy Performance of Buildings Directive (EPBD).

4.2 Energy Performance of Buildings Directive (EPBD)

The Energy Performance of Buildings Directive was adopted by the European Union in 2010 on the basis of Article 194(2) of the Treaty on the Functioning of the European Union and was revised in

[128] EU Commission: Draft. energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar device. Available online at http://www.energimyndigheten.se/globalassets/energieffektivisering_/jag-ar-saljare-eller-tillverkare/dokument/produkter-med-krav/pannor-och-varmepumpar/space-heaters_el_sent_to_cf.pdf.

2018. The aim of the directive is to promote the energy performance of buildings in the EU. The directive states explicitly that the requirements laid down are minimum requirements and shall not prevent any Member State from maintaining or introducing more stringent measures (Art. 1 (3) EPBD).

The EPBD includes a variety of provisions aiming at increasing the energy performance of buildings, including among others:

- The requirement for MS to establish a long-term renovation strategy including an overview of the status of the national building stock, the identification of cost-effective potentials for building renovation as well as the existing and planned policy instruments and strategies (Art. 2a EPBD).
- MS shall set minimum energy performance requirements for buildings and buildings elements and to ensure that new buildings and buildings undergoing major renovations meet the requirements (Art. 3-7).
- MS shall set requirements for technical building systems covering their overall energy performance, the proper installation, and the appropriate dimensioning (Art. 8). This includes technical building systems in existing buildings.
- MS shall ensure that all new buildings are nearly zero-energy buildings and shall draft plans to stimulate the transformation of buildings that are refurbished into nearly zero-energy buildings (Art. 9).

The EPBD is currently under revision with the aim of introducing provisions to support the objectives of the renovation wave communication[129], among others the target of at least doubling the annual energy renovation rate of buildings by 2030 and to foster deep retrofits. In this context, the renovation wave communication states that “the Commission will propose mandatory minimum energy performance standards as part of the revision of the Energy Performance of Buildings Directive (EPBD) by the end of 2021”.

The EPBD currently does not explicitly address the use of fuels in space and water heating equipment, however the provisions on the energy performance of buildings have an impact on the choice of heating systems.

The revision of the EPBD provides the opportunity to strengthen the requirements in order to promote the phase-out of fossil fuels in the buildings segments addressed by the directive:

- The Long Term Renovation Strategies could require to clearly outline the strategy to phase-out fossil fuels for heating in each Member State, including time lines and regulatory approaches.
- The performance requirements for buildings and building elements (Art. 3-7) could explicitly include the requirement for buildings to be heated with [80] % renewable energies by 2025, ensuring that all new buildings and buildings under major renovation are (nearly) fossil-free. Member States would need to implement this in national regulations, ensuring that the

[129] See EU Commission (2020): A Renovation Wave for Europe -greening our buildings, creating jobs, improving lives. Available online at https://eur-lex.europa.eu/resource.html?uri=cellar:0638aa1d-0f02-11eb-bc07-01aa75ed71a1.0003.02/DOC_1&format=PDF.

requirements are met for all buildings where it is technically possible and economically reasonable.

- For new buildings, the requirement for fossil-free buildings could be introduced into the concept of nearly zero-energy buildings.
- The requirement for setting requirements for technical building systems (Art. 8) could explicitly state that heating systems need to use at least [80] % renewable energies.

4.3 Renewable Energies Directive (RED)

Setting the legal framework for the development of renewable energy across all sectors in the EU, the renewable energies directive addresses the decarbonization of heating and cooling in several of its provisions:

- Heating and cooling is addressed indirectly by Art. 3, setting a binding overall Union target of 32 % for the share of energy from renewable sources in 2030[130]. To ensure that the binding overall EU target is collectively met, Member States shall set national contributions. With heating and cooling accounting for around half of the EU´s final energy demand, the decarbonization of heating and cooling is a key element for meeting the target. In the proposal for the revised RED in the context of the fit-for-55 package, the target is increased to 40 %[131].
- Heating and cooling is directly addressed by Art. 23, setting indicative targets for Member States to increase the share of renewable energy in heating and cooling by 1.1 percentage points as an annual average calculated for the periods 2021 to 2025 and 2026 to 2030[132]. The proposal for the recast of the RED[131] foresees to make this target binding. The current progress is far below the requested 1.1 percent in most EU Member States[133], such that increasing the speed of phasing out fossil fuels is a key element for reaching the target.
- The buildings sector is addressed directly in Art. 15 of the renewable energies directive. According to Art 15 (4), Member States shall introduce requirements for the use of a minimum share of energy from renewable sources in new buildings and in existing buildings that are subject to major renovation in their building regulations and codes or by other means.

The requirement to introduce minimum renewable shares in buildings according to Art. 15 (4) provides a direct link to national phase-out legislations by means of a use obligation (see Chapter 2). Strengthening the requirements of Art. 15 (4) thus provides an opportunity to support the phase-out of fossil fuels for heating at the EU level.

Drawing upon the recommendations derived in Section 2.4, we suggest the following approach for strengthening the provisions of Art. 15 (4):

[130] The target covers electricity, heating and cooling as well as the transport sector.

[131] Proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2018/2001 of the European Parliament and of the Council, Regulation (EU) 2018/1999 of the European Parliament and of the Council and Directive 98/70/EC of the European Parliament and of the Council as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0557.

[132] For Member States using waste heat the annual increase is of 1.3 percentage points.

[133] See e.g. Öko-Institut: Is the EU heating sector “fit for 55”?/ Ist der Wärmesektor „Fit for 55“? Available online at: https://blog.oeko.de/is-the-eu-heating-sector-fit-for-55-ist-der-waermesektor-der-eu-fit-for-55-eng-deu/

The requirement does currently not include a **quantitative target** for the share of renewable energies in buildings. To avoid lock-in effects when introducing use obligations with low shares of renewable energies, the following staged approach could be used:

- For new buildings, Member States shall introduce requirements of a 100 % share of renewable energies[134].
- For existing buildings subject to major renovation, Member States shall introduce requirements of an 80 % share of renewable energies.
- For existing buildings where the heating system is exchanged, Member States shall introduce requirements of an 80 % share of renewable energies.

For the use of **biogas, synthetic fuels and hydrogen** the option for meeting the requirements could be restricted to areas identified as priority areas for the use of gas in national zoning regulations.

4.4 Energy Efficiency Directive (EED)

The Energy Efficiency Directive 2012/27/EU includes, amongst others, requirements for Member States to expand cogeneration and district heating, to introduce energy efficiency obligation schemes (or alternative measures with equivalent effect), to renovate buildings owned and occupied by its central government and to improve national provisions on metering and billing.

The EED is currently under revision. The Commission's draft revised Directive[135] contains various proposals concerning the use of fossil fuel boilers:

- Energy savings as a result of policy instruments regarding the use of direct fossil fuel combustion in […] buildings […] shall not be accountable anymore towards the fulfilment of energy savings obligations as from 1 January 2024 (even if these policy induced measures lead to higher efficiency).
- The renovation requirement for governmental buildings shall be extended to buildings owned and occupied by all by public bodies (including public buildings at regional and local level). At the same time, the minimum renovation standard is to be raised. 3 % of the total floor area of heated and or cooled buildings owned by public bodies shall be retransformed each year into at least nearly zero-energy buildings in accordance with the EPBD.
- Member States shall encourage regional and local authorities to prepare local heating and cooling plans at least in municipalities having a total population higher than 50.000. Those plans should take into account the data provided in the comprehensive assessments carried out within the scope of the EED.

Although the EED is not the core directive for phasing out fossil fuel boilers, it could incorporate some important requirements that could support the phase-out.

[134] This would require a clear definition of the renewable share of heating provided by heat pumps. An option would be to align the approach to the calculation of the renewable energy shares using the approach defined in Annex VII of the Renewable Energy Directive, where the ambient energy transferred by heat pumps is considered renewable if the heat pumps meet the efficiency requirements determined by the seasonal performance factor. For hybrid systems, minimum requirements would need to be specified for , the share of energy provided by renewable energy.

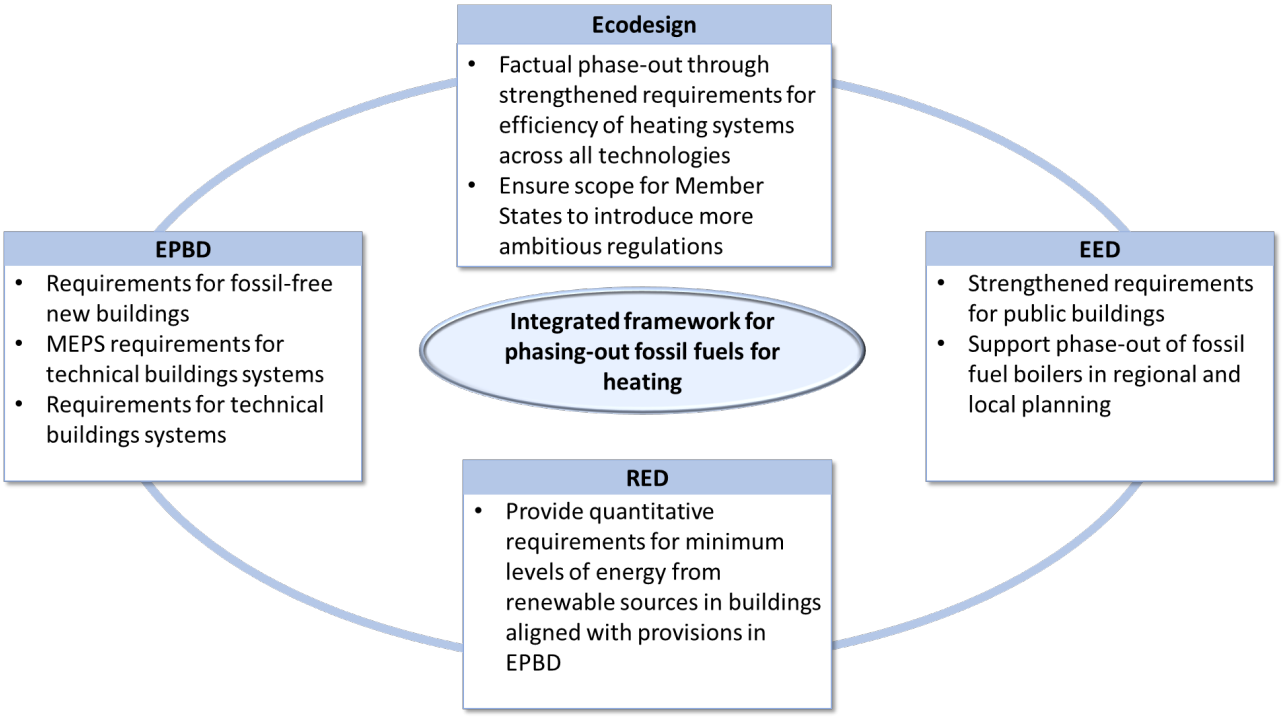
[135] See https://eur-lex.europa.eu/resource.html?uri=cellar:a214c850-e574-11eb-a1a5-01aa75ed71a1.0001.02/DOC_1&format=PDF.

- The Commission's proposal to exclude savings resulting from policy instruments that address efficiency measures for fossil fuel boilers (e.g. financial support programs to replace old oil or gas boilers in favor of condensing technology) from being accounted for under the energy savings obligations should definitely be supported.
- The renovation requirement for public buildings could be tightened to the effect that in the case of a major renovation or in the case of boiler replacement, a new fossil fuel boiler may no longer be installed; or a new fossil fuel boiler may only be installed if it is proven that the use of renewable heat or connection to district heating would lead to significantly higher overall costs over the lifetime of the heating system.
- The requirement to encourage regional and local authorities to prepare local heating and cooling plans could be significantly strengthened. Member States could be required to implement mandatory strategic heat planning for municipalities above a certain minimum size. It could be further specified that the heating and cooling plans must describe strategies and decarbonization roadmaps towards a climate-neutral heat supply (inclusion of a target definition). In this context, strategies for switching from fossil fuel boilers in favour of climate-neutral heat generation would also have to be developed. And legal options should be explored for integrating the heating and cooling plans into decision-making processes at the municipal level (e.g. regarding the further development of infrastructures at the municipal level such as gas and heating grids or in the form of regulations that specify, for specific properties, which types of heat supply or which energy sources for heating purposes are to be used, or are no longer allowed to be used, as of certain dates in new construction and whenever a heating system is to be replaced).

4.5 Comparison of options and conclusions

At the EU level, the phase-out of fossil fuels for heating needs to be addressed consistently across all relevant legislations. The transition from fossil-based heating towards climate neutrality is subject to a variety of provisions in several legislations. The ongoing revisions of these legislative pieces need to be aligned to ensure a consistent framework for phasing-out fossil heating. Figure 4-1 provides an overview of key legislations.

Figure 4-1: Overview of key legislations for an integrated framework for phasing-out fossil fuels for heating in buildings.



Source: Oeko-Institut.

The options for phasing out fossil fuels for heating discussed in Sections 4.1 - 4.3 allow for varying levels of flexibility to adapt the legislations to the local conditions of the Member States: Whereas the option of the ecodesign implementing regulations (see Section 4.1) would introduce homogeneous requirements across all EU Member States, the introduction of phase-out regulations in the EPBD, EED and RED can provide Member States with more flexibility to adapt the approaches to local conditions.

Member States differ largely with respect to their energy mixes for heating in buildings (see Figure 1-1) and they follow differing policy strategies for decarbonizing heating. Furthermore, the social and economic conditions as well as the exposure of households to the risk of energy poverty varies among Member States.

The instruction of homogeneous standards at EU level through the ecodesign framework would be a useful step to support phasing out fossil fuels, however it is necessary to allow for more ambitious phase-out regulations at Member State level. The homogeneous approach across the EU Member States faces the risk of not adequately taking into account the specific characteristics of Member States. As the rapid introduction of a full phase-out of fossil heating would cause a substantial burden for some Member States, the ambition of the legislation would likely be lowered to adapt to the needs of the most affected countries and regions. At the same time, the introduction of requirements within the ecodesign framework faces the risk of limiting the scope of action for Member States to introduce more ambitious requirements. In the context of the ongoing revision of the ecodesign implementing regulations addressing space and water heating, it is therefore recommended to specifically include the option for Member States to introduce phase-out regulations for fossil heating in the legislative

text. For example, by clarifying that the requirements shall be without prejudice to the right of Member States to regulate the use of energy sources for heating.

Independently of the outcome of the revision of the ecodesign implementing regulations for heating appliances, the phase-out of fossil fuel heating could be supported in provisions in the EPBD and RED. Such approaches leave room for Member States to define (and possibly limit) the scope of the regulations according to the national circumstances. For example, Member States may foresee exemptions from the requirements for buildings where a switch to renewables is not technically or economically feasible. However, the flexibility for Member States to adapt the scope of the regulation to the specific circumstances involves the risk that Member States use this freedom to set standards with low ambition. There is thus a trade-off between the scope and ambition of the legislation and the flexibility of Member States.

The introduction of phase-out legislations in the EED is limited to the sector of public buildings. While public buildings may play an exemplary role and support the market transition, due to the limited scope the EED can only play a complementary role for phasing out fossil fuels for heating.

The analysis concludes that an ambitious approach for phasing-out of fossil fuels for heating in the EU would benefit from introducing an integrated approach including provisions in several of the legislations that are currently under revision.

Annex I. National phase-out regulations – country factsheets

Denmark

Subject of the national regulation:

In Denmark, a ban on the installation of fossil oil and gas boilers in new buildings was implemented already in 2013 by updating the building regulation of 2010 (BR10).

The current Danish building regulation of 2018 (BR18) introduced a general principle that the heating of buildings must be based on renewable energies. However, there are several paragraphs specifying and modifying this principle. An important approach is the separation into different zones. New and existing buildings located in an area with the possibility to connect to the district heating (DH) grid can be heated by DH or by renewable sources. This factually represents a ban of fossil oil and gas boilers for new and existing buildings in DH zones. Another zone that allows deviation from the renewables principle is area with an established or (before 2013) officially approved (natural) gas grid. In this zone, buildings can still be heated by natural gas, but not by fossil oil. Outside the DH and gas zones, existing buildings do not fall under the renewables principle (BR18, §296) and can thus keep a fossil boiler if installed. Newly constructed buildings in these areas must be heated renewably.

Furthermore, in buildings with a fossil heating system that undergo renovation or alteration work, renewable energy must be integrated to the heating system "to the extent this is technically possible and financially viable" (BR18, § 298). [1]

Background:

The biggest share of Danish households, 64,5 % (2020) is connected to a district heating system, in the four largest cities it is more than 95 % [2]. About 63 % of district heating came from renewable sources in 2019 [3], still leaving a share of 37 % for non-renewables. Nevertheless, this share of renewable energy in DH is among the highest in the EU. In 2019, 17 % of residential space heating was based on natural gas and about 4 % on fossil oil (including district heating) [4] which corresponds to a rather low share compared to other EU Member States.

Denmark implemented a fossil heating ban comparably early with the ban on the installation of fossil oil and gas boilers in new buildings in 2013 [5].

Implementation dates and transition periods:

The first ban on installations of oil and gas boilers in new buildings was passed in 2013 by an amendment of the 2010 building regulation (BR10) [5]. Since 2018, the current building regulation (BR18) is active.

Exemptions:

Besides the exemptions from the principle to heat with renewable energies mentioned in the section 'Subject of national regulation', some building types are also excluded. According to BR18, the renovation of churches, listed buildings and buildings worthy of preservation do not require a change to a renewable heating system [1].

Legal foundation:

The heating of buildings is legally defined in the Building Regulation 2018 (BR18), chapter 11 [1]. The first implementation of a ban on fossil heating was introduced through an amendment of the 2010 building regulation (BR10) in 2013 [5].

Compatibility with EU law:

With regard to the initial installation ban on oil and gas boilers for new buildings in 2013, the EU Commission raised concerns specifically against the provisions relating to gas appliances from the point of view of an impairment of trade in gas appliances.[136] Specifically, the EU Commission doubted the compatibility with the former Directive 2009/142/EC on appliances burning gaseous fuels.[137] In its opinion, the EU Commission pointed out in particular that the wording of the Danish draft ("designed to burn natural gas or oil") entails the risk "that heating boilers which, after proper adjustments, can burn both fossil fuels and renewable energy fuels are caught by the term and as a consequence of that, are restricted on the Danish market

References:

[1] Bygningsreglementet 2018 (BR18). https://bygningsreglementet.dk/Tekniske-bestemmelser/11/Krav
[2] State of Green. *Think Denmark-white papers for green transition. District Energy (2020)* https://stateofgreen.com/en/uploads/2018/08/SoG_WhitePaper_DistrictEnergy_210x297_V22_WEB.pdf?time=1594885554
[3] Danish Energy Agency. *Energy in Denmark 2019.* https://ens.dk/sites/ens.dk/files/Statistik/energy_in_denmark_2019.pdf
[4] Eurostat: *Share of fuels in the final energy consumption in the residential sector for space heating, 2019*. Online data code: nrg_bal_c & Online data code: nrg_d_hhq
[5] Notification 2012/406/DK. https://ec.europa.eu/growth/tools-databases/tris/de/search/?trisaction=search.detail&year=2012&num=406

[136] Message 316, Communication from the Commission - TRIS/(2013) 01814 Directive 98/34/EC, Notification: 2013/0192/DK on the Danish draft "Order on amendment to Publication Notice of 2010 Building Regulations (BR 10)".

[137] Directive 2009/142/EC of the European Parliament and of the Council of 30 November 2009 relating to appliances burning gaseous fuels (OJ L 330, 16.12.2009, p. 10). Directive 2009/142/EC was substituted by Regulation (EU) 2016/426 on gas appliances in 2016.

Austria

Subject of the national regulation:

In Austria, the installation of central heating boilers running on liquid or solid fossil fuels is prohibited for newly constructed buildings [1]. This comprises residential, public as well as commercial buildings. Moreover, the current government program contains further plans for regulations concerning the phase-out of fossil oil and gas boilers. The installation of fossil oil boilers when changing the heating system is prohibited from 2021 on.

Other planned regulations include a replacement obligation for existing fossil oil boilers older than 25 years from 2025 on and a mandatory exchange of all fossil oil boilers by 2035 [2]. However, the two latter regulations still seem to face uncertainty regarding the legal implementation, as they will have to be transferred into federal law including possible changes. Concerning natural gas, an installation ban in newly constructed buildings from 2025 on is planned in the government program [2].

In addition to the national legislation, several regions have introduced restrictions for fossil heating.

All of the above named legislations also include coal for heating, however their relevance is negligible in the Austrian space heating sector.

Background:

Despite a constantly declining share, fossil fuel oil still accounted for about 18 % of space heating in Austria in 2019. 26,7 % of space heating is based on natural gas and about 0,4 % on coal products [3].

Federal states can implement or introduce regulations also concerning heating and have done so in the past. In Lower Austria, for example, a ban on fossil oil heating systems in new buildings has already been in effect since 2019 [4].

Implementation dates and transition periods:

The oil boiler installation prohibition act (*Ölkesseleinbauverbotsgesetz*), banning the installation in new buildings entered into force on January 1, 2020 [1]. The regulation prohibiting the installation in case of boiler exchange is planned for 2021. Legislation concerning the obligation for the exchange of old fossil oil boilers and the installation ban for gas boilers in new buildings are planned to come into force in 2025. By 2035, all fossil oil boilers will have to be exchanged [2].

Exemptions:

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Legal foundation:

Oil boiler installation prohibition act (*Ölkesseleinbauverbotsgesetz - ÖKEVG 2019*) [1].

Compatibility with EU law:

The oil boiler installation prohibition act was notified to the European Commission and approved without major objections.

References:

[1] Ölkesseleinbauverbotsgesetz (oil boiler installation prohibition act).
https://www.parlament.gv.at/PAKT/VHG/XXVI/A/A_00965/fname_760559.pdf
[2] Republik Österreich. *Aus Verantwortung für Österreich. Regierungsprogramm 2020-2024. (Government program 2020-2024)*
https://www.dieneuevolkspartei.at/Download/Regierungsprogramm_2020.pdf
[3] Eurostat: *Share of fuels in the final energy consumption in the residential sector for space heating, 2019*. Online data code: nrg_bal_c & Online data code: nrg_d_hhq
[4] Niederösterreich Bauordnung 2017 (Lower Austria Building regulation 2017).
https://www.ris.bka.gv.at/NormDokument.wxe?Abfrage=LrNO&Gesetzesnummer=20001079&FassungVom=2026-04-12&Artikel=&Paragraf=58&Anlage=&Uebergangsrecht

France

Subject of the national regulation:

A new Heating Regulation (RE2020) will replace the old one (RT2012) and is planned to enter into force in 2022. Among others, it will probably contain rules on carbon efficiency for new buildings with different thresholds for the CO_2 emissions depending on the type of building. For individual (single-family) residential dwellings, a maximum of 4 kg of CO_2/m^2/year will be allowed. This will factually exclude systems relying on fossil oil and fossil gas only. For collective housing, there will be a transition period. The threshold is first set to 14 kg of CO_2/m^2/year (by 2022), leaving the possibility to still install new heating systems fully relying on fossil gas (if the building is sufficiently efficient), until the new maximum value will be set to 6.5 kg of CO_2/m^2/year by 2025. The regulation thus stepwise and effectively, but indirectly bans heating by fossil sources in new buildings by implementing stringent carbon efficiency measures.

For collective buildings heated by an existing heating network, the carbon efficiency threshold will be lowered to 8 kg of CO_2/m^2/year for the period between 2025 and 2028 and finally to 6.5 kg of CO_2/m^2/year from 2028 on. [1]

Background (status of the heating sector of the respective Member State):

Residential space heating in France is still dependent on fossil fuels, in 2019, 36 % was covered by fossil gas, 13 % by fossil oil [2].

Most (73 %) heating networks already run below a threshold of 8 kg of CO_2/m^2/year [1].

The carbon efficiency measure is one of more points of the new heating regulation RE2020 aiming at making building construction and living more sustainable.

Implementation dates and transition periods:

See above

Exemptions:

Exceptions will be made for building permits submitted before 31 December 2023 if a development permit providing for a gas service has already been issued [1].

Legal foundation:

The carbon efficiency regulations will be part of the Heating Regulation RE2020 [1].

Compatibility with EU law:

So far, no problems with EU law compatibility could be observed. This might also be because the regulations enter into force in the future and have not been notified yet.

References:

[1] Ministère de la Transition Écologique (Ministry of Ecological Transition). *RE2020 Éco-construire pour le confort de tous.* 2021.
https://www.ecologie.gouv.fr/sites/default/files/2021.02.18_DP_RE2020_EcoConstruire_0.pdf

[2] Eurostat: *Share of fuels in the final energy consumption in the residential sector for space heating, 2019*. Online data code: nrg_bal_c & Online data code: nrg_d_hhq

Norway

Subject of the national regulation:

The use of mineral oil for heating of buildings is prohibited [1].

Background (status of the heating sector of the respective Member State):

Due to the wide availability of waterpower for electricity generation in Norway, electric heating constituted the main source of heating (64 %) in 2019. Other relevant sources are Renewables and Wastes (32 %) and derived heat (4 %) [2]. The share of mineral oil in the heating sector has been low. Before the ban on the use of oil was introduced in 2017, it was around 2 %, then subsequently declined to 0.32 % in 2019 [3]. The ban was introduced with the aim of reducing CO_2 emissions for reaching the climate targets.

Implementation dates and transition periods:

The ban has been in effect since 2020. The respective law entered into force in 2017 leaving a transition period of almost three years.

Exemptions:

The law provides some exemptions. District heating plants with thermal capacity above 1MW as well as small huts, holiday houses and lighthouses without connection to the electricity grid are excluded from the regulation. Furthermore, under 'special conditions' like securing energy supply exemptions can be granted [1].

Legal foundation:

"Regulation on the banning of the use of mineral oil for heating of buildings from 2020" [1].

Compatibility with EU law:

The regulation was notified to the EU Commission and accepted [4]. The Commission responded with an 'issue of comments' expressing some concerns about the compatibility of the regulation with EU law.

References:

[1] Regulation on the banning of the use of mineral oil for heating of buildings from 2020. https://www.eftasurv.int/cms/sites/default/files/documents/regulation-Regulation-on-the-banning-of-the-use-of-mineral-oil-for-heating-of-build....pdf

[2] (2) Eurostat: *Share of fuels in the final energy consumption in the residential sector for space heating, 2019*. Online data code: nrg_bal_c & Online data code: nrg_d_hhq

[3] (2) Eurostat: [2] Eurostat: *Share of fuels in the final energy consumption – households. (2021)* Online data code: [nrg_ind_fecf]

[4] Notification 2017/9009/N. https://ec.europa.eu/growth/tools-databases/tris/en/index.cfm/search/?trisaction=search.detail&year=2017&num=9009&mLang=DE

Belgium

Subject of the national regulation:

The Flemish region in Belgium introduced a ban on fuel oil boiler installation for new buildings and major energy renovations in residential and non-residential buildings from 2022 on. Moreover, concerning existing buildings, a heating boiler may only be replaced by a fuel oil boiler, if no connection to the fossil gas grid is possible [1]. The ban only applies for the Flemish region. The Brussels region plans to phase-out heating oil from 2025 on, for the whole of Belgium, basically only expanding the ban to Wallonia, where the share of oil boilers is highest [2], a ban is planned for 2035 [3].

Additionally, in the Flemish region, the gas distribution operator is not allowed to grant a connection to the fossil gas grid for newly built large building projects (i.e. more than 25 building units or an area of more than one hectare) for all projects that applied for an environmental permit after 1 January 2021. For applications from 2022 on, projects with 15 or more building units will count as large and will be included in the ban [4]. New large building projects therefore effectively have to rely on renewable energies for heating.

Background (status of the heating sector of the respective Member State):

The heating sector in Belgium is dominated by fossil fuels. Fossil gas provided 48 % of residential space heating in 2019, fossil oil accounted for 37 % [5], these are high shares compared to other EU countries. However, the main heating sources differ across the three Belgian regions Flemish region, Brussels region and Wallonia. Brussels and Flanders mostly rely on fossil gas, in the Walloon region fossil oil is the main heating source [2].

Implementation dates and transition periods:

The ban on installation of oil boilers in the Flemish region will be active as of 1 January 2022 [1].

The gas connection ban for large projects entered into force on 1 January 2021 [4].

Exemptions:

Concerning the gas connection ban for large projects, an exemption is granted if fossil gas is only used as additional heating in combination with a renewable energy system, that provides the major part (at least 85 %) of the heating capacity [4].

Legal foundation:

The installation ban is included in an amendment of the Energy Decree 2009 [1].

Compatibility with EU law:

The amendment of the Energy Decree was notified to the EU [1]. As of today, there do not seem to be problems concerning the compatibility with EU law.

References:

[1] Notification 2021/338/B. https://ec.europa.eu/growth/tools-databases/tris/en/search/?trisaction=search.detail&year=2021&num=338
[2] Jespers, Kaat; Dams, Yoko; Aernouts, Kristien; Simus, Pascal; Jaquemin, Frederic; Delaite, Laurent. (2012). Energy Consumption Survey for Belgian households. *EUROSTAT, VITO, ICEDD, and FPS Economy: Brussels, Belgium.*
[3] National Energy and Climate Plan 2021-2030. https://ec.europa.eu/energy/sites/ener/files/documents/be_final_necp_parta_en.pdf
[4] Energiesparen.be. (2021). https://www.energiesparen.be/bouwen-en-verbouwen/verwarming/duurzaam-verwarmen/stap-3-kies-voor-duurzame-verwarming/%E2%80%98vanaf-2021-geen-aardgasaansluitingen-meer-bij-nieuwe-grote-projecten%E2%80%99-wat-houdt-dat-concreet-in?language=nl
[5] Eurostat: *Share of fuels in the final energy consumption in the residential sector for space heating, 2019*. Online data code: nrg_bal_c & Online data code: nrg_d_hhq

Netherlands

Subject of the national regulation:

The Building Decree states that the gas installation of any person requesting a connection to the natural gas network shall be connected to the distribution network in the area specified in Article 12b(1f). New buildings are exempt from this provision [1].

Parallel, the Dutch Gas Act (Gaswet) contains the expiration of the obligation of network operators to connect new buildings to the gas network [2]. Together, this is de facto equivalent to a ban on gas boilers, as a gas connection can only be granted if the network operator is obliged to do so.

Local authorities also have the possibility to designate an area where the connection obligation is waived even though a gas network exists, if the area can be adequately supplied with renewable heat [2].

Background:

Heating of buildings heavily relies on natural gas [4]. Much of the gas used for heating was extracted from the big Groningen gas field or smaller gas fields in the surrounding area. Fossil gas production from the Groningen field faced a lot of critique, mainly because of the occurrence of earthquakes presumably caused by fossil gas extraction. As a consequence, the government planned a phase-out of the gas production within the next years [5]. The capacity of extracted gas has already been reduced significantly and was partly replaced by gas imports. In accordance with the lower extraction capacity, a shift away from fossil gas-based heating was initialized, also in order to meet climate targets. Therefore, a connection ban to the gas grid for new buildings was passed.

Implementation dates and transition periods:

The laws entered into force on 1 July 2018.

Exemptions:

Local authorities can designate areas where the connection of new buildings to the gas grid is required for compelling reasons of public interest [2].

Legal foundation:

The expiration of the connection obligation for system operators to connect new buildings to the gas grid is formulated in article 6, passage 10 (2) of the Building Decree (Bouwbesluit) [1] and article 10, passage 6 and 7 of the Gas Act (Gaswet) [2]. This factually corresponds to a connection ban for new buildings to the gas grid.

Compatibility with EU law:

As of today, there do not seem to be problems concerning the compatibility with EU law.

References:

[1] Bouwbesluit (Building Decree). 2012, amended 2018.

[2] Gaswet (Gas Act). 2000, amended 2018.

[3] Integrated National Energy and Climate Plan 2021-2030.

[4] Eurostat: *Share of fuels in the final energy consumption in the residential sector for space heating, 2019*. Online data code: nrg_bal_c & Online data code: nrg_d_hhq

[5] Government of the Netherlands, News. 29. März 2018. https://www.government.nl/latest/news/2018/03/29/dutch-cabinet-termination-of-natural-gas-extraction-in-groningen

Germany

Subject of the national regulation:

The Federal Buildings Energy Act [1] introduces restrictions for the installation of oil and coal heating systems. The regulation will apply to the installation of new oil and coal boilers in new and existing buildings starting in 2026. In addition, the Buildings Energy Act includes a (partial) use obligation for renewable energies in new buildings.

In addition to the national legislations, the regions of Baden-Württemberg and Hamburg have introduced use obligations for renewable energies in existing buildings.

Background (status of the heating sector of the respective Member State):

In Germany, heating in buildings is largely based on fossil fuels, with gas accounting for around 45 % of energy demand and oil for 26 %.

Implementation dates and transition periods:

The ban of oil boilers was first announced in the communication on the Climate Action Programme 2030 published in 2019. The ban was introduced into national law in the Buildings Energy Act in 2020. The restrictions apply from 2026.

Exemptions:

The regulation is restricted to oil/coal heating systems that do not partly integrate renewable energies. Hybrid systems (e.g. an oil boiler combined with a solar thermal installation) can thus still be installed.

Legal foundation:

The ban of oil and coal boilers is introduced in § 72 (4) of the Buildings Energy Act [1].

The use obligation for renewable energies in new buildings is specified in § 52 of the Buildings Energy Act [1].

Compatibility with EU law:

No notification to the EU

References:

[1] Federal Buildings Energy Act (Gebäudeenergiegesetz). https://www.bgbl.de/xaver/bgbl/start.xav?startbk=Bundesanzeiger_BGBl&bk=Bundesanzeiger_BGBl&start=//*[@attr_id=%27bgbl107s1519.pdf%27]#__bgbl__%2F%2F*%5B%40attr_id%3D%27bgbl120s1728.pdf%27%5D__1632470578371

[2] Use-obligation for renewables in existing buildings in Baden-Württemberg: EWärmeG https://um.baden-wuerttemberg.de/fileadmin/redaktion/m-um/intern/Dateien/Dokumente/5_Energie/Energieeffizienz/EWaermeG_BW/150317_Novelle_Erneuerbare_Waerme-Gesetz.pdf